MDIC Patient Centered Benefit-Risk Framework Report Public Release

May 13, 2015
Introductory Remarks from MDIC
Bill Murray, MDIC President and CEO
A 501(c)3 - Public-Private Partnership collaborating on Regulatory Science to make patient access to new medical device technologies faster, safer, and more cost-effective

- 48 Members
- 5 Projects
- White House-FDA roundtable on patient data donation
- Congressional testimony on modernizing clinical trials
- $500k funding from FDA for Patient-Centered Benefit Risk Methods Catalog Implementation Framework
- $643k funding from FDA for Quality Engagement Forum

MDIC Highlights

MDIC:
MEDICAL DEVICE INNOVATION CONSORTIUM

Align Resources

Accelerate Progress

Achieve Results

WORKING COOPERATIVELY to re-engineer pre-competitive technology innovation

REDUCING TIME and resources needed for new technology development, assessment, and review

HELPING PATIENTS Gain access to new medical technologies sooner

Align | Achieve | Accelerate
What is Regulatory Science?

The science of developing new tools, standards, and approaches to assess the safety, efficacy, quality, and performance of FDA-regulated products

• Benefits patients by speeding the rate of important technologies reaching market
• Reduces time and resources needed for device development, assessment, and review. For example:
  ➢ Can lead to quicker, more efficient device approvals
  ➢ Can decrease the size and duration of pre-market clinical trials

Faster, Safer, More Cost-effective
Patient-Centered Benefit-Risk Assessment in Medical Devices

- FDA CDRH 2012 guidance on factors to consider for benefit-risk assessment in devices
- Landmark policy statement: First regulatory guidance on benefit-risk worldwide
- Guidance does not describe how to integrate patient preferences into regulatory submissions
Why Did MDIC Embark on the PCBR Project?

• Benefit-risk assessment is a key component for regulatory review, but it traditionally has been based on the regulatory/physician perspective

• CDRH benefit-risk guidance suggests a much more critical role for the patient perspective

• Treatments are currently approved based on efficacy and safety for subgroups defined by demographic or medical properties

• Potential future where approval may include consideration of patient view of benefit-risk
Framework Report Available Today

• The Framework Report is available on our web site: www.mdic.org/PCBR
## Today’s Agenda

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory Remarks from MDIC</td>
<td>9:30 a.m.</td>
</tr>
<tr>
<td>Introductory Remarks from CDRH</td>
<td>9:40 a.m.</td>
</tr>
<tr>
<td>Overview of Framework</td>
<td>9:50 a.m.</td>
</tr>
<tr>
<td>Overview of Catalog</td>
<td>10:10 a.m.</td>
</tr>
<tr>
<td>Discussion of Framework and Catalog</td>
<td>10:25 a.m.</td>
</tr>
<tr>
<td>CDRH Perspectives on Patient Preferences</td>
<td>11:40 a.m.</td>
</tr>
<tr>
<td>Patient Group Perspectives</td>
<td>1:00 p.m.</td>
</tr>
<tr>
<td>Discussion on Patient Perspectives</td>
<td>1:10 p.m.</td>
</tr>
<tr>
<td>Future Applications of Patient Preferences</td>
<td>2:00 p.m.</td>
</tr>
<tr>
<td>Discussion on Future Applications of Patient Preferences</td>
<td>2:20 p.m.</td>
</tr>
<tr>
<td>Closing Remarks</td>
<td>3:00 p.m.</td>
</tr>
</tbody>
</table>
Introductory Remarks from CDRH
Dr. Jeff Shuren, Center Director, Center for Devices and Radiological Health
Our Vision...

Patients in the U.S. have access to high-quality, safe, and effective medical devices of public health importance first in the world.

- The U.S. is the world’s leader in regulatory science, medical device innovation and manufacturing, and radiation-emitting product safety.

- U.S. post-market surveillance quickly identifies poorly performing devices, accurately characterizes real-world performance, and facilitates device approval or clearance.

- Devices are legally marketed in the U.S. and remain safe, effective, and of high-quality.

- Consumers, patients, their caregivers, and providers have access to understandable science-based information about medical devices and use this information to make health care decisions.
Evolution of the Role of Patients

- Old School: Paternalistic provider-patient relationships
- Emerging Diseases: Patient advocacy for availability of and access to new treatments
- The Internet: Patient empowerment through information
- The Future Today: Patient preferences informing regulatory decisions
Where Can Patient Perspectives Inform the Medical Device TPLC?

- Patient-informed needs
- Patient-informed clinical trial design
- Patient preference benefit-risk information
- Communicating benefit-risk information to patients
Patient tolerance for risk and perspectives on benefit

*Risk tolerance will vary among patients, and this will affect individual patient decisions as to whether the risks are acceptable in exchange for a probable benefit. ... FDA realizes that some patients are willing to take on a very high risk to achieve a small benefit, whereas others are more risk averse. Therefore, FDA would consider evidence relating to patients’ perspective of what constitutes a meaningful benefit when if the device is effective, as some set of patients may value a benefit more than others.”*
The Food and Drug Administration Safety and Innovation Act (FDASIA) Section 1137 directs the agency to “develop and implement strategies to solicit the views of patients during the medical product development process and consider the perspectives of patients during regulatory discussions”
The goal of this initiative is to develop a systematic way of eliciting, measuring, and incorporating patient preference information where appropriate throughout the Total Product Life Cycle, to drive more patient-centric device development, evaluation and delivery.

CDRH seeks to:

1. Understand the barriers patients have faced in trying to participate in the regulatory process
2. Incorporate patient perspectives to inform benefit-risk decisions, e.g., as valid scientific evidence in regulatory contexts
3. Advance the state of the science of measuring patient preferences
Complementary Components

- CDRH-CBER Guidance: PPI in Benefit-Risk
- MDIC Methodology Catalog
- MDIC Framework: PPI in TPLC
- Obesity Case Study
- Device Patient Preference Initiative
High Benefit – Low Risk
Patient preference information less needed if significant benefit and limited risk

High Benefit – High Risk
Patient preference information helpful to identify a subset of patients willing to take the high risk for the significant benefit

Low Benefit – Low Risk
Patient preference info might be helpful to show that at least a subset of patients want the limited benefit

Low Benefit – High Risk
Product may only get approved if significant evidence that at least a subset of patients would take the risk for the benefit
Submission is voluntary

Does not change standard for approval

Outlines FDA thinking on how patient perspectives on device benefits and risks can be incorporated to inform FDA’s B-R determination

Patient preference information may be helpful in identifying a subpopulation that clearly consider benefits to outweigh risks
Objectives of Draft Guidance

- Define patient preference information (PPI)
- Encourage voluntary submission of PPI by sponsors or third parties
- Give guidance for collecting and submitting PPI
- Outline characteristics of robust methodologies which FDA will consider as criteria for valid scientific evidence
- Provide examples illustrating how FDA might consider PPI submitted in a regulatory application
In the context of B-R assessments, **qualitative** information may be useful in identifying which outcomes, endpoints or attributes matter most to patients and which other factors impact patients’ risk tolerance and perspective on benefit.

**Quantitative** information can provide estimates of how much different outcomes of features matter to patients and the tradeoffs that patients state they are willing to make among them.
Sample: obese subjects willing to lose weight

- Jointly developed by CDRH and RTI health solutions
- ~650 subjects with BMI ≥ 30 kg/m² (self-reported weight and height in the last 3 years)
- Administered via the Internet; coverage of non-internet households: free notebooks and internet services provided

Discrete-Choice Experiments

- Respondents evaluate choices between pairs of hypothetical weight-loss device treatments
- Each treatment is defined by its attributes and levels
- The resulting pattern of choices reveals the patients’ preferences
- Ex: Patients would be willing to tolerate 2 more months of mild side effects to achieve an additional weight loss of 25 lbs.
Decision Aid Tool Developed from Obesity Patient Preference Data

MAR and MAB CALCULATOR FOR WEIGHT-LOSS DEVICES

<table>
<thead>
<tr>
<th>Device outcomes and features</th>
<th>Enter device characteristics</th>
<th>Additional Input</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Body Weight loss (TBWL%)</strong></td>
<td>28.0%</td>
<td>Select the group of interest</td>
</tr>
<tr>
<td><strong>Side effect duration (months)</strong></td>
<td>6</td>
<td>Risk-neutral group</td>
</tr>
<tr>
<td><strong>Chance of side effects requiring hospitalization</strong></td>
<td>5%, surgery</td>
<td>Dropout</td>
</tr>
<tr>
<td><strong>Achieved weight loss (%)</strong></td>
<td></td>
<td>Enter base weight for the sample</td>
</tr>
<tr>
<td><strong>Recommeded diet restrictions</strong></td>
<td>Wait 4 hours between eating</td>
<td></td>
</tr>
<tr>
<td><strong>Expected duration of weight loss (months)</strong></td>
<td>60</td>
<td></td>
</tr>
<tr>
<td><strong>Comorbidities: Reduce treatment dose / chance</strong></td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td><strong>Type of operation</strong></td>
<td>Laparoscopic surgery</td>
<td></td>
</tr>
</tbody>
</table>

**Maximum Acceptable Risk for Selected Group**

0.10% (95% CI -0.58 to 0.77)

Note: MAR < 0 indicates utility of no device is greater than the utility of the indicated device. MAB < 0 indicates that any level of weight loss would be acceptable given the device characteristics.

Relative contributions of device attributes

To see full presentation about this tool: https://collaboration.fda.gov/p2zrdpfiogi/
CDRH is committed to integrating the patient voice into our regulatory decision-making.

CDRH encourages patient groups, industry, and others to interact with us early to discuss how patient preference information can be used for regulatory purposes.

Other ways to incorporate patient input:
- Improve communication of benefit-risk information to patients
- Incorporate patient input to inform clinical trial design
- Encourage PRO development and use (e.g., MDDT qualification)
Thank You
Overview: MDIC Framework for integrating patient perspectives into the regulatory process
Patient-Centered Benefit-Risk Assessment in Medical Devices

- Landmark regulatory guidance on benefit-risk determinations regarding medical devices
- Guidance discusses the value of patient’s perspective on benefit-risk
- Guidance does not describe how to collect or use information on patient preferences in the regulatory process
To establish a credible framework for assessing patient preferences regarding the probable benefits and risks of a proposed medical device and for incorporating this patient preference information into pre-market and post-market regulatory submissions and decisions.
MDIC PCBR Project Deliverables

Framework
- Framework for Patient Centered Benefit-Risk Assessment

Catalog
- Catalog of Patient Preference Assessment Methods

Future Work
- Agenda for Future Research in Patient Preferences
PCBR Project Steering Committee

- Robert Becker, MD, PhD, CDRH
- Randall Brockman, MD, FDA, CDRH
- Stephanie Christopher, MDIC
- Jessica Foley, PhD, Focused Ultrasound Foundation
- Jim Gardner, MD, MBA, Cook Group, Inc.
- Andrew J. Greenfield, MBA, AbioMed
- Arieh Halpern, Simulia
- Martin Ho, MSc, FDA, CDRH
- Telba Irony, PhD, FDA, CDRH
- Ross Jaffee, MD, Versant Ventures/NVCA
- Alethia Karkanis, WL Gore
- Richard Kuntz, MD, MSc, Medtronic
- Jack Lasersohn, JD, The Vertical Group/NVCA
- Bennett Levitan, MD, PhD, J&J
- Barry Liden, JD, Edwards Lifesciences
- Bryan Luce, PhD, MBA, PCORI
- Kim McCleary, FasterCures

• Mimi Nguyen, FDA, CDRH
• Kathryn O’Callaghan, FDA, CDRH
• Bryan Olin, PhD, Cyberonics
• Anindita Saha, FDA, CDRH
• Diana Salditt, Medtronic
• Peter Saltonstall, National Organization for Rare Disorders (NORD)

Committee Advisors

- Marc Boutin, JD, National Health Council
- Scott Braithwaite, MD, MS, NYU
- Brett Hauber, PhD, RTI Health Solutions
- Bray Patrick-Lake, MFS, CTTI
- Kelly Slone, NVCA
- Sean Tunis, MD, MSc, CMTP
PCBR Project Working Groups

Framework Working Group
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- Martin Ho, MSc, FDA, CDRH
- Frank Hurst, MD, CDRH
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Catalog Working Group
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- Brett Hauber, PhD, Principal Investigator
- Juan Marcos González, PhD, Senior Economist
- Angely Fairchild, Research Economist
- Margaret Mathes, Medical Editor
- Kimberly Moon, Project Manager

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- Martin Ho, MSc, FDA, CDRH
- Telba Irony, PhD, FDA, CDRH
- Bennett Levitan, MD, PhD, J&J
- Bryan Luce, PhD, MBA, PCORI
- Bray Patrick-Lake, MFS, CTTI
PCBR Framework Report

• “A Framework for Incorporating Information on Patient Preferences Regarding Benefit and Risk into Regulatory Assessments of New Medical Technology”
  − Overarching report of MDIC Patient Centered Benefit-Risk Project
  − Resource for CDRH, MDIC members, and industry on when and how to collect patient preference information for incorporation into the regulatory process
  − Incorporates Catalog of Methods as appendix
PCBR Framework Report
Use and Limitations

• PCBR Framework Report is:
  – an initial thought piece in an emerging area of regulatory science
  – intended to help advance the field of assessing patient preferences
  – to be updated as FDA, industry, patient groups, academics and others gain experience with collecting and using patient preference information

• PCBR Framework Report limitations:
  – it does not represent the opinion or policy of FDA
  – it does not include any specific recommendations to the FDA regarding how to collect or use patient preference information in regulatory approval decisions.
  – it is not a substitute for FDA guidance documents or for direct discussions with CDRH staff regarding regulatory submissions
  – it is not intended to be a prescriptive, “how-to” guide nor the definitive document about incorporating patient preference information into the regulatory process
Collecting and using patient preference information can help ensure that the CDRH benefit-risk determination process is patient-centric

• Patient preference information can help
  – identify benefits and harms most important to patients,
  – frame the benefit-risk issues and tradeoffs from the patient perspective,
  – identify whether there are subgroups of patients that would choose to use the technology over other alternatives, and
  – support quantitative benefit-risk modeling.
Patient preference information is not currently a requirement for FDA PMA or de novo approval.

• Such information can be viewed as a means of enhancing regulatory submissions to help assure that benefit-risk determinations are patient-centric

• Patient preference information can be included at the option of the sponsor, perhaps based on a suggestion or request from FDA staff.
Patient preference information does not and is not intended to replace other clinical and safety evidence.

- Patient preference information can be a supplement to clinical and safety data and provide additional data for consideration, but does not eliminate the need for clinical and safety data.
The timing for collection of patient preference information is at the discretion of the sponsor, though may benefit from early conversations with FDA.

- Patient preference information can be assessed when the sponsor believes there is a sufficient understanding of the particular benefits and risks expected with the treatment to identify if patient preference information might be valuable in the development or regulatory process.
## Framework Report Outline

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
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<tbody>
<tr>
<td>I. Introduction</td>
<td>Background on why the project was undertaken and the report’s purpose and scope</td>
</tr>
<tr>
<td>II. Definitions and Background Concepts</td>
<td>Define patient preferences, methods, and the concept of preference sensitive decisions in patient care</td>
</tr>
<tr>
<td>III. Evaluating the Potential Value of Patient Preference Information</td>
<td>Outlines factors to consider in deciding whether to collect patient preference information as input into the benefit-risk assessment of a particular technology</td>
</tr>
<tr>
<td>IV. Potential Use and Value of Preference Information in the Product Lifecycle</td>
<td>Discusses how patient preference information can be collected and used in each phase of the product lifecycle</td>
</tr>
<tr>
<td>V. Factors to Consider in Undertaking a Patient Preference Study</td>
<td>Description and summary of methods catalog as well as discussion of factors to consider in designing a patient preference study.</td>
</tr>
<tr>
<td>VI. Considerations in using Preference Information in the Regulatory Process</td>
<td>Discusses how patient preference information may be useful in the regulatory process</td>
</tr>
<tr>
<td>VII. Potential Value of Patient Preference Information Beyond the Regulatory Process</td>
<td>Discusses the potential value of patient preference information in reimbursement, marketing, and shared decision making</td>
</tr>
<tr>
<td>VIII. Future Work in the Collection and Use of Patient Preference Information</td>
<td>Outlines opportunities for additional work to improve the ability to collect and incorporate patient preferences into regulatory decisions</td>
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<table>
<thead>
<tr>
<th>Appendix A</th>
<th>Catalog of Methods</th>
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<tbody>
<tr>
<td>Appendix B</td>
<td>Glossary of Terms</td>
</tr>
</tbody>
</table>
Section I: Introduction to the MDIC Patient-Centered Benefit-Risk (PCBR) Project

- Describes Medical Device Innovation Consortium (MDIC)
- Discusses the origins of the MDIC PCBR Project based on the CDRH Benefit-Risk Guidance.
- Discusses the PCBR Project vision and process
- Discussed the limitations of the report
- Outlines the remainder of the report
Section II: Patient-Centered Benefit Risk Assessment: Definitions and Background Concepts

- Defines critical terms and background concepts for PCBR Framework
  - Particularly important for terms that are used both in a technical manner and in conventional speech.
- Terms defined and concepts discussed in this section:
  - Patient preferences
  - Preference vs. judgment
  - Risk tolerance
  - Risk attitude
  - Preference sensitive decisions
Section III: Evaluating the Potential Value of Patient Preference Information in Regulatory Benefit-Risk Assessments of Medical Technology

• Addresses important question:
  “In what situations would patient preference information be useful in regulatory decision making?”

• Intended to help sponsors and FDA staff think about whether patient preference information would be useful for a particular technology
  − Not a “cookbook” or algorithmic approach
  − Defined factors that characterize situations where patient preference information could be useful
    • Factors related to the perspective of patients as stakeholders
    • Factors related to the benefit-risk tradeoffs inherent in a specific technology
    • Factors related to regulatory novelty
The value of patient preference information as a function of benefit and risk

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Risk</th>
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<tbody>
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<td>High Benefit/Low Risk</td>
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Section IV: Potential Use and Value of Patient Preference Information in the Product Lifecycle

• Highlights three major uses of patient preference info
  – framing benefit risk issues
  – identifying groups of patients that would prefer the use of a particular technology
  – providing information on patient benefit-risk tradeoffs needed to build a quantitative benefit-risk model.

• Identifies opportunities to collect patient preference information at each stage of devices product lifecycle
  – Emphasizes value of collecting and using preference information at each step in the product development, clinical, regulatory, and post-market processes
Patient Preferences across the Device Product Lifecycle

Incorporating Patient Preferences into the Medical Device Total Product Lifecycle

Source: FDA Center for Devices and Radiological Health (CDRH)
Section V: Factors to Consider in Undertaking a Patient Preference Study

• Summarizes the Catalog of Methods
  – Catalog development process
  – criteria used to evaluate methods
  – Summary of methods

• Outlines three sets of factors to consider in designing a study for assessing patient preferences in a particular situation
  – factors related to defining the research question;
  – factors related to the fit of particular methods to the research question
  – factors related to the resources available to undertake a patient preference study

• Discusses how to use these factors to help select among the methods available and design a patient preference study
Section VI: Considerations in Using Preference Information in the Regulatory

- Topics on the requirements, timing, submission, and use of patient preference information in approval process
- Key questions addressed:
  - What roles can patient preference information play in informing CDRH benefit-risk determinations?
  - Should patient preference information be included in product approval labeling?
  - Should patient preference information be included in post-market study requirements?
  - Should patient preference information be optional at the election of the sponsor?
  - How should patient preference information submitted as part of an approval process be validated and audited?
  - What is the right time in the product development cycle to determine if patient preference information should be collected?
  - How can patient preference information be collected and used to better understand important benefit-risk issues in new or evolving areas of medical technologies, and thereby help frame clinical requirements in such areas?
Section VII: Potential Value of Patient Preference Information Beyond the Regulatory Process

• Offers a high-level discussion of other uses of patient preference information
  – Reimbursement coverage decisions
  – Marketing
  – Shared medical decision making

• Section relatively brief given focus of framework report on the regulatory process
  – PCBR Steering Committee thought it important to highlight other potential uses of patient preference information, but . . . . .
  – Detailed discussion of other uses of patient preference information is beyond the regulatory focus of this report
Section VIII: Future Work in the Collection and Use of Patient Preference Information

- Discusses areas for future work that would improve the ability of FDA, industry, and others to collect and use patient preference information in the regulatory process
- Summarizes a “gap analysis” performed as part of the development of the Catalog of Methods
- Highlights several additional areas for future work identified during the course of the MDIC PCBR Project
Overview: Catalog of Methods for Assessing Patient Preferences for Benefits and Harms of Medical Technologies
Catalog Working Group

Formed from the PCBR Steering Committee members and outside experts in preference assessment methodologies

RTI Health Solutions staff
- Brett Hauber, PhD, Principal Investigator
- Juan Marcos González, PhD, Senior Economist
- Angelyn Fairchild, Research Economist
- Margaret Mathes, Medical Editor
- Kimberly Moon, Project Manager

Academic experts and consultants
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Catalog of Methods

• Objectives
  – To identify and provide an overview of a range of available patient-preference methods
  – To be a resource for researchers, industry sponsors, and FDA staff to consult when considering which patient-preference methods could be used when such data would be helpful in supporting development, regulatory, and postmarketing decisions related to medical technologies
  – To be a useful resource for sponsors, FDA staff, and other researchers considering the use of patient-preference methods in benefit-risk assessments of pharmaceuticals, biologics, and other health care products and services
Catalog Use and Limitations

• Catalog is:
  – An introduction to a number of potential patient-preference methods
  – A starting point for understanding approaches to patient-preference studies

• Catalog limitations:
  – It is not a systematic review of methods
  – It is not the definitive guide to determining which patient-preference method should be used in each situation
  – It is not a primer on how to implement each method
Before determining the set of methods to include in the Catalog, the Working Group developed a working definition of patient-preference methods:

*Patient preference methods are methods for collecting and analyzing data that allow quantitative assessments of the relative desirability or acceptability to patients of attributes that differ among alternative medical treatment approaches.*
Guiding Principles for Identifying Methods

The Working Group identified the following set of principles (not criteria) that could be used to guide the selection of methods for inclusion in the Catalog:

The method should:

- Provide information on the relative importance of or tradeoffs among attributes
- Have been published in peer-reviewed literature
- Have been applied to health interventions previously
- Be able to be applied to eliciting patient preferences even if the method is typically applied to elicit preferences or views of stakeholders other than patients

The final set of methods determined by consensus of the Working Group
# Methods Included in the Catalog

<table>
<thead>
<tr>
<th>Group</th>
<th>Method</th>
</tr>
</thead>
</table>
| Structured-weighting | • Simple direct weighting  
                       | • Ranking exercises  
                       | • Swing weighting  
                       | • Point allocation  
                       | • Analytic hierarchy process  
                       | • Outranking methods       |
| Health-state utility | • Time tradeoff  
                       | • Standard gamble                                                   |
| Stated-preference    | • Direct-assessment questions  
                       | • Threshold technique  
                       | • Conjoint analysis and discrete-choice experiments  
                       | • Best-worst scaling exercises                                    |
| Revealed-preference  | • Patient-preference trials  
                       | • Direct questions in clinical trials                              |

- Grouping scheme meant only to facilitate discussion of methods
  - Not intended to preclude other grouping schemes
  - Some methods could be assigned to multiple groups
Methods Excluded From the Catalog

• Qualitative methods
  – Often important in benefit-risk assessment, but alone may not provide level of information needed to inform regulatory benefit-risk assessment

• Patient-reported outcome (PRO) methods
  – Intended to measure health gains or losses that can only be assessed through direct reporting by a patient, not preferences

• Multicriteria decision methods
  – Intended to lead to or predict a decision
  – Preference elicitation is only one component of these methods
Review of Methods

• Description of each category and method
  – Includes reference to empirical examples in published literature where available

• Review of each method
  – Organized around a set of questions to consider
  • Methodology-related questions
  • Sample-related questions
  • Analysis-related questions
  • Output-related questions
  – Brief discussion of how each method could be applied to answer the research question in the CDRH weight-loss study

## Questions to Consider

**Methodology-Related Questions**

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How are the data acquired?</td>
</tr>
<tr>
<td>Are hypothetical scenarios required?</td>
</tr>
<tr>
<td>How are attributes and attribute levels determined and defined?</td>
</tr>
<tr>
<td>Is the method experimental?</td>
</tr>
</tbody>
</table>
# Questions to Consider

## Methodology-Related Questions

- How are the data acquired?
- Are hypothetical scenarios required?
- How are attributes and attribute levels determined and defined?
- Is the method experimental?

## Sample-Related Questions

- What is the minimum sample size required?
- What is the maximum sample size that can be reasonably achieved?
- What is the time commitment required of patients?
- What are the cognitive and knowledge requirements of patients?
## Questions to Consider

<table>
<thead>
<tr>
<th><strong>Methodology-Related Questions</strong></th>
<th><strong>Analysis-Related Questions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>How are the data acquired?</td>
<td>Does the method require statistical analysis?</td>
</tr>
<tr>
<td>Are hypothetical scenarios required?</td>
<td>Does the method require specialized software?</td>
</tr>
<tr>
<td>How are attributes and attribute levels determined and defined?</td>
<td>Can the results be described and interpreted easily?</td>
</tr>
<tr>
<td>Is the method experimental?</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Sample-Related Questions</strong></th>
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</table>
## Questions to Consider

### Methodology-Related Questions
- How are the data acquired?
- Are hypothetical scenarios required?
- How are attributes and attribute levels determined and defined?
- Is the method experimental?

### Analysis-Related Questions
- Does the method require statistical analysis?
- Does the method require specialized software?
- Can the results be described and interpreted easily?

### Sample-Related Questions
- What is the minimum sample size required?
- What is the maximum sample size that can be reasonably achieved?
- What is the time commitment required of patients?
- What are the cognitive and knowledge requirements of patients?

### Output-Related Questions
- Can the method be used to identify attributes that are important to patients?
- Can the method be used to estimate weights for attributes?
- Can the method be used to estimate the tradeoffs that patients are willing to make among attributes?
- Can the method be used to detect, describe, or quantify heterogeneity in preferences across patients and across time?
Discussion of General Considerations

• Some aspects of conducting a patient-preference study relate to study implementation rather than to an individual method
  − Research question and study objective
  − Representativeness and generalizability
  − Heterogeneity of preferences
  − Validity
  − Resource requirements
Examples of Prior Use of Methods

• Intended to provide an additional resource for users
  • Summarizes examples of existing empirical studies
  • Not a comprehensive or systematic review of methods

• Acknowledges, but does not repeat, some previous reviews of methods
  • Hauber et al., 2013
  • Hughes et al., 2013
  • Mt-Isa et al., 2012


Unanswered Questions

• Questions were raised by reviewers throughout development of the Catalog for which no clear answers exist
  - Questions can be categorized as those related to:
    • Choice of method
    • Choice of sample
    • Study development
    • Study validity

• The Working Group reviewed these questions and provided suggestions for future research designed to answer them
Suggestions for Future Research

- Use multiple patient-preference methods to address the same research question
- Conduct the same study with different samples with different characteristics
- Conduct the same study with patients with and without prior experience
- Conduct a study before and after a medical technology is available
- Conduct a study in which patients are randomized to two different (but overlapping) sets of attributes
- Review validity standards in other types of studies (e.g., clinical or PRO)
- Review existing patient-preference studies in which consistency of responses was measured
Framework Section Overviews
Overview of Framework section II: Definitions and Background Concepts

Bennett Levitan, MD-PhD
Janssen Research & Development
Key Ideas

• What are Preferences?

• What makes a decision depend on preferences?

• Putting it all together
What are “Preferences”?

Qualitative or quantitative statements of the relative desirability or acceptability of attributes that differ among alternative health interventions.
What are “Preferences”?

Qualitative or quantitative statements of the relative desirability or acceptability of attributes that differ among alternative health interventions.

Preference information can be characterized by a wide range of languages, ranging from simple statements to complex probabilistic measures.

Both qualitative and quantitative preference measures have important roles, but qualitative information may not sufficient to conduct a formal, defensible benefit-risk assessment.
What are “Preferences”? 

Qualitative or quantitative statements of the relative desirability or acceptability of attributes that differ among alternative health interventions.

Preference does not have a natural scale. Preferences are characterized in a relative manner by comparing one feature to others.
What are “Preferences”? 

Qualitative or quantitative statements of the relative desirability or acceptability of attributes that differ among alternative health interventions

Desirability indicates preference for positive outcomes or features (benefits)

Acceptability indicates aversion to negative outcomes or features (harms)
What are “Preferences”?  

Qualitative or quantitative statements of the relative desirability or acceptability of attributes that differ among alternative health interventions.

Benefit-risk inherently compares alternative health interventions.

Definition applies equally well to preferences of caregivers, physicians, payers and regulators.
Key Ideas

• What are Preferences?

• What makes a decision depend on preferences?

• Putting it all together
Which Treatment is Best?

Device C is superior on both benefit and risk.

Preference information is not needed to determine the best treatment.

Reduction in days hospitalized (benefit)

Probability of infection (risk)

Ideal
Now Which Treatment is Best?

Preference information is needed to choose between devices A and Cs.
How Do Preferences Help Us Choose?

- Is the increase in risk too much?
- Preference studies give the maximum additional risk that patients would accept for this increase in benefit

\[
\Delta \text{Risk} \quad \Delta \text{Benefit}
\]

Compare \(\Delta \text{Risk}\) to maximum acceptable additional risk
So … What Makes a Decision Depend on Preferences?

• Having no clearly superior option, and/or
• Having considerable uncertainty in the evidence

• These are “Preference sensitive decisions”

• Regulatory decisions that are preference sensitive may benefit from patient preference information
Key Ideas

• What are Preferences?

• What makes a decision depend on preferences?

• Putting it all together
An Application of Patient Preferences in Benefit-Risk Assessment

• FDA CDRH guidance touches upon how patients will vary in their risk tolerance and valuing of benefits

• How might this manifest in treatment decisions?

• Consider a thought experiment
  – Not meant to imply an algorithmic approach
Simple Device Approval Scenario

- Target population well specified
- Probabilities of benefits and harms are known and uniform for the population
- Preferences are measured with a trusted method
- Preferences vary throughout the population
- Assume we can calculate an “integrated benefit-risk measure"
  - Merges the probabilities of benefits and harms, patient preferences, and other related data into a single, unified metric
  - Considering as a conceptual measure, not a formal calculation
An “Easy” Case

- The only difference between the patients is in their preferences
- Approval would provide this 80% the opportunity to choose to use the treatment

Integration B-R measure

% population for which treatment is labeled
Population sorted in order of increasing integrated B-R measure

- Benefits exceed risks for 80% of the population
- Benefit > Risk
- Benefit < Risk

R > B
A Challenging Case:

- Risks exceed benefits for 90% of the population

- A decision based on clinical data alone might rule against the device
- A decision incorporating patient preferences has the potential to provide the 10% of patients the opportunity to choose to use the device

Population sorted in order of increasing integrated B-R measure

% population for which treatment is labeled

• Benefit > Risk
• Benefit < Risk

Integrated B-R measure

0% 25% 50% 75% 90% 100%
Can This Be Done?

... Let’s continue the discussion …
Section III: Evaluating the Potential Value of Patient Preference Information in Regulatory Benefit-Risk Assessments of Medical Technology
What is the purpose of Section III?

• Provide insight on identification of situations where collection and submission of patient preference information could advance regulatory decision making

• Identify examples of situations where patient preference information would not be valuable in benefit-risk determinations
How did we address the challenges associated with developing this section?

• Variety of devices and clinical indications
  − Developed a factors-based approach for evaluating the potential value of patient preference information

• Limited experience in collecting and utilizing patient preference information in regulatory submissions for devices
  − Multi-stakeholder, collaborative approach to developing and editing this section
  − Consideration of experience with devices and other medical products
  − Inclusion of “preference sensitivity” as one of the key concepts in assessing the value of patient preference information
What does Section III contain?

• Factors related to the perspective of patients as stakeholders
  – Examples: patient preference or risk tolerance different from other stakeholders; heterogeneity in patient preference

• Factors related to benefit-risk tradeoffs inherent in the use of a particular technology
  – Examples: marginal benefit-risk scenarios
What does Section III contain?

• Factors related to regulatory novelty
  – Example: familiarity with the use of a particular technology

• Situations where patient preference information is less likely to be valuable
  – Examples: patient is not the major decision maker; significant regulatory knowledge and precedent exist for a clinical area or technology; benefit-risk assessment is straightforward
What are the key takeaways from Section III?

- Consideration of a core set of factors can aid in decisions regarding the value of patient preference information.
- Patient preference information is likely to be more important when more factors apply to the technology or clinical indication.
- The need for patient preference information may change during the product lifecycle.
What are the key takeaways from Section III?

• Benefits and risks are the main focus of the three categories of factors but preferences regarding other device attributes are also important in benefit-risk assessment.

• The statutory and regulatory evidence standards for device approval do not change when patient preference information is included in regulatory submissions.
Section V: Factors to Consider in Undertaking a Patient Preference Study
Section V: Outline

• Background on the Catalog of Methods
• Factors to consider in selecting a method to assess patient preferences
  − Factors related to defining the research question
  − Factors related to the fit of particular methods to the research question
  − Factors related to the resources available to undertake a patient preference study
• Questions for sponsors and reviewers to consider when deciding on a preference methodology
Research Question

• Role of patient preference information
• Current level of knowledge of the benefits and harms of the medical technology
  - Little is known about benefits and harms
  - Benefits are known, but harms are unknown
  - Benefits and harms are known, but probabilities are not
  - Benefits and harms and probabilities are known
• Patient sample to be studied
  - Inclusion and exclusion criteria
  - Diversity
Fit of Particular Methods

• Type of information needed
  – Attributes, relative importance, and tradeoffs

<table>
<thead>
<tr>
<th>Type of Information</th>
<th>Methods</th>
</tr>
</thead>
</table>
| Attributes          | • Qualitative methods (concept elicitation)  
                      • Ranking |
| Relative importance | • Simple direct weighting  
                      • Ranking (if converted to relative importance scores)  
                      • Outranking  
                      • Time tradeoff  
                      • Standard gamble  
                      • Rating questions  
                      • Best-worst scaling (case 1)  
                      • Best-worst scaling (case 2) |
| Tradeoffs           | • Swing weighting  
                      • Analytic hierarchy process  
                      • Threshold technique  
                      • Conjoint analysis and discrete-choice experiments  
                      • Best-worst scaling (case 3) |

• Ability of a particular patient population to provide the preference information needed
Resources Available

• Time available to obtain patient-preference information
• Budget available to conduct a patient-preference study
• Prior experience with patient-preference studies
• Expertise required to conduct patient-preference studies
Questions to Consider

• What is the purpose of the study?
• Will data be used to evaluate a single technology or multiple technologies?
• What are the characteristics of the patient sample?
• What type of patient-preference data is needed?
• How important is the study to regulatory or market success of the technology?
• How much time and money are available to support the study?
• What expertise is available to assist in conducting the study?
VI. Considerations in Using Patient Preference Information in the Regulatory Process
VI. Considerations in Using Patient Preference Information in the Regulatory Process

• This section does not take a prescriptive approach regarding how to use patient preference information in regulatory decisions.

• The regulatory decision-making process for approving medical devices is the purview of CDRH and this report is not intended to make detailed recommendations on how CDRH should use patient preference information in regulatory decisions.
Factor
Patient tolerance for risk and perspective on benefit

• Historically patient perspective has been limited and anecdotal, often lacking representativeness

• CDRH acknowledges that patients preferences are heterogeneous and can also differ from physicians’ and reviewers’ preferences

• CDRH will consider evidence of patient preference to inform reviewers during CDRH’s benefit-risk determinations

• Considering this information will help ensure the CDRH benefit-risk determination process is patient-centric
How can Patient Preference Information be used in Regulatory Decision Making?

Informing clinical trial design

• What are the important endpoints?
• Sample size: What is the “minimum clinically meaningful benefit” that offsets the risks of the medical device?

Informing FDA’s benefit-risk determinations

• Determine if there is a meaningful subgroup (proportion) of patients who will accept the risks of a technology in exchange for the benefits, even if not the majority
• Benefit-Risk and Preference Information should be available and understandable by patients and health-care providers for shared decision making
Patient Preference Information

• Optional at the election of interested parties if they believe it will better inform regulatory decisions

• Will be analyzed for validity

• Catalog of methods and CDRH-CBER guidance document
  • will advise interested parties on the collection of this information
  • will help reviewers to assess this information and use it in benefit-risk determinations

• It is recommended that interested parties talk to CDRH early on plans for collecting patient preferences
Patient Preference Information

• May be useful to include in product approval labeling
  • Important for preference sensitive decisions
  • Use best-practices for communication risks, benefits and preferences

• May be valuable as part of post-market studies
  • Again, optional at the election of sponsors if they believe it will better inform regulatory decisions

• Industry, patient groups or the FDA could proactively undertake patient preference studies, especially in areas of new and evolving medical technologies in which patient input can inform device development and regulatory considerations
Discussion on Catalog and Framework
Discussion panel

• Bennett Levitan, Johnson & Johnson
• Diana Salditt, Medtronic
• Brett Hauber, RTI Health Solutions
• Telba Irfroy, FDA CDRH
• Ross Jaffe, Versant Ventures

• Discussion Moderator: Bill Murray, MDIC
CDRH Perspectives on Patient Preferences
Patients are at the Heart of What We Do

CDRH Vision: Patients in the U.S. have access to high-quality, safe, and effective medical devices of public health importance first in the world.
Mountains of Evidence
Forest for the Trees
Laying the Groundwork
Where can patient perspectives inform the medical device TPLC?

- Patient-informed needs
- Patient preference benefit-risk information
- Patient-informed clinical trial design
- Communicating benefit-risk information to patients
Collaborative Building Blocks

- CDRH-CBER Draft Guidance: PPI in Benefit-Risk
- CDRH-RTI Obesity Case Study
- MDIC Methodology Catalog
- MDIC Framework: PPI in TPLC
- Device Patient Preference Initiative
- Patient Reported Outcomes
Patients are at the heart of what we do.

Patients have unique perspectives about the value of benefits and impact of risks of medical devices.

CDRH is committed to integrating the patient voice into our regulatory decision-making.

We have made significant progress in laying the groundwork for this burgeoning field.

Patients, researchers, industry, FDA and others have a role to play in driving more patient-centric device development, evaluation and delivery.
Proof-of-Principle: How to Incorporate Patient Preferences into Regulatory Decision Making

Telba Irony, PhD
Martin Ho, MS

Center for Devices and Radiological Health
Study on devices to treat obesity

- Explore how to elicit and incorporate patient preferences into regulatory decision making
- Treatments involve difficult benefit-risks tradeoffs
- Decisions are preference sensitive
- Gastric band was the only approved device in US
- Broad array of potential devices with diverse benefit-risk profiles
- Used Discrete-choice experiment (catalog, framework, guidance)
- Published in Surgical Endoscopy *

Ho MP, Gonzalez JM, Lerner HP, Neuland CY, Whang JM, McMurry-Heath M, Hauber B, Irony T. Incorporating patient-preference evidence into regulatory decision making. Surgical Endoscopy; Published online 01 January 2015.
## Treatments for Obesity
### Hard Choices, Wide Range of Benefit-Risk Tradeoffs

<table>
<thead>
<tr>
<th>Wt. Loss: 1-5%</th>
<th>Wt. Loss: 7-9%*</th>
<th>Wt. Loss: 17-20%</th>
<th>Wt. Loss: ≈ 30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very mild risk: exercise related injuries; Yo-Yo diet</td>
<td>Mild-mod. risk: fetal toxicity; increase in HR; suicidal thoughts; glaucoma, etc.</td>
<td>Mod.-high risk: band erosion &amp; explant; laparoscopic surgery related mortality and risks; etc.</td>
<td>High risk: Blood clot; excessive bleeding; heart attack; leaks in GI system; death, malnutrition, etc.</td>
</tr>
</tbody>
</table>
| Indication: For almost every one | • BMI $\geq$ 30 kg/m$^2$  
• BMI $\geq$ 27 + Weight-related comorbidity | • BMI $\geq$ 35 kg/m$^2$  
• BMI $\geq$ 30 + Weight-related comorbidity | Medical judgment; med. societies' guidelines vary |

*Plus Diet & Exercise; unlikely to work if weight loss < 3% by Week 12
Which is a Favorable Benefit-Risk Tradeoff?

Risks

↓ Risk

New Device

↓ Benefit

Weight Loss

↓ Benefit

Diet
Exercise

Gastroplasty

Gastric Banding
Sample: obese subjects willing to lose weight

- Jointly developed by CDRH and RTI-Health Solutions
- ~650 subjects with BMI ≥ 30 kg/m²
- Administered via the Internet
- Subjects evaluate choices between pairs of hypothetical weight-loss devices defined by attributes and levels
- Only weight-loss devices are considered
- Subjects assume that insurance covers all costs
Attributes and Levels

- **Type of operation** (Laparoscopic, Endoscopic, Open)
- **Average Weight Loss** (0% to 30%)
- **Weight loss duration** (0 to 5 years)
- **Comorbidity improvement** (none to 100%)
- **Duration of side effects** (0 to 5 years)
- **Chance of re-hospitalization** (0 to 20%)
- **Mortality** (0 to 5%)
- **Dietary restrictions**
  - Eat ¼ cup at a time
  - Wait 4 hours between meals
  - Can’t eat sweets or hard to digest foods
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Device A</th>
<th>Device B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of operation</td>
<td>Endoscopic surgery</td>
<td></td>
</tr>
<tr>
<td>Recommended diet restriction</td>
<td>Wait 4 hours between meals</td>
<td></td>
</tr>
<tr>
<td>On average, how much weight is lost</td>
<td>30 lbs.</td>
<td>60 lbs.</td>
</tr>
<tr>
<td>On average, how long the weight loss lasts</td>
<td>Weight loss lasts 5 years</td>
<td>Weight loss lasts 1 year</td>
</tr>
<tr>
<td>Average reduction in dose of prescription drugs for diabetes at the lower weight</td>
<td>Eliminates the need for prescription drug</td>
<td></td>
</tr>
<tr>
<td>On average, how long side effects last</td>
<td>Last 1 month</td>
<td>Last 1 year</td>
</tr>
<tr>
<td>(Remember that side effects will limit your ability to do daily activities several times a month.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chance of a side effect requiring hospitalization</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Chance of dying from getting the weight loss device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10% (10 out of 100)</td>
<td>1% (1 out of 100)</td>
<td></td>
</tr>
<tr>
<td>Which weight-loss device do you think is better for people like you?</td>
<td>Device A</td>
<td>Device B</td>
</tr>
</tbody>
</table>
Most Important Attributes

Mortality Risk, Weight Loss, and Weight-Loss Duration are the most important.

Risk of hospitalization for AE is the least important.
To accept a device associated with a mortality risk of 0.5%, an average respondent (243lbs and 5’10”) would expect at least the following combination of weight loss amount and duration:

<table>
<thead>
<tr>
<th>Amount (% Body Weight)</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>24%</td>
<td>24 months</td>
</tr>
<tr>
<td>22%</td>
<td>36 months</td>
</tr>
<tr>
<td>20%</td>
<td>48 months</td>
</tr>
<tr>
<td>18%</td>
<td>60 months</td>
</tr>
</tbody>
</table>
Decision Aid Tool

- Calculates the minimum benefit patients would require for a treatment with a given mortality risk and other attributes
- Calculates the maximum risk patients would accept for a treatment with given weight-loss benefit and other attributes
- Results reported for various levels of risk tolerance
- The estimated values inform clinicians in the determination of the "minimum clinically meaningful benefit" used by CDRH to size, design and evaluate clinical trials for weigh-loss devices.
Percent of patients choosing the hypothetical devices vs status quo

<table>
<thead>
<tr>
<th>Device Attributes</th>
<th>Device A</th>
<th>Device B</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Total body weight loss</td>
<td>9.2%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Type of Surgery</td>
<td>Laparoscopic</td>
<td>Endoscopic</td>
</tr>
<tr>
<td>Chance of dying</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Diet restrictions</td>
<td>Eat ¼ cup at a time</td>
<td>Eat ¼ cup at a time</td>
</tr>
<tr>
<td>weight loss duration</td>
<td>12 months</td>
<td>6 months</td>
</tr>
<tr>
<td>minor side effect duration</td>
<td>1 month</td>
<td>6 months</td>
</tr>
<tr>
<td>% Patients who would accept the device</td>
<td>9.0%</td>
<td>3.2%</td>
</tr>
</tbody>
</table>
The Maestro System, a vagus nerve stimulator indicated as a weight-loss treatment was approved on January 14, 2015.

The estimated proportion of patients that would choose Maestro was instrumental to its approval.

This quantitative method can be adapted for other medical products, e.g., upper limb prostheses.

This is only one of the methods available. Other methods in the catalog and guidance can be also used to elicit patient preference information.
Patient Preference Draft Guidance

Anindita Saha
Director, External Expertise and Partnerships
Center for Devices and Radiological Health
U.S. Food and Drug Administration
Patient Preference Information – Submission, Review in PMAs, HDE Applications, and De Novo Requests, and Inclusion in Device Labeling
1. Voluntary submission of patient preference information

2. Recommended qualities of patient preference studies which may be valid scientific evidence

3. Recommendations for collecting patient preference information

4. Recommendations for including patient preference information in labeling for patients and health care professionals
Patient Preferences in the Medical Device Total Product Lifecycle

Patient-informed needs

Patient-informed clinical trial design

Patient preference benefit-risk information

Communicating benefit-risk information to patients
Voluntary Submission

- Submission of patient preference information (PPI) to FDA is voluntary.

- May consider PPI as part of the totality of evidence from clinical and nonclinical testing for premarket review and benefit-risk determination for devices.

- Draft guidance does not change any review standards for safety or effectiveness, or create any extra burden on sponsors of premarket submissions.
Voluntary Submission

- PPI may not be relevant or appropriate for all device types

- Could be useful for those product types and diseases or conditions where usage decisions by patients and health care professionals are “preference-sensitive”

Examples of preference-sensitive decisions:

- Devices with a direct patient interface
- Devices intended to yield significant health and appearance benefits
- Devices intended to directly affect quality of life
- Certain life-saving but high-risk devices
- Devices developed to fill an unmet medical need or treat a rare disease or condition
- Devices with novel technology
Recommended Qualities of Patient Preference Studies

- Including:
  - Representativeness
  - Heterogeneity
  - Minimal cognitive bias
  - Effective Communication
  - Robustness of analysis of results
Submission of Patient Preference Information

- Encourage stakeholders to have early interactions if considering collecting patient preference information for regulatory purposes

- Specificity of the data to differ based on the scope of the study
  - application/device-specific study
  - disease/condition or device type study
Communicating Patient Preference Information in Device Labeling

- Sponsors should include a plan for how they intend to communicate the patient preference information to patients and health care professionals.

- Labeling should describe the patient preference study data including:
  - range of patient preferences
  - characteristics of patients who considered the device’s probable benefits to outweigh its probable risks

- Patient labeling should use terminology and numerical data that is easily recognized and understood.
Application to Regulatory Decision-Making

- Hypothetical examples
  - Patient preference data helps inform FDA reviewer considerations
  - Expected effectiveness but significant risk; risk not outweighed by probable benefit
  - Pediatric HDE and Patient/Parent Preferences

- Additional detail on patient-centric factors incorporated in the Benefit-Risk Worksheet
- Looking for feedback on the draft guidance
- Training
Thank You
Discussion
Patient group perspectives on patient centered benefit-risk assessment
Discussion on Patient Group Perspective
Discussion panel

• Marc Boutin, National Health Council
• Jessica Foley, Focused Ultrasound Foundation
• Kim McCleary, FasterCures
• Bray Patrick-Lake, Clinical Trials Transformation Initiative

• Discussion Moderator: Katie O’Callaghan, FDA CDRH
Future Applications of Patient Preferences
PCBR Framework Report
As Working Document

• PCBR Framework Report is:
  − an initial thought piece in an emerging area of regulatory science
  − intended to help advance the field of assessing patient preferences
  − to be updated as FDA, industry, patient groups, academics and others
    gain experience with collecting and using patient preference information

• Process of developing report identified areas where additional experience and research would improve the collection and use of patient preference information in the regulatory process

• Summarized in Section VIII: “Future Work in the Collection and Use of Patient Preference Information for Regulatory Purposes”
Section VIII: Overview

• Areas for Future Research Regarding Patient-Preference Methods
  − Choice of Method
  − Sample Selection
  − Development of a Study
  − Study Validity

• Opportunities for Future Work in the Use of Patient Preferences Information for Regulatory Purposes
  − Gaining Additional Experience with the Collection and Analysis of Patient Preference Information
  − Effectively Communicating Benefit and Risk Information to Patients and Providers
  − Using Patient Preference Information in the Regulatory Assessment Process and Beyond
Areas for Future Research Regarding Patient-Preference Methods

• Choice of Method
  – Does using different methods yield similar and consistent results?

• Sample Selection
  – What sample is representative of the population under study?
  – Does prior experience with treatment bias preferences relative to patients who have not been treated?

• Development of a Study
  – Attribute selection – definition and communication to patients

• Study Validity
  – Need to develop standards and methods for assuring validity of preference studies
Gaining Additional Experience with the Collection and Analysis of Patient Preference Information

• General need for more experience with performing and using patient preference studies

• Specific areas where more experience would be valuable:
  − More experience with the variety of methodologies
  − More experience with using patient preference information in regulatory benefit-risk analysis
  − Learning how to most efficiently and cost-effectively perform preference studies
  − Learning how to best communicate the results of preference studies to patients, providers, FDA staff, industry staff, and others

• Opportunities:
  − Collaboration between industry, FDA, patient groups, academics, PCORI and/or others in areas of emerging technology
    • Less invasive technologies
    • Device alternatives to drugs
  − Development of a repository of patient preference studies
  − Development of tools to help in the development of patient preference studies
Effectively Communicating Benefit and Risk Information to Patients and Providers

- Review of best practices for communicating benefit and risk information to patients and providers
- Development of a framework for incorporating patient preference information into product labeling
Using Patient Preference Information in the Regulatory Process

• Use of quantitative benefit-risk analysis in the regulatory process
  – Build on experience benefit-risk tool developed based on CDRH obesity study
  – Need additional examples of quantitative benefit-risk models submitted as part of regulatory approval process

• Use of preference information in post-marketing studies
  – Support expanded indications
  – Use in reimbursement, marketing, and shared decision making

• Use of patient preference information in the regulatory process for drugs and biologics
Additional Opportunities?

• PCBR Framework Report is an initial thought piece regarding the use of patient preference information in the regulatory process

• PCBR Steering Committee welcomes constructive feedback on this report and ideas for further work in the field of patient preference assessment

• MDIC hopes that the Framework Report and Catalog of Methods will be:
  - Useful by those considering undertaking patient preference
  - Encourage continued growth and maturation of this field
Discussion on Future Applications of Patient Preferences
Discussion panel

• Bennett Levitan, Johnson & Johnson
• Brett Hauber, RTI Health Solutions
• Martin Ho, FDA CDRH
• Bryan Luce, PCORI

• Discussion Moderator: Bill Murray, MDIC
Response to MDIC Patient Centered Benefit-Risk Framework Report

Bryan R. Luce, PhD
Chief Science Officer

12 May 2015
We Fund Patient-Centered Outcomes Research

PCOR is a relatively new form of CER that....

• Considers patients’ needs and preferences, and the outcomes most important to them
• Investigates what works, for whom, under what circumstances
• Helps patients and other healthcare stakeholders make better-informed decisions about health and healthcare options
We Fund Research That…

What we mean by…

“Patient-centeredness”

• The project aims to answer questions or examine outcomes that matter to patients within the context of patient preferences
• Research questions and outcomes should reflect what is important to patients and caregivers

“Patient and stakeholder engagement”

• Patients are partners in research, not just “subjects”
• Active and meaningful engagement between scientists, patients, and other stakeholders
• Community, patient, and caregiver involvement already in existence or a well-thought-out plan
Closing Remarks