CERSI collaborations advance patient preference science

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FDA CERSI Collaborative Workshop, Silver Spring, 07-08 Dec 2017
Where can patient input inform medical product development and evaluation?
Innovation from Patients for Patients

Industry

Professional Organizations

Academic Centers

CERSI network

FDA
CERSI Overall Goals

Address scientific challenges arising from new medical product development, regulatory activities, and the need to improve food safety and quality.

Collaboration with academic partners on research that supports FDA’s regulatory mission & improves public health.

Support training needs for FDA, new scientists, & scientific community.

Enhance extramural partnerships and expand scientific exchanges.
CERSIs

• Georgetown University – 2011 – 2017/18
• University of Maryland – 2011 - 2018
• UCSF-Stanford University – 2013 - 2021
• Johns Hopkins University – 2013 - 2018
• Yale University-Mayo Clinic – 2016 - 2018

OCS/ORSI provides “core” funding for CERSI grants that supports administrative functions, education/training, workshops, lectures and research projects. Centers may provide support for specific research project collaborations.

For more information, visit CERSI web site:
https://www.fda.gov/ScienceResearch/SpecialTopics/RegulatoryScience/ucm301667.htm
## FDA-CERSI Collaborative Workshops*

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
<th>Hosts</th>
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<tbody>
<tr>
<td>Fall 2018</td>
<td>Predictive Immunogenicity: Evaluating and modulating the immunogenicity of therapeutic proteins, vaccines and gene-editing</td>
<td>FDA, JHU CERSI &amp; UM CERSI</td>
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<td>Spring/Early Summer 2018</td>
<td>Critical Issues in Heterogeneity of Treatment Effect</td>
<td>FDA &amp; JHU CERSI</td>
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<td>December 7-8, 2017</td>
<td>Advancing Use of Patient Preference Information as Scientific Evidence in Medical Product Evaluation</td>
<td>FDA &amp; All CERSIs</td>
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<tr>
<td>June 15, 2017</td>
<td>Use of Natural Language Processing to Extract Information from Clinical Text</td>
<td>FDA, UCSF-Stanford CERSI &amp; San Francisco State University</td>
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<td>November 18, 2016</td>
<td>Substitutability of Generic Drugs: Perceptions and Reality</td>
<td>FDA &amp; Johns Hopkins CERSI</td>
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<td>November 7-9, 2016</td>
<td>Clinical Investigator Training Course</td>
<td>FDA &amp; University Maryland CERSI</td>
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<td>September 23, 2016</td>
<td>Pediatric Master Protocols</td>
<td>FDA &amp; University of Maryland CERSI</td>
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* See [www.fda.gov/ScienceResearch/SpecialTopics/RegulatoryScience/ucm493022.htm](http://www.fda.gov/ScienceResearch/SpecialTopics/RegulatoryScience/ucm493022.htm) for more information
FDA/AGS Workshop on Supporting Innovation for Safe and Effective Minimally Invasive Glaucoma Surgery (MIGS)

February 26, 2014  Washington D.C

Goal:
To Discuss Best Clinical Trial Design for MIGS Devices

- Appropriate patient population
- Safety assessment
- Effectiveness assessment
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Example:
Minimally invasive glaucoma surgical (MIGS) devices

Glaukos iStent® (Glaukos Corporation)
Glaucoma: Treatment Options

Laser

Xen

CyPass

Drops

iStent

https://www.reviewofophthalmology.com/article/iop-control-know-your-surgical-options
Expediting Innovation of Minimally Invasive Glaucoma Surgical Devices

- FDA/AGS Workshop on Supporting Innovation for Safe and Effective Minimally Invasive Glaucoma Surgery - 2/26/2014

- Leap Frog MIGS Final Guidance - December 15, 2015

- Next Step – Incorporating Patient Voice
  - Prior evaluation of these devices has not incorporated patient preference information or outcomes that could be considered as important to patients with glaucoma*

Motivation for Study

Patient preference information

• Can be quantified and have potential to:
  – Tilt the scales of regulatory decision-making
  – Highlight a particular group who would accept the risks for the given benefits
  – Inform endpoints for clinical trials

• By quantifying patients’ preferences, we may provide scientific evidence to aid in the evaluation of investigational MIGS devices.

Patient-Centered Outcomes as Common Data Elements for Minimally Invasive Glaucoma Surgical (MIGS) Devices

• Joint Effort among Johns Hopkins and UCSF/Stanford Centers of Excellence in Regulatory Science and Innovation (CERSI), The American Glaucoma Society (AGS) and the FDA
Collaboration with CERSI

• Through the two Centers of Excellence in Regulatory Science and Innovation (CERSI), FDA is funding two collaborative projects on patient perspective:

  – **Johns Hopkins CERSI**: Qualitative or quantitative assessment of patient preferences in treatment goals in patients with mild to moderate glaucoma

  – **UCSF-Stanford CERSI**: Quantitative assessment of vision-related quality of life and well-being in patients with mild to moderate glaucoma
John Hopkins CERSI: Approaches to examining preferences*

Identifying patient preferences in glaucoma treatments, with a focus on MIGS

<table>
<thead>
<tr>
<th>Specific Aim**</th>
<th>Approach</th>
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<tr>
<td><strong>Aim 1</strong> Engage stakeholders community</td>
<td>Define essential characteristics of a framework and patients for identifying and understanding outcomes for MIGS</td>
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<tr>
<td><strong>Aim 2</strong> Identify preferences and important outcomes</td>
<td>Conduct one-on-one interviews with patients with glaucoma to identify and understand patient-centric outcomes</td>
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<tr>
<td><strong>Aim 3</strong> Construct and pilot-test instrument</td>
<td>Prepare a quantitative study to assess the “trade offs” that patients are willing to make when weighing treatment options for glaucoma</td>
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<tr>
<td><strong>Aim 4</strong> Conduct quantitative preference study</td>
<td>Elicit the preference that patients have for a particular attributes/outcomes</td>
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Colors denote qualitative or quantitative aim

*Courtesy of Jimmy Le

**UCSF/Stanford CERSI:**
**PROM Assessing Health-Related Quality of Life in Mild to Moderate Glaucoma Patients**

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<tr>
<th>Phase</th>
<th>Status</th>
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<tr>
<td><strong>Phase I</strong> – Physician focus group</td>
<td>Completed</td>
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<tr>
<td><strong>Phase II</strong> – Development of a protocol for evaluating the measurement properties of a newly created tool</td>
<td>3 of 4 patient focus groups completed</td>
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<tr>
<td><strong>Phase III</strong> - Development of a web-based Patient-Reported Outcome Measure (PROM)</td>
<td>Pending</td>
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<td><strong>Phase IV</strong> - Cognitive interviews of subjects- modification of PROM questionnaire</td>
<td>Pending</td>
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**Final Deliverable:** Web-based questionnaire that can be evaluated using psychometric methods.
Regulatory Impact

• Advance research and regulatory science towards outcomes that are most important to patients

1) To inform clinical trial design

2) To inform FDA evaluation

Summary

• Glaucoma is a condition with no cure but many treatment options

• Patients with glaucoma are willing to consider trade-offs when making decisions between available treatment options

• Patient preference information can aid in the evaluation of MIGS devices*

• Well-developed PROMs lead to better assessment of novel glaucoma devices

MIGS: Public health impact and what the future holds

- Large and growing glaucoma population can be offered choices
- Innovation in canalicular, suprachoroidal and subconjunctival surgery
- Clear study guidance from regulators
- Effective FDA/AGS/CERSI collaboration on patient preferences and patient related outcomes
- AGS and AGS Foundation commitment to raise funds to support CERSI initiative
## CERSI Program Statistics

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<tr>
<th>Publications in Scientific Journals</th>
<th>CERSI Research Projects</th>
<th>CERSI Visiting Scientists</th>
<th>CERSI Workshops &amp; Lectures</th>
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<tr>
<td><strong>CERSI publications since 2012:</strong></td>
<td><strong>CERSI Research Projects initiated and/or completed since 2012:</strong></td>
<td><strong>FDA Staff to UCSF-Stanford:</strong> 2015: 31, 2016: 33, 2017 (to UCSF-Stanford): 20</td>
<td><strong>CERSI Workshops (2012-17):</strong> 46, <strong>CERSI Lectures (2012–17):</strong> 49</td>
</tr>
<tr>
<td>121</td>
<td>66</td>
<td>2017 (to Yale-Mayo Clinic): 13</td>
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21st Century Cures:

- 21st Century Cures and PDUFA VI increasingly place FDA as an active participant in drug development, broadening a traditional regulatory role.

- Requires expanded efforts to enhance drug development.
  - Patient-focused drug development
  - Novel, innovative trial designs
  - Real-world evidence
  - Drug development tools, biomarkers

DDT Qualification Programs Webpage on FDA.gov
How FDA Plans to Help Consumers Capitalize on Advances in Science

In silico clinical trials use computer models and simulations to develop and evaluate devices and drugs. Modeling and simulation play a critical role in organizing diverse data sets and exploring alternate study designs. This enables safe and effective new therapeutics to advance more efficiently through the different stages of clinical trials. FDA’s efforts in modeling and simulation are enabled through multiple collaborations with external parties that provide additional expertise and infrastructure to advance the development of these state-of-the-art technologies.

To build upon such opportunities, FDA will soon unveil a comprehensive Innovation Initiative. It will be aimed at making sure our regulatory processes are modern and efficient, so that safe and effective new technologies can reach patients in a timely fashion. We need to make sure that our regulatory principles are efficient and informed by the most up to date science. We don’t want to present regulatory barriers to beneficial new medical innovations that add to the time, cost, and uncertainty of bringing these technologies forward if they don’t add to our understanding of the product’s safety and benefits.
Acknowledgments

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