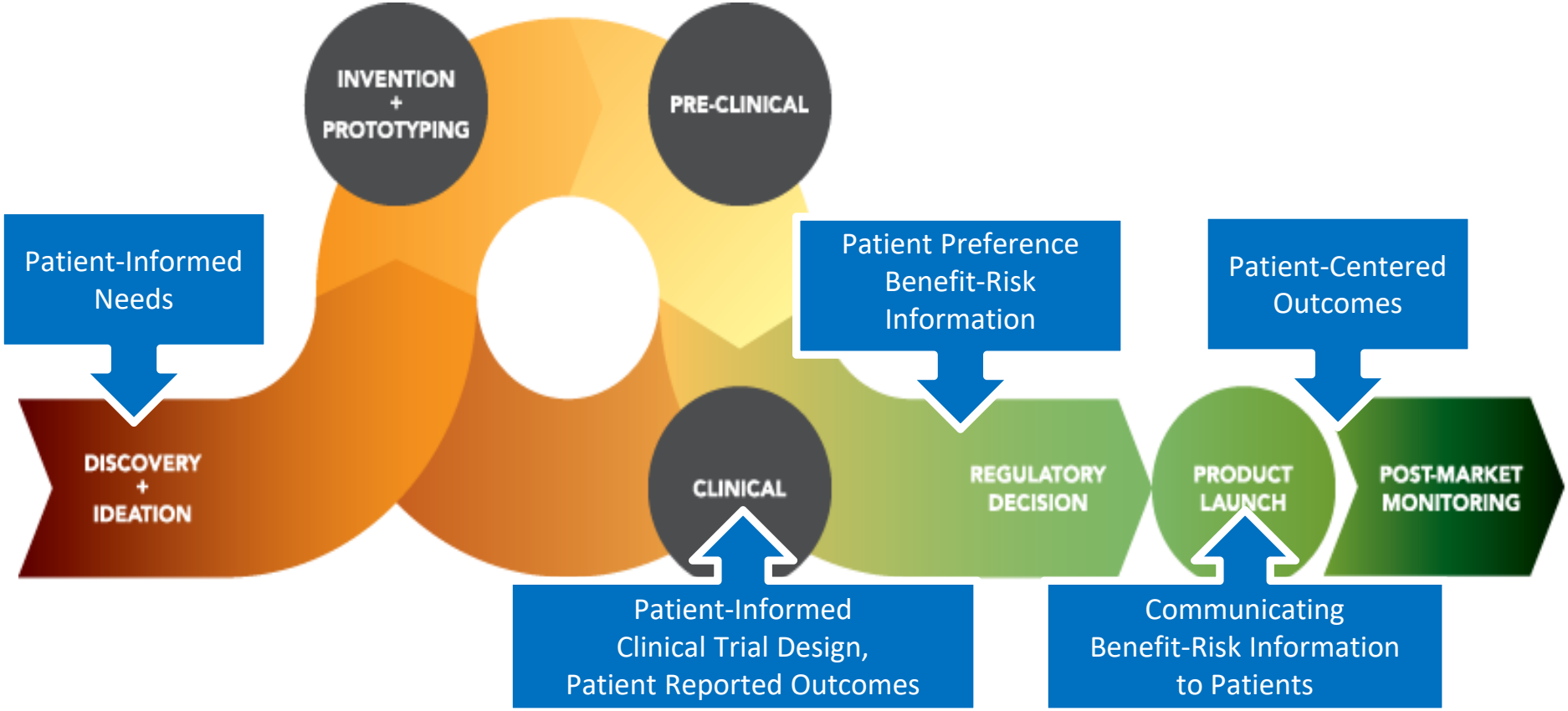
CERSI collaborations advance patient preference science

Frank F Weichold, MD, PhD
FDA, OC OCS, ORSI
Frank.Weichold@FDA.HHS.GOV

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

CERSI network

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*

Date	Title	Hosts
Fall 2018	Predictive Immunogenicity: Evaluating and modulating the immunogenicity of therapeutic proteins, vaccines and gene-editing	FDA, JHU CERSI & UM CERSI
Spring/Early Summer 2018	Critical Issues in Heterogeneity of Treatment Effect	FDA & JHU CERSI
December 7-8, 2017	Advancing Use of Patient Preference Information as Scientific Evidence in Medical Product Evaluation	FDA & All CERSIs
June 15, 2017	Use of Natural Language Processing to Extract Information from Clinical Text	FDA, UCSF-Stanford CERSI & San Francisco State University
November 18, 2016	Substitutability of Generic Drugs: Perceptions and Reality	FDA & Johns Hopkins CERSI
November 7-9, 2016	Clinical Investigator Training Course	FDA & University Maryland CERSI
September 23, 2016	Pediatric Master Protocols	FDA & University of Maryland CERSI

* See 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

U.S. FOOD & DRUG ADMINISTRATION

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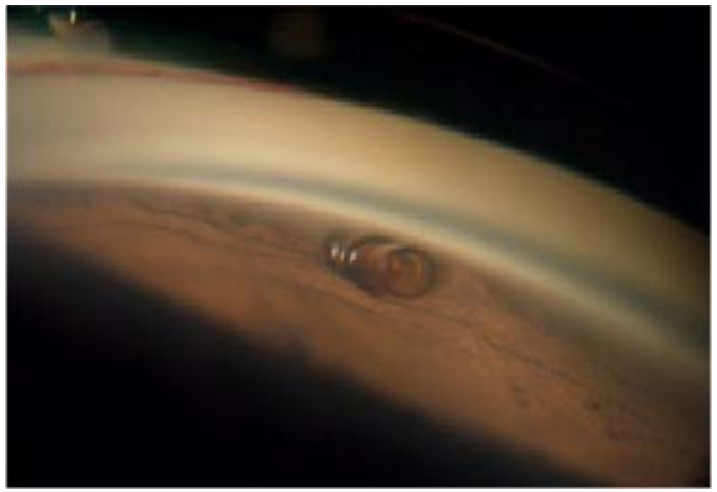
Example:

Minimally invasive glaucoma surgical (MIGS) devices

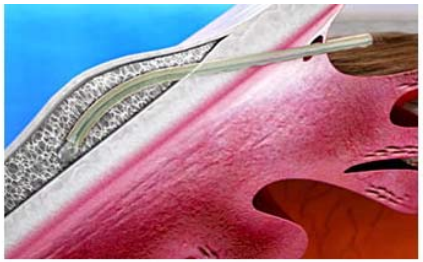
Glaukos iStent® (Glaukos Corporation)



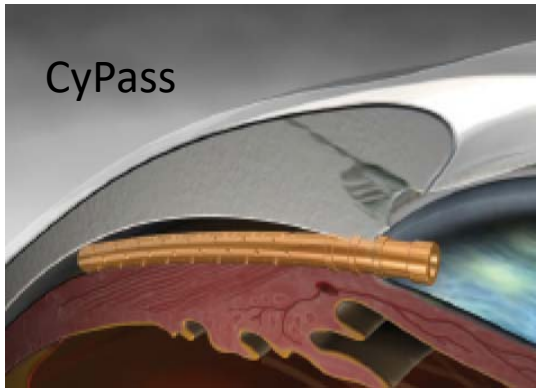
Glaucoma: Treatment Options

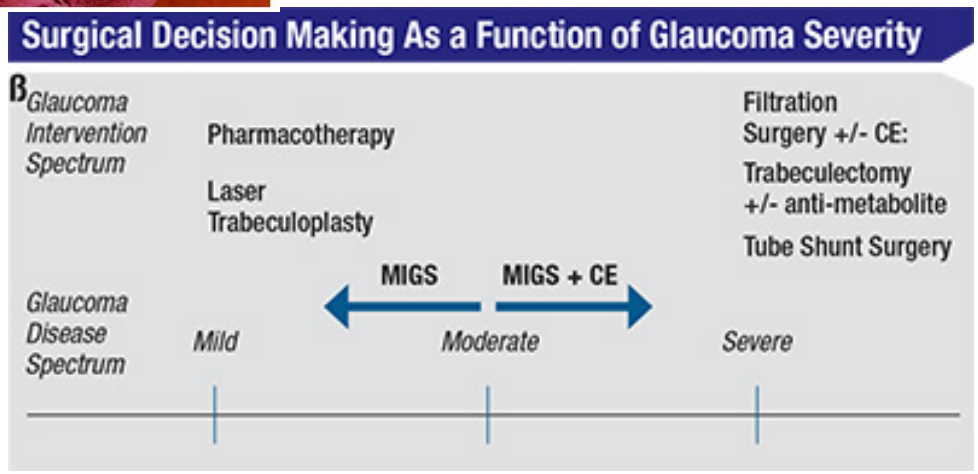
Laser

Xen



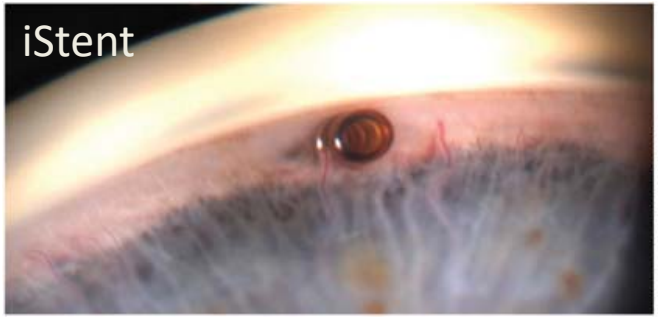
CyPass





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
  - http://www.fda.gov/downloads/MedicalDevices/DeviceRegulationandGuidance/GuidanceDocuments/UCM433165.pdf
- **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*

*Le JT, Viswanathan S, Tanver ME, Eydelman M, Li T. Assessment of the Incorporation of Patient-Centric Outcomes in Studies of Minimally Invasive Glaucoma Surgical Devices. JAMA Ophthalmol. 2016 Sep 1;134(9):1054-6. doi: 10.1001/jamaophthalmol.2016.2101. PubMed PMID: 27389667.

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.

Tarver ME, Eydelman M. Incorporating Patient's Perspective. *Glaucoma Today.* 2017.
Le JT, Viswanathan S, Tarver ME, Eydelman M, Li T. Assessment of the Incorporation of Patient Centric Outcomes in Studies of Minimally Invasive Glaucoma Surgical Devices. JAMA Ophthalmol. 2016;134(9):1054-1056.
Sherman RE, Davies KM, Robb MA, Hunter NL, Califf RM. Accelerating development of scientific evidence for medical products within the existing US regulatory framework. Nat Rev Drug Discov. 2017.

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

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

Colors denote **qualitative** or **quantitative** aim

*Courtesy of Jimmy Le

**Adapted from: Medical Device Innovation Consortium. A framework for incorporating information on patient preferences regarding benefit and risk into regulatory assessments of new medical technology. 2015. (http://mdic.org/wp-content/uploads/2015/05/MDIC_PCBR_Framework_Proof5_Web.pdf).

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

Phase	Status
Phase I – Physician focus group	Completed
Phase II – Development of a protocol for evaluating the measurement properties of a newly created tool	3 of 4 patient focus groups completed
Phase III - Development of a web-based Patient-Reported Outcome Measure (PROM)	Pending
Phase IV - Cognitive interviews of subjects- modification of PROM questionnaire	Pending

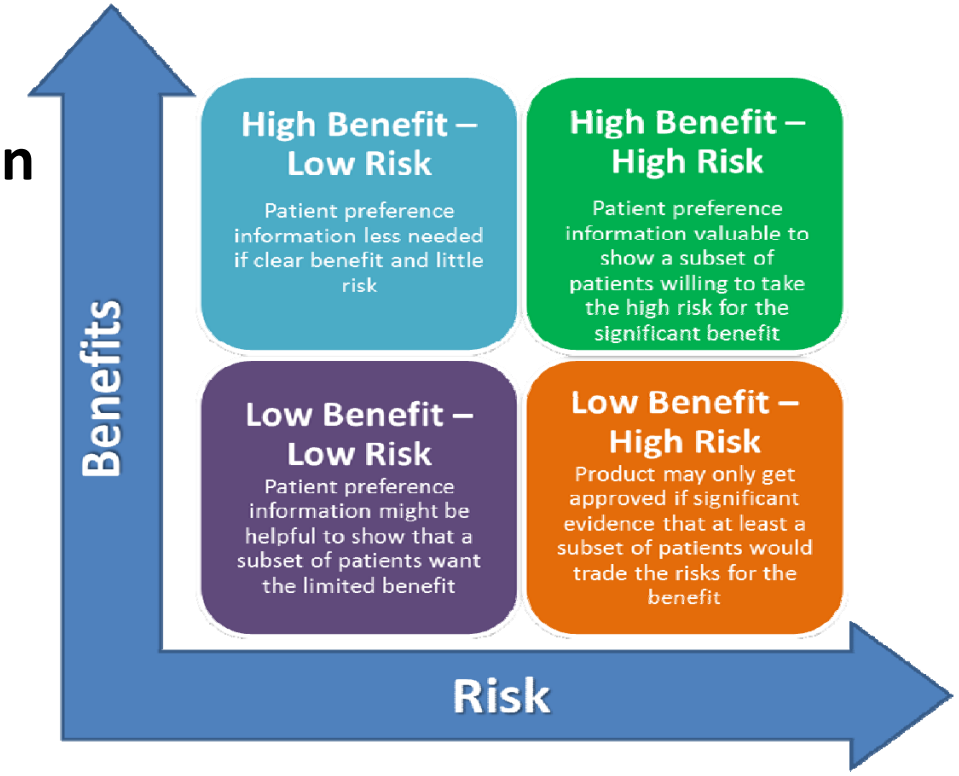
Final Deliverable: Web-based questionnaire that can be evaluated using psychometric methods.

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**



Ho M, Saha A, McCleary KK, et al. A Framework for Incorporating Patient Preferences Regarding Benefits and Risks into Regulatory Assessment of Medical Technologies. *Value Health.* 2016;19(6):746-750.

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**

*Le JT, Viswanathan S, Tarver ME, Eydelman M, Li T. Assessment of the Incorporation of Patient-Centric Outcomes in Studies of Minimally Invasive Glaucoma Surgical Devices. JAMA Ophthalmol. 2016 Sep 1;134(9):1054-6. doi: 10.1001/jamaophthalmol.2016.2101. PubMed PMID: 27389667.

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

Publications in Scientific Journals

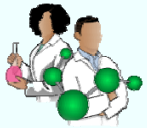
CERSI publications since 2012:

121

CERSI Research Projects

CERSI Research Projects initiated and/or completed since 2012:

66



CERSI Visiting Scientists

FDA Staff to UCSF-Stanford:
2015: 31
2016: 33

2017 (to UCSF-Stanford): 20

2017 (to Yale-Mayo Clinic): 13

CERSI Workshops & Lectures

CERSI Workshops (2012-17): 46

CERSI Lectures (2012–17): 49

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
http://www.fda.gov/Drugs/DevelopmentApprovalProcess/DrugDevelopmentToolsQualificationProgram/default.htm

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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