U.S. FOOD & DRUG ADMINISTRATION

NAS Meeting

Regulatory Considerations for Technology-Derived Data-A FDA Staff Perspective

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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.
- 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.

What is a Medical Device?

- Definition of a medical device is specified in section 201(h) of the Federal Food, Drug and Cosmetic Act (21 U.S.C. 321) *
- Section 201(h) states in part:
  - The term "device"…means an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent, or other similar or related article, including any component, part, or accessory, which is…"
  - "…intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, in man…" or
  - "…intended to affect the structure or any function of the body of man and which does not achieve any of its primary intended purposes through chemical action…."

A Risk Based Approach for Medical Devices since 1976

Increasing Risk

Classification determines extent of regulatory control (Risk Based)

Class I
- General Controls

Class II
- General controls
- Special controls

Class III
- General controls
- Premarket approval (PMA)

General Controls
- Electronic Establishment Registration
- Electronic Device Listing
- Quality Systems
- Labeling
- Medical Device Reporting (MDR)

Special Controls (addressing Risk)
- Guidelines (e.g., Glove Manual)
- Mandatory Performance Standard
- Performance testing, such as biocompatibility, engineering, animal, etc.
- Special Labeling

Classifications & Regulatory Pathways

- Class III: generally PMA (Premarket Approval)
- Class II: 510(k) (or premarket notification), if the intended use and technology are similar to something already classified
- De Novo: devices that aren't comparable enough to something on the market. This generates a new device classification regulation, and will typically (but not always) be Class II

When is Clinical Data Needed?

- PMA: typically needed
- De novo: typically needed, but not always
- 510(k): typically not needed

You can request feedback on any protocols through a Q-sub, preferably before starting the study

Experience in Moving Neurological Medical Devices From **Bench to Market**

Clot Retriever for Ischemic Stroke

Epilepsy DBS

EEG-based Neurodiagnostics

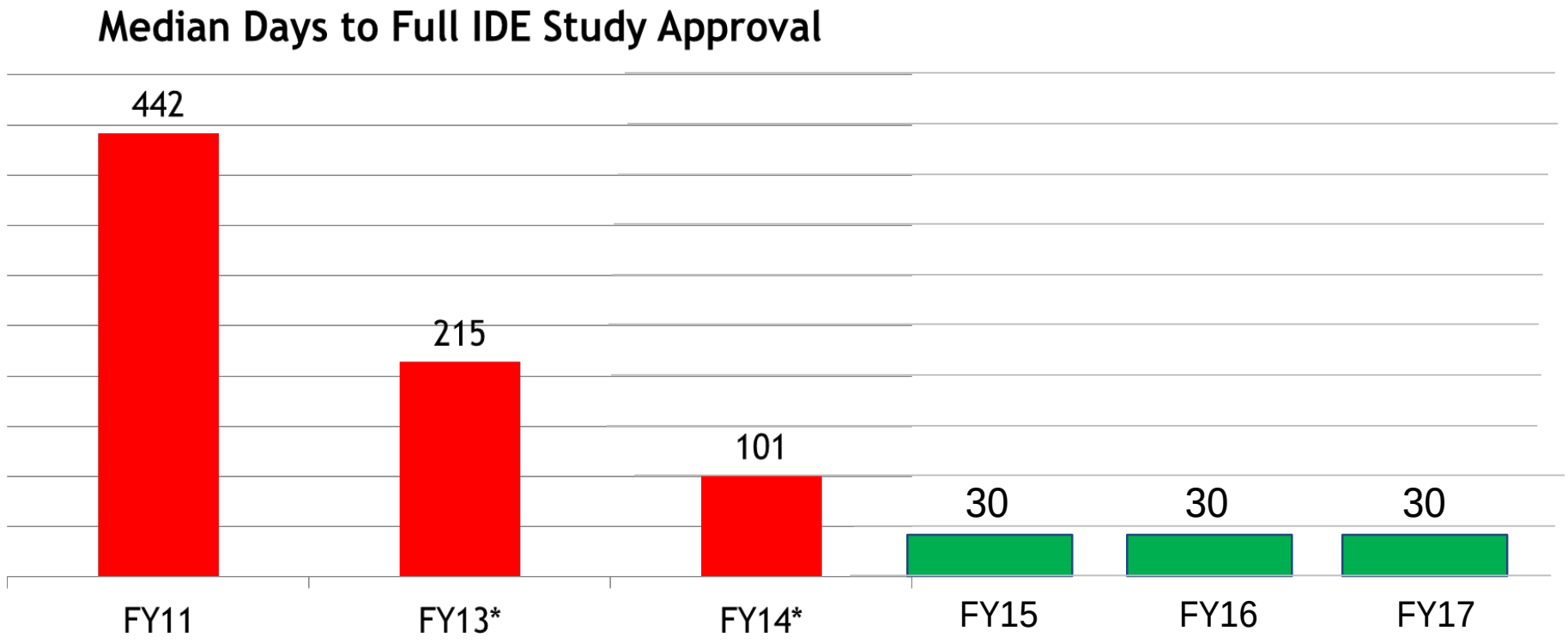
DEKA Prosthetic Arm

ImPACT™

Concussion Software

Microcatheters for the neurovasculature

Reducing FDA Medical Device Review Timelines



Increasing Regulatory Transparency

NEW Targeted Guidance for Sponsors (and Developers & Innovators)

- Presubmission Guidance
- IDEs for Early Feasibility Clinical Studies Guidance Document
- Design Considerations for Pivotal Clinical Investigations
- Expedited Access for Premarket Approval Medical Devices Intended for Unmet Medical Need for Life Threatening or Irreversibly Debilitating Diseases or Conditions
- **Clinical Considerations for IDEs for Neurological Devices Targeting Disease Progression and Clinical Outcomes**

A Few Medical Device Regulatory Concepts

- Device classification is based on risk
- Use **valid scientific evidence**
- **Weigh benefit vs. risk** to determine safety and effectiveness
- Provide "**reasonable assurance**" of safety and effectiveness
- Consider **least burdensome** means
- Assess based on the **indication for use**

Premarket Evaluation of Neurodiagnostics

- Assess the safety and effectiveness per the intended use
- Non-clinical testing
  - Precision and Accuracy
  - Human factors
- Assessment of a reference database
  - Uniform data collection methods
  - Representative sample population
  - Adequate sample size
- Clinical testing
  - Sensitivity and specificity

21st Century Cures Implementation

- Establish Breakthrough Device Pathway
- Clarify Medical Software Regulation
- Change HDE Limit to 8000 Patients
- Streamline Process for 510(k) Exemptions
- Modifications to Classification Panels
- Allow for Central IRBs
- Update CLIA Waiver Guidance
- Recognition of Standards
- Train and Audit Least Burdensome
- Cleaning and Validation Data

21st Century Cures
Regulating Software

21 Century Cures - SEC. 3060.

The new law amended the definition of “device” in the Food, Drug and Cosmetic Act to exclude certain software functions intended...

- *(A) for administrative support;*
- *(B) for maintaining or encouraging a healthy lifestyle;*
- *(C) to serve as a electronic patient records;*
- *(D) for transferring, storing, converting formats, or displaying clinical laboratory test or other device data and results and certain other related information; and*
- ***(E) to provide recommendations to health care professionals for clinical decisions, where the user can independently review the basis of the recommendation.***

Mobile Medical Applications Guidance (2015)

- Mobile Medical Applications: Guidance for Industry and Food and Drug Administration Staff
- Purpose:
  - Provide clarity and predictability for manufacturers of mobile medical apps
  - Provide information on FDA's current thinking

http://www.fda.gov/downloads/MedicalDevices/.../UCM263366.pdf

Questions? digitalhealth@fda.hhs.gov

Focus on Patients

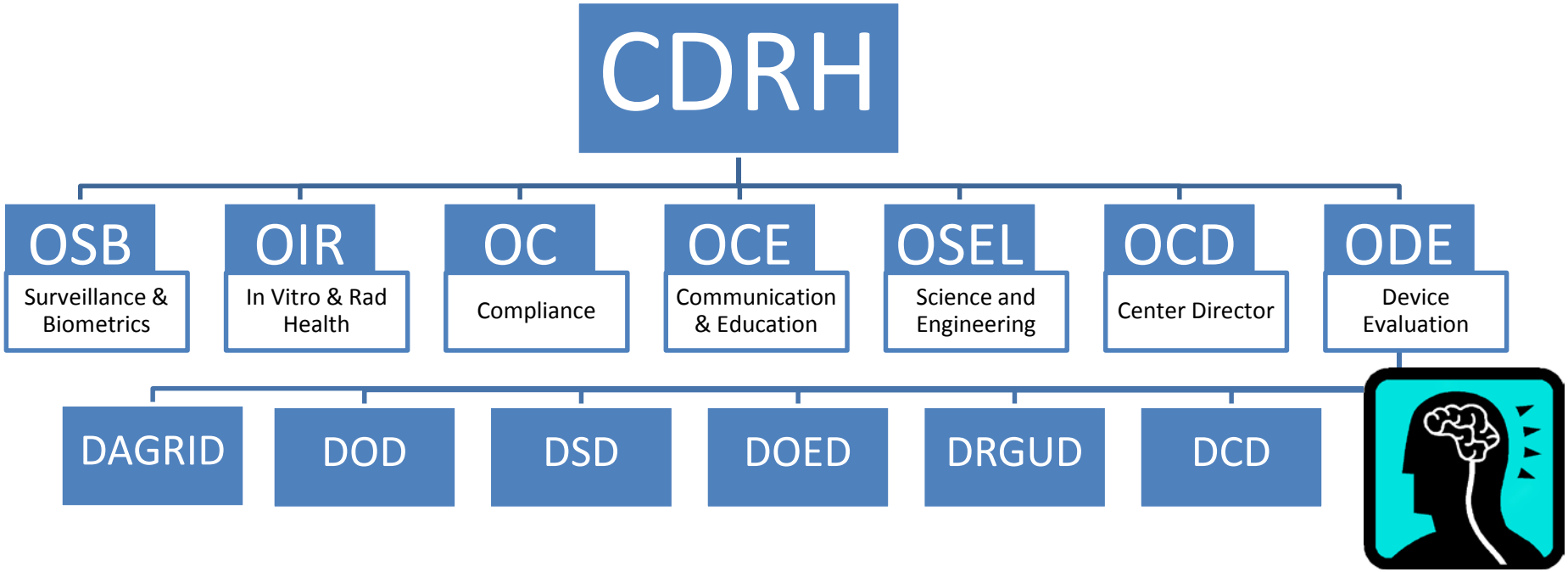
- Patient use and patient preference
  - Incorporating into decision making and establishing appropriate benefit and risk
- Partnering with patients
  - Outreach to patient groups
- Advance use of patient reported outcomes
  - How to identify where gaps are
  - How to validate new measures
- Guidance - Patient Preference Information in PMA, HDE and de novo submissions

http://www.fda.gov/downloads/medicaldevices/deviceregulationandguidance/guidancedocuments/ucm446680.pdf

Using Real World Data

- Real world evidence is collected routinely
- FDA is exploring ways real world data can be used to support regulatory decision making
- Need to ensure that data is of sufficient quality

GUIDANCE: Leveraging Real World Evidence in Premarket Submissions Guidance
https://www.fda.gov/downloads/medicaldevices/deviceregulationandguidance/guidancedocuments/ucm513027.pdf



DNPMD

Division of Neurological and Physical Medicine Devices

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Neurodiagnostic and Neurosurgical Devices	Neurointerventional Devices	Neurostimulation Devices Neurology Branch	Neurostimulation Devices Psychiatry Branch	Physical Medicine & Rehabilitation Devices
•Cranial Materials & Other Sealants •EEG & Non-EEG Diagnostic Devices •Neurocognitive Diagnostic Devices •Surgical Instruments & Tools •Stereotactic Systems •Dural Sealants	•Embolization Coils •Flow Diverters •Guidewires & Catheters for the Neurovasculature •Neuro-thrombectomy Devices •Neurovascular & Cerebral Interventional Devices •Cerebrospinal Fluid Shunts	•Stimulation Devices for Movement Disorders, Epilepsy, Alzheimer's Disease, Headache, and Traumatic Brain Injury •Devices may include cortical stimulation devices and deep brain stimulation devices	•Stimulation Devices for Major Depression, Obsessive Compulsive Disorder, and Post Traumatic Stress Disorder •Stimulation for Pain Conditions •Devices may include cranial electrical stimulation devices, electroconvulsive therapy, and transcranial magnetic stimulation devices	•Brain Computer Interfaces •Diathermy •Functional Electrical Stimulators •Iontophoresis Devices •Massagers/Vibrators •Orthoses, Exoskeletons •Powered Muscle Stimulators •Rehabilitation Equipment •Wheelchairs, Walkers

Pre-Submissions

WHAT: an opportunity to obtain FDA feedback prior to IDE or marketing submission

Guidance Document

"Requests for Feedback on Medical Device Submissions: The Pre-Submission Program and Meetings with Food and Drug Administration Staff"

(Document issued on February 18, 2014)

It's About the Patients

Thank You

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