Building a Rare Disease Cures Accelerator

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Rare Disease Cures Accelerator
Data and Analytics Platform Launch Meeting
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Context and Motivation

- Regulators are working with rare disease patients, investigators, and companies, mostly one at a time, and most struggling with the same challenges:
  - Vast knowledge gaps about the natural course of the disease and small dispersed patient populations that make it hard to do the randomized clinical trials that save lives.
- There is a need for a better solution.

Key Activities presenting areas of challenge

Discovery / Translational / Preclinical → **Clinical Development**

Characterization of Disease

- What is known about the disease?
- Are there well-defined lab tests—to diagnose the disease?
- What is the natural history of the disease?
- What causes the disease (pathogenesis)?

Getting Patient Perspectives on their Disease and Treatment

- What disease impacts matter most to patients?
- What is the landscape of currently available treatments?

Clinical Study of New Treatments

- Is the investigational drug available in a form that can be administered?
- Pre-clinical safety testing done to inform assessment of safety in humans?
- A study design specified?
- A study protocol?
- IRB review and approval?
- IND submitted for FDA review?
- Plan for patient enrollment?
- Patient access to the trial site?
- Plan for study data collection?

Discovery / Translational / Preclinical

Clinical Development

Characterization of Disease

- What is known about the disease?
  - Is it well phenotyped?
  - What are the main defining problems?
  - How variable are these characteristics across the patient population?
  - Is the disease distinctive or does it overlap with other conditions?
- Are there well-defined lab tests—e.g., to diagnose the disease?
  - Are the lab tests standardized?
  - Are there biomarkers?
    - For what purpose: Diagnosis, Dose-Selection, Endpoint?
    - Are they standardized and reliable for that purpose?
- What is the natural history of the disease?
  - What does it look like?
  - How does it change over time? How can we quantify this?
  - How variable are these symptoms and experiences?
  - What are the implications for clinical trial design?
- What causes the disease (pathogenesis)?
  - Are there multiple steps? (and potential points of intervention)?

Discovery / Translational / Preclinical		Clinical Development
Characterization of Disease • What is known about the disease? • Are there well-defined lab tests—to diagnose the disease? • What is the natural history of the disease? • What causes the disease (pathogenesis)?	**Patients' Perspectives on their Disease and Treatment** • What diseas i n • V l c a t	**Clinical Study of New Treatments** • Is the investigational drug available in a form that can be administered?

Getting Patients' perspectives on their disease and treatment

- What disease impacts matter most to patients?
  - What impacts can be addressed by medical treatment?
  - How can this be measured?
  - What would constitute meaningful change?
- What is the landscape of currently available treatments?
  - What treatment burdens matter most to patients?
  - What risks matter most?
  - What alternatives might be acceptable?

Discovery / Translational / Preclinical		Clinical Development
Characterization of Disease	Patients' Perspectives on	Clinical Study of New Treatments

Clinical Study of New Treatments

- Is the investigational drug available in a form that can be administered?
  - Can the therapy be reliably manufactured/supplied?
- Has basic safety testing (animal or in vitro studies) been done?
- Has a design been specified for clinical study?
  - Are study objectives clearly defined?
  - Can the study design produce the needed quality of evidence?
- Is there a study protocol?
  - Will patients find the protocol acceptable/tolerable?
- Has there been IRB review and approval?
- Has an IND been submitted for FDA review?
- Is there a plan for enrollment of patients?
- Will patients have sufficient access to the clinical trial site to enable enrollment/participation?
- What is the plan for study data collection?

Need for a “Rare Disease Cures Accelerator”

- Adopting a cooperative research approach to accelerate the move from bench to bedside for rare disease cures.
- A “Rare Disease Cures Accelerator” would provide the infrastructure for a cooperative scientific approach to clinical trials readiness in rare diseases.
- Some key components include:
  - Centralized standardized infrastructure to support and accelerate rare disease characterization
  - Standard core sets of COAs measuring impacts that matter most to patients, ideally applicable to more than one rare disease
  - Global rare disease clinical trials network

Congress provided FDA an Opportunity in its Fiscal Year 2019 Appropriation

Within the increases provided for a New Platform for Drug Development in FY 2019, Congress appropriated *$10 million for Investment and Innovation for Rare Diseases*

CDER is investing FY 2019 funds in Innovation for Rare Diseases to launch work on "Rare Disease Cures Accelerator."

Centralized Standardized Infrastructure to Support and Accelerate Rare Disease Characterization

- There is a compelling need for:
  - Efficient comprehensive characterization of the natural history of a given rare disease targeted for clinical development
  - Characterization conducted rigorously with attention to established data quality standards, in order to be most useful to clinical trial design and regulatory review
- A standardized rare disease natural history study data platform is needed to provide a sustainable approach
  - This platform would provide a disease-neutral background data framework for the conduct of standardized natural history studies.
  - Disease-specific needs would be layered onto this framework to provide a rapid means for standardized, yet customized, development of natural history studies for any given disease.

Standard core sets of Clinical Outcome Assessment (COAs) for a given disease

- Development of a COA that is fit-for-purpose for its intended use in drug development can be a lengthy resource-intensive process
- CDER is piloting a grant program to support the development of standard core COAs and related endpoints for specific disease indications/impacts
  - A standard core set can include different types of COAs (e.g. PROs, ClinROs, ObsROs, PerfOs) and endpoints including a minimum list of impacts that matter most to patients, and are likely to demonstrate change and should be reported in a clinical trial.
  - A standard core set might be relevant across several rare disease populations or subgroups or be focused on attributes of a specific disease

Global Rare Disease Clinical Trials Network

- Vision would be to develop a “trial-ready” network of investigators and clinical sites for rare diseases to provide a fast-track implementation path for evaluating promising therapies, and a standardized approach to planning and conducting clinical trials.
  - Assuring uniformity and high level of training among investigators
  - Continuous collaboration and sharing of accumulated experience within a network of similarly trained clinicians
  - Collection of good quality data; standardized assessments
  - Elevating the quality of clinical information generated across all rare disease programs, reducing existing fragmentation in the rare disease clinical trial field

Rare Disease Cures Accelerator
Data and Analytics Platform

Data Analytics Platform provides an integral component of the “Rare Disease Cures Accelerator” construct

Today’s Launch Meeting marks an exciting milestone in the development of the envisioned Platform for Rare Disease Drug Innovation!


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