Accelerating Rare disease Cures (ARC) Program

BAA DAY 2024

RARE DISEASE RESEARCH PRIORITIES

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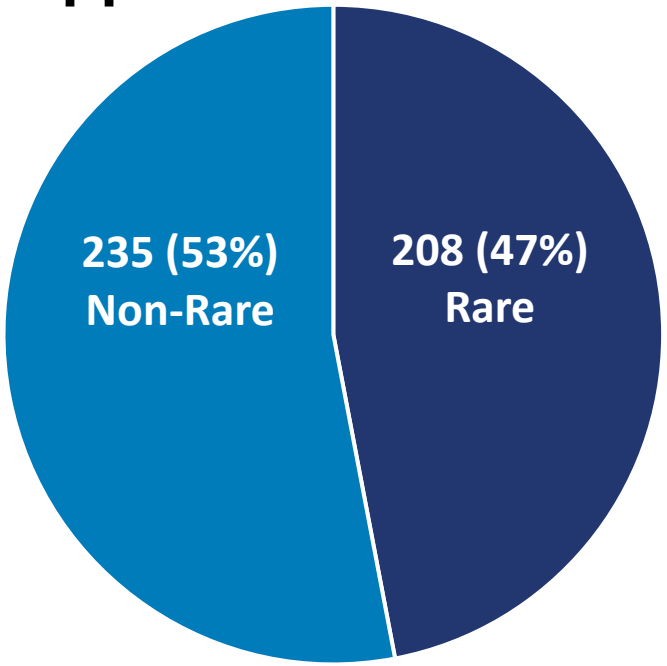
Rare Diseases Team

DRDMG | ORPURM | CDER | US FDA

U.S. FOOD & DRUG
ADMINISTRATION

Rare Disease Progress

Total CDER Novel Drug Approvals 2015-2023



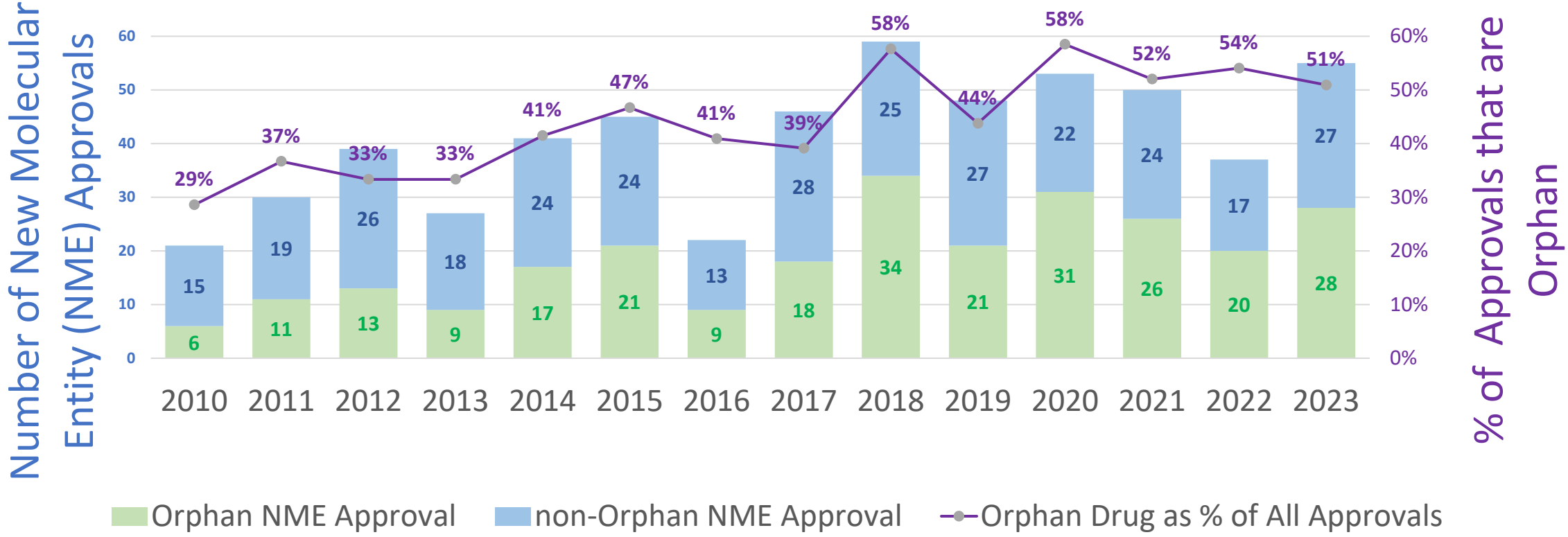
and… FDA has approved over 550 unique drugs and biologics for over 1,200 rare disease indications since the passage of the Orphan Drug Act (1983).

but… ~30 million Americans live with a rare disease.

Vast majority do not have approved treatments.

FDA Opens Doors for More Treatments for Rare Diseases through the New START Pilot Program | FDA
Novel Drug Approvals for 2023 | FDA
Public meeting: FDA Rare Disease Day 2024 - 03/01/2024 | FDA

Proportion of CDER Novel Drug Approvals that are Orphan



We Face Common Challenges in Rare Disease Drug Development

- **Natural history** is often poorly understood
- Diseases are progressive, **serious**, **life-limiting** *and* often lack adequate **approved therapies – urgent needs,** many have **pediatric onset**
- **Small populations** often restrict study design options
- **Phenotypic and genotypic** diversity within a disorder
- **Development programs often lack solid translational background**
- **Drug development tools** - **outcome measures** and **biomarkers** often **lacking**
- Lack of **precedent**, including **clinically meaningful endpoints**, for drug development in many rare diseases

CDER'S Accelerating Rare disease Cures Program

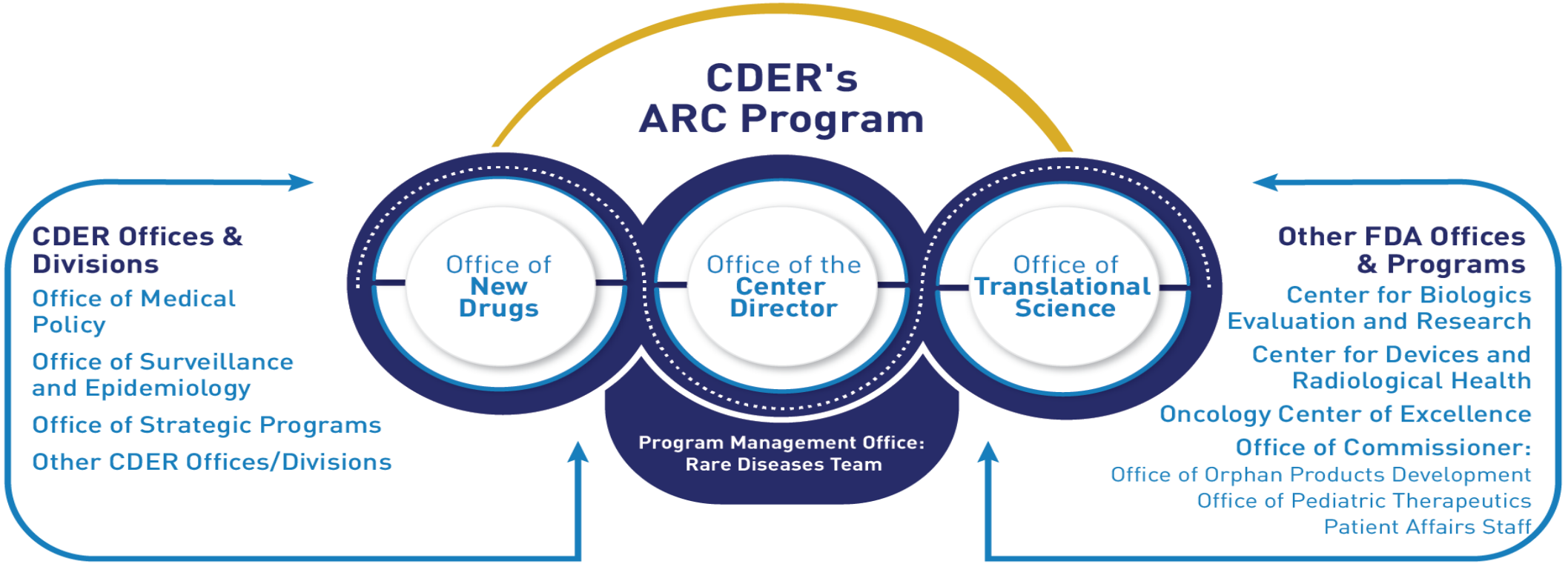
- Vision

Speeding and increasing the development of effective and safe treatment options addressing the unmet needs of patients with rare diseases.

- Mission

CDER's Accelerating Rare disease Cures (ARC) Program drives scientific and regulatory innovation and engagement to accelerate the availability of treatments for patients with rare diseases.

CDER's Accelerating Rare disease Cures Program



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https://www.fda.gov/about-fda/center-drug-evaluation-and-research-cder/cders-arc-program

Rare Disease Research Priorities

CDER's ARC program seeks to support and participate in research to **advance rare disease drug development, inform product review and policy related to rare disease therapeutics.**

- ARC is interested in engaging in and supporting scientific research that:

- Has the potential to change regulatory knowledge, practice, or methodology to benefit rare disease drug development programs
- Supports the development of drug products and practices that advance safe and effective therapeutic products to benefit persons with rare diseases
- Advances evaluation and regulatory review of drugs for rare diseases

Rare Disease BAA Research Areas of Interest

I. Modernize development and evaluation of FDA-regulated products

A. Alternative Methods - Develop new alternate methods such as microphysiological systems and complex in vitro models to support regulatory assessments of drug efficacy and safety for rare diseases (such as evaluating the relevance of a biomarker to disease pathology or effects of genetic variants on response to targeted therapies).

C. Analytical and Computational Methods - Develop rare disease clinical trial simulation models that can reveal interactions between drug or device effects and prognostics or predictive variables (e.g., some patient characteristics and disease variables influencing outcomes). These models should address the challenges posed by small populations (e.g., pediatrics population, patients with rare diseases) and heterogeneity of patients within the small populations.

D. Biomarkers - Research utilizing innovative translational science methods to advance rare disease drug development such as -omics approaches and validation of novel biomarkers for use in rare disease patient diagnosis, early phase dose-finding studies, and the evaluation of efficacy and safety (e.g., surrogate endpoints for accelerated approval, confirmatory evidence of effectiveness)

Rare Disease BAA Research Areas of Interest (continued)

I. Modernize development and evaluation of FDA-regulated products

E. Clinical Outcome Assessments (COAs) - Develop and characterize novel functional assessments (COA-based, digital health technology-based) to be utilized for rare disease drug development, particularly for indications with small, heterogenous patient populations, to measure outcomes for clinical benefit and/or safety

D. Complex and Novel Clinical Trial Design

a. Develop natural history studies for rare diseases to identify disease subsets/phenotypes amenable to differential approaches for therapy or management, and possibly with novel biomarkers for their identification;

b. Utilize innovative trial design and analysis approaches for rare diseases with small, heterogenous patient populations, with slow or variable disease progression speeds.

J. Methods to Assess Real-World Data to serve as Real-World Evidence - Explore mechanisms to support and expedite development of approved drugs for non-cancer rare disease indications such as analyzing RWD (e.g. registries) to inform screening and evaluation of drugs in rare populations.

Connect with ARC!

- **Learning and Education to Advance and Empower Rare Disease Drug Developers** (LEADER 3D) **Program** provides information to help drug developers navigate rare disease drug development process
  - LEADER 3D webpage featuring a new public report. The annual report collates feedback for the Agency to inform rare disease drug development from the rare disease community
  - Challenges, Strategies, and Regulatory Considerations for the Design of Rare Disease Clinical Trials video
- **ARC's 2024 Annual Report: Driving Innovation through Scientific and Regulatory Advancement** details ARC accomplishments and initiative activities located on the ARC webpage.
- **Social Media: Follow ARC programmatic updates** via X (formerly Twitter), LinkedIn, and Facebook
- **Conferences, workshops,** and **external speaking engagements**: Check out ARC's Upcoming and Recent Event

ARC Website

ARC Newsletter Sign-up