An NDA at the FDA
Understanding the Drug Approval Process

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Professional Affairs and Stakeholder Engagement
Objectives

• What are the statutory requirements for drug approval?
• What is the typical timeframe for drug discovery and drug approval?
• What are the different approval tracks?
• What is expanded access?
CDER Mission

CDER’s mission is to:

• Promote the public health by helping to ensure the availability of **safe and effective drugs**
• Protect public health by promoting the **safe use** of marketed drugs
• Protect public health by helping to ensure the **quality and integrity** of marketed drug products
Six Stages of Drug Development

1 – Pre-Clinical
2 – IND Submission
3 – Clinical Studies
4 – NDA Submission
5 – FDA Review
6 – FDA Action
Drug Discovery Timeline

What role does FDA play in the drug discovery process?
Pre-Clinical

• Drug sponsor’s discovery and screening phase

Drug Developed

Drug sponsor develops a new drug compound and seeks to have it approved by FDA for sale in the United States.

Animals Tested

Sponsor must test new drug on animals for toxicity. Multiple species are used to gather basic information on the safety and efficacy of the compound being investigated/researched.
IND Submission

The sponsor submits an Investigational New Drug (IND) application to FDA based on the results from initial testing that include, the drug’s composition and manufacturing, and develops a plan for testing the drug on humans.
Clinical Studies

• Drug sponsor’s clinical studies/trials
• FDA/CDER does not test new drugs
Clinical Studies

• Drug sponsor’s clinical studies/trials
• FDA/CDER does not test new drugs
Clinical Studies

- Drug sponsor’s clinical studies/trials
- FDA/CDER does not test new drugs
Flexible Trial Design

• FDA supports flexible approach to drug development
NDA Submission and Review

Who reviews new drug submissions?
A team of CDER physicians, statisticians, chemists, pharmacologists, and other scientists review the drug sponsor’s data and proposed labeling of drugs.

NDA Application
The drug sponsor formally asks FDA to approve a drug for marketing in the United States by submitting an NDA. An NDA includes all animal and human data and analyses of the data, as well as information about how the drug behaves in the body and how it is manufactured.
NDA Review Timeline
NDA Submission and Review

Facility Inspection

FDA inspects the facilities where the drug will be manufactured.
FDA Action
Post-Marketing

• Once FDA approves a drug, the post-marketing monitoring stage begins.
• The sponsor (typically the manufacturer) is required to submit periodic safety updates to the FDA
• Sentinel
• MedWatch
Number of New Drug Approvals

![Bar chart showing the number of new drug approvals from 2006 to 2015. The number of approvals increased from 22 in 2006 to 45 in 2015.](chart.png)
FDA in Drug Approval

Global New Active Substance First Launches by Region (2001-2013)
FDA in Drug Approval

Global New Active Substance First Launches by Region (2001-2013)

Expedited Development Pathways

**Fast Track**
Fast track is a process designed to facilitate the development, and expedite the review of drugs to treat serious conditions and fill an unmet medical need. [Fast Track](#)

**Breakthrough Therapy**
A process designed to expedite the development and review of drugs which may demonstrate substantial improvement over available therapy. [Breakthrough Therapy](#)

**Accelerated Approval**
These regulations allowed drugs for serious conditions that filled an unmet medical need to be approved based on a surrogate endpoint. [Accelerated Approval](#)

**Priority Review**
A Priority Review designation means FDA's goal is to take action on an application within 6 months. [Priority Review](#)
Expanded Access

- What is expanded access?
- Am I protected from risks?
- Will I qualify if I meet the criteria?
- How do I submit an application?
Expanded Access

Number of Expanded Access Submissions

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NDA at the FDA

What is a drug as defined by the FDA?
A drug is any product that is intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease and that is intended to affect the structure or any function of the body.

Drug Approval Process

**PRE-CLINICAL**

Drug Sponsor’s Discovery and Screening Phase

1. **Drug Developed**
   - Drug sponsor develops a new drug compound and seeks to have it approved by FDA for sale in the United States.

2. **IND Application**
   - The sponsor submits an Investigational New Drug (IND) application to FDA based on the results from initial testing that includes the drug composition and manufacturing, and develops a plan for testing the drug on humans.

3. **IND Review**
   - FDA reviews the IND to ensure that the proposed studies, generally referred to as clinical trials, do not place human subjects in unreasonable risk of harm. FDA also verifies that there are adequate informed consent and human subject protections.

4. **Animals Tested**
   - Sponsor must test new drug on animals for toxicity. Multiple species are used to gather basic information on the safety and efficacy of the compound being investigated/researched.

5. **Clinical Trials**
   - The clinical trials are conducted in phases.

   - **Phase 1:**
     - 20-80 volunteers
     - Emphasizes safety
     - Goal is to determine what the drug’s most frequent side effects are and, often, how the drug is metabolized and excreted.

   - **Phase 2:**
     - 100’s
     - Emphasizes effectiveness
     - Goals to obtain preliminary data on whether the drug works in people who have a certain disease or condition. For controlled trials, patients receiving the drug are compared with similar patients receiving a different treatment—usually a placebo, or a different drug. Safety continues to be evaluated, and short-term side effects are studied.

   - **Phase 3:**
     - 1000’s
     - The typical number of patients used in Phase 3. These studies gather more information about safety and effectiveness, study different populations and different dosages, and use the drug in combination with other drugs.

   At the end of Phase 2, FDA and sponsors discuss how large-scale studies in Phase 3 will be done.