

RARE DISEASE AND ORPHAN DRUG SOLUTIONS

Accelerating Complex Studies
Across the Globe



COVANCE
SOLUTIONS MADE REAL®

SUMMARY

Orphan drug development is gaining considerable momentum in the quest to treat rare diseases due to several advances and benefits. Rapidly evolving science has helped identify genomic aberrations and tangible targets.

Learn how to address key development challenges, including patient access, unique study design and the need for cross-functional global expertise.

Variations between regions • Orphan drugs versus non-orphan traditional medicines
• Identifying patients in sparse populations • Comprehensive patient and clinical trial databases • Robust study design • Relevant endpoints • Global clinical laboratory testing capabilities • Logistics solutions and contingency planning
• Holistic market access strategy



DEFINING RARE DISEASES AND ORPHAN DRUGS

RARE DISEASE

- ▶ No single, global definition
- ▶ Defined based on occurrence in a given population

ORPHAN DRUG

- ▶ A pharmaceutical agent that has been developed specifically to treat a rare disease
- ▶ Status requires regulatory approval

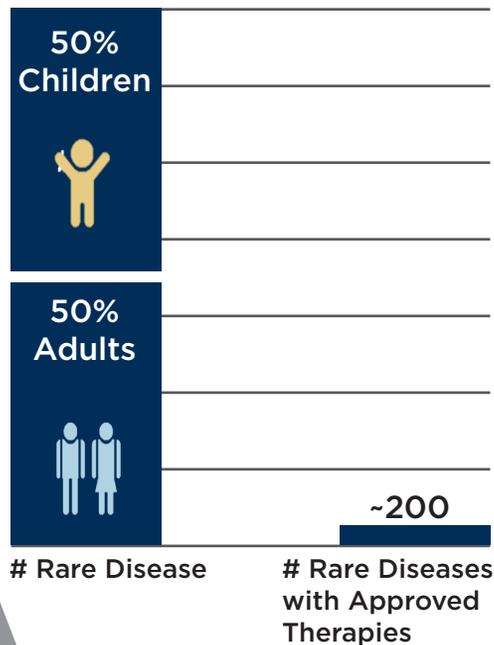


FOCUS ON RARE DISEASES AND ORPHAN DRUGS

Opportunities to Make an Impact



An estimated **350 million people** worldwide suffer from rare diseases



It takes an average of:

3.9 years to go from phase II to market launch vs. 5.4 years for drugs without orphan status

82% of orphan drugs are approved by the FDA vs. **35%** of traditional medicines

In the last five years, **one-third** of all new drug approvals were for **rare diseases**

80% of rare diseases are **genetically defined** and the science to understand them is rapidly evolving

35% of deaths in the first year of life are caused by rare diseases.

NAVIGATING RARE DISEASE AND ORPHAN DRUG DEVELOPMENT

Developing treatments for rare diseases presents unique challenges. Biopharmaceutical companies must consider strategies to find and identify enough subjects in sparse patient populations. During study design, therapeutic expertise is required to overcome inherent challenges and increase the likelihood of success. To support development across the spectrum, companies need access to cross-functional global expertise.

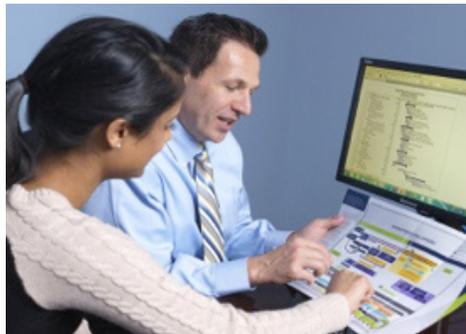
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**ACCESSING
PATIENTS**



2

**UNIQUE STUDY
DESIGN**



3

**CROSS-FUNCTIONAL
GLOBAL EXPERTISE**



FINDING AND SECURING PATIENT POPULATIONS

A Common, Yet Critical Challenge

Clinical success relies on the ability to find and identify specific patients in a sparse population. Covance's proven processes can ease the recruitment burden and get a trial underway.

By leveraging **LabCorp's patient data**, biopharmaceutical companies can find and retain appropriate study subjects in a competitive market and reduce recruiting risks. With **Xcellerate® Clinical Trial Optimization®**, ideal sites for a unique study can be selected and cycle times can be trimmed. Finally, Covance's relationships with leading **proprietary patient registries** and **key advocacy groups** can improve the study's visibility and credibility.



APPLYING DEEP DATA AND ANALYTICAL CAPABILITIES

A Robust Solution to Identify Patients—Even in Sparse Populations

The LabCorp-Covance combination provides access to LabCorp's patient database with de-identified health information on **>70 million patients** tested on **>4,000 clinical assays**. Therapeutic areas include rheumatology, oncology, cardiovascular disease and infectious disease.

With **50% of industry trial data** over the last decade, Xcellerate® Clinical Trial Optimization® is the most comprehensive clinical trial knowledgebase in the industry. It spans more than 175,000 unique investigators, 11,000 protocols and 14 million patient visits.



LEVERAGING SCIENTIFIC EXPERTISE TO ACCELERATE DEVELOPMENT

Crucial Considerations for Study Design

Orphan drug success starts with a robust study design that outlines the concept and strategy, study duration, desired outcomes and appropriate endpoints.

CONCEPT /
STRATEGY

STUDY
DURATION

DESIRED
OUTCOMES

APPROPRIATE
ENDPOINTS

Partners can help biopharmaceutical companies by:

Applying Experience	<ul style="list-style-type: none">• Identify relevant endpoints by leveraging prior success in comparable populations• Better predict clinical benefits and improve the potential for observing a clinically meaningful treatment effect
Supporting Study Designs	<ul style="list-style-type: none">• Ensure efficient study design yielding relevant results• Improve predictability with a robust study design that includes desired outcomes, relevant endpoints and surrogate markers to increase the likelihood of success
Providing Operational Expertise	<ul style="list-style-type: none">• Employ imaging and other innovative modalities to gather key data• Navigate regulatory milestones with innovative study planning strategies and expert support

ACCESSING PROVEN EXPERIENCE IN ORPHAN INDICATORS:

Covance Rare Disease Team

Centralizing rare disease experience across therapeutic areas (TAs)

Cross-functional experts in rare disease

Tracking of performance metrics in rare disease

Adapting costing models

Operational tools tailored for rare disease

The Key to Driving Progress

- ▶ 50 indications
- ▶ 103 rare diseases that span 48 countries, 5,869 sites and 26,933 patients
- ▶ More than 25 pediatric studies worldwide
- ▶ More than 20 years of market access consulting experience with rare and orphan products

Covance has helped with the development of 20 out of the 21 orphan drugs approved by the FDA in 2015.



RELYING ON CROSS-FUNCTIONAL GLOBAL EXPERTISE

Solutions to Maximizing Operational and Commercial Potential

Reaching market success in rare disease and orphan drug development requires more than dedicated therapeutic expertise. Biopharmaceutical companies need comprehensive operational and commercial support to proactively identify issues and develop a flexible approach for complex global studies.

- ▶ Central labs
- ▶ Bioanalytical solutions
- ▶ Translational biomarkers and companion diagnostics
- ▶ Phase I solutions
- ▶ Esoteric testing solutions
- ▶ External labs
- ▶ Support for Companion Diagnostics
- ▶ Operational Strategies
- ▶ Logistical Solutions
- ▶ Commercial Support

Global Clinical Experience and Capabilities

North America

US: 294 CRAs | 160 PMs
Canada: 34 CRAs | 11 PMs

Latin America

11 Countries
106 CRAs | 7 PMs

Europe

32 Countries
707 CRAs | 112 PMs

Africa

48 CRAs

Asia-Pac

15 Countries
204 CRAs | 45 PMs



THE CRUCIAL ROLE OF LOGISTICAL SOLUTIONS

Protecting Important Assets

Samples are always precious but in rare diseases, each and every patient counts. Rely on proven clinical laboratory logistics solutions that deliver >99% sample receipt within stability. Biopharmaceutical companies can count on Covance's ability to deliver more than 1,850,000 shipments to and from 95 countries each year.

Even in exceptional situations, contingency planning ensures dependable data.

Earthquakes Japan earthquake/tsunami	>99% within stability
Embargoes Russian embargo	>95% within stability
Severe storms Hurricane Katrina Superstorm Sandy	>99% within stability
Volcanic ash clouds Icelandic ash cloud 2010	>92% within stability



▶ **TIMELY SAMPLE RECEIPT**

▶ **STABLE SAMPLES**

▶ **MAXIMUM SAMPLE YIELD**

INCORPORATING COMMERCIAL STRATEGIES

Gain an Understanding of a Product's Full Potential

A holistic market access strategy examines a product from multiple perspectives. With expert market access guidance, biopharmaceutical companies can plan their economic impact and determine pricing and reimbursement strategies. Evidence-driven health economics and outcomes research can maximize commercial potential.

The Key Components of a Successful Approach

- ▶ Patient focus – Understand the disease and patient needs - every patient counts
- ▶ Site and investigator relationships require additional effort with high level of accountability
- ▶ Exceptional level of collaboration and “can do” philosophy
- ▶ Adaptive/flexible processes and creative solutions
- ▶ Act with a sense of urgency without generating undue burden for sites or patients





ABOUT COVANCE

Covance, the drug development business of Laboratory Corporation of America® Holdings (LabCorp®), is the world's most comprehensive drug development company, dedicated to advancing healthcare and delivering Solutions Made Real®. We have helped pharmaceutical and biotech companies develop each of the top 50 prescription drugs in the marketplace today.

Because of our broad experience and specialized expertise, we're in a unique position to supply insights that go above and beyond testing. Together with our clients, we create solutions that transform potential into reality.

Learn more about our rare disease development solutions at www.covance.com/rare-disease

Covance Inc., headquartered in Princeton, NJ, USA is the drug development business of Laboratory Corporation of America Holdings (LabCorp). COVANCE is a registered trademark and the marketing name for Covance Inc. and its subsidiaries around the world.

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