The Critical Path for Alzheimer's Disease (CPAD) Consortium – A Pre-competitive, Global, Integrated, and Standardized Alzheimer Disease Clinical Trial Data Sharing Repository to Support AD Drug Development

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Background

The CPAD 2018 Annual Meeting and Regulatory Science Workshop defined the consortium's primary objective: to promote, support, and manage pre-competitive data sharing from Alzheimer disease (AD) clinical trials as a means to quantitatively describe the disease progression throughout the continuum of AD. Such a quantitative understanding of disease dynamics will drive the potential for scientific discovery provided by aggregated and standardized primary clinical trial data. This will, in turn, provide solutions to optimize the design of clinical trials to evaluate novel therapeutics across the AD continuum. CPAD is a nonprofit, pre-competitive consortium of the Critical Path Institute (C-Path) and convenes diverse stakeholders from academia, advocacy groups, industry, and regulators.

Critical Path for Alzheimer's Disease Consortium

The Critical Path Institute hosts over fifteen global, pre-competitive, public-private partnerships with participation from industry, academia, advocacy groups, and regulators, with impact on regulatory science (**Figure 1**).

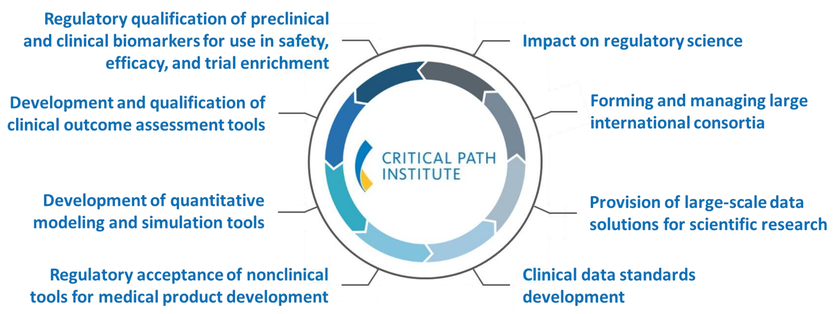


Figure 1 The Critical Path Institute (C-Path) is Focused on Advancing Regulatory Science

The Critical Path Institute has achieved many regulatory firsts including eight U.S. Food & Drug Administration Qualification Decisions and Endorsements, seven European Medicines Agency Qualification Opinions, and one Pharmaceuticals and Medical Devices Agency (Japan) Qualification Decision (**Figure 2**).

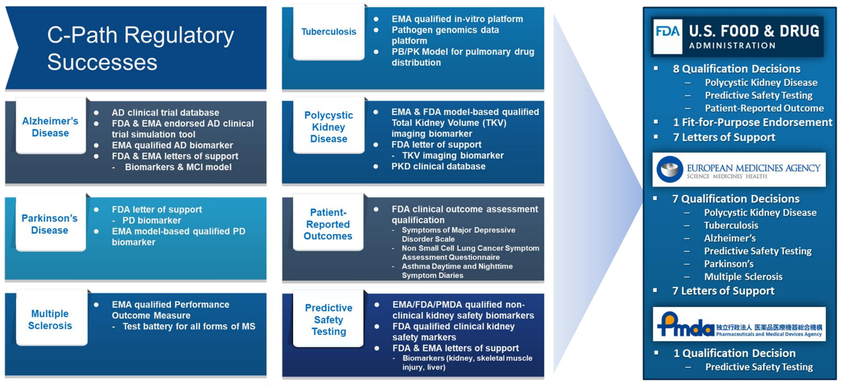


Figure 2 A Success Story – Regulatory Firsts

PROBLEM

- **There is a pressing need for an optimized quantitative basis on which to design clinical trials in neuroscience**
- **Science is directing the field to conduct trials in even earlier stages of progressive neurological disease – the information upon which to do so is limited**

VISION IN ALZHEIMER'S DISEASE AS A TEMPLATE FOR PROGRESSIVE NEUROLOGICAL DISEASES

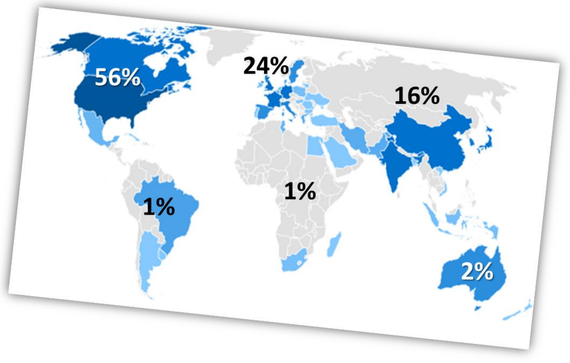
- **To provide a disease progression model across the entire continuum of Alzheimer disease (AD) – from the earliest stages to severe AD – providing an invaluable tool that will aid in optimizing trial design & execution, reduction of cost & time, and reduced patient burden**

Methods

In 2010, CPAD developed the first integrated database of anonymized, patient-level clinical data for AD. All data are standardized to the AD CDISC (Clinical Data Interchange Standards Consortium) standards. CPAD's data repository contains 38 studies, representing 14,583 individual records, and has been utilized by 470+ qualified applicants (**Figure 3**). The consortium's objective is to collaborate with industry and regulators to leverage the wealth of drug development knowledge that the consortium members possess by enabling pre-competitive widespread data sharing from clinical trials in AD and contribute directly to the availability of new effective treatments for AD by focusing on the tools and knowledge needed to support successful drug development.

C-Path's approach to data curation and management is unique, in that all datasets are anonymized, are mapped to CDISC standards, contain primary patient-level data, are fully aggregated, and focus on quantitative solutions. Access to clinical patient-level data for qualified researchers can be approved in a secure environment, for studies for which the contributors have permitted such a level of accessibility.

CPAD Data Repository



473 approved applicants from 370+ distinct institutions from 51 countries

- Pharmaceutical Industry
- Government Agencies
- Non-profit organizations
- Academia
- Independent Researchers

Figure 3 Global Utilization of the CPAD Data Repository

Results

Collaborations that inform the scientific community and support the development of regulatory-accepted Drug Development Tools are of critical importance and promise to accelerate AD drug development. By enabling a rich clinical trial repository, CPAD will contribute directly to the generation of solutions to drug development obstacles across the AD continuum (**Figure 4**). This repository will support the development of data-driven quantitative tools to optimize clinical trial design. To achieve these goals, two specific aims for 2019 were defined: integration of data from clinical trials throughout the AD disease continuum, and generation of model-based clinical trial simulation tools to optimize clinical trial design throughout the AD disease continuum.

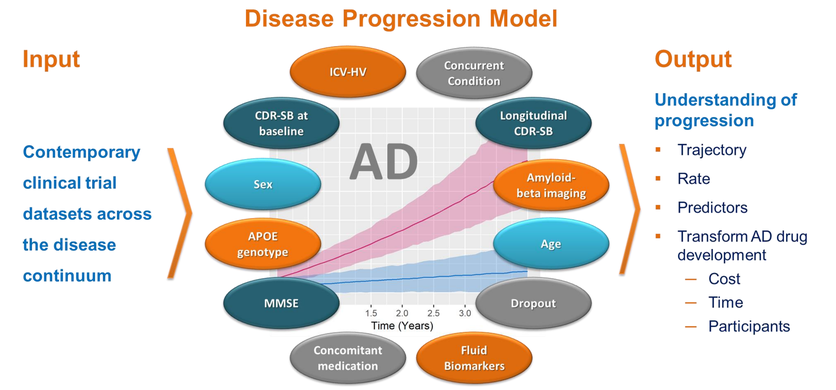


Figure 4 Disease Progression Model Across the Entire AD Continuum

Conclusion

Pre-competitive sharing of contemporary clinical trial data to develop an understanding of the disease continuum should enable more fully informed trial design and advance effective AD treatments.

C-Path is uniquely focused on development in a truly neutral pre-competitive environment with established support of both industry and regulators.

Advanced Data Management

Extant technical expertise and infrastructure to obtain, integrate and make accessible high quality patient-level datasets suitable for queries and analyses

Advanced Analytics to Generate Solutions

Data-based ability to generate disease progression models across the entire continuum of Alzheimer disease (AD) – from earliest stages to severe AD

Focus on Drug Development

Potential to dramatically accelerate the evolution of the scientific understanding of AD, reduce clinical trial costs, and thereby expedite drug development

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