



# Update on The Critical Path Initiative

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**CMOD**

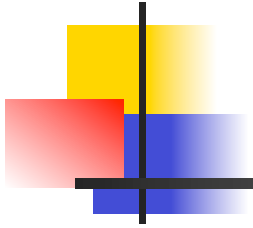
**October, 2011**

# Context:

## New Realities in the 21<sup>st</sup> Century

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- Two decades ago we lacked effective treatments for most life-threatening illnesses
- Today many more treatments are available, but delivery of new therapies has lagged behind the promise of the pace of basic science discoveries
- Reinvigorating medical product development is essential



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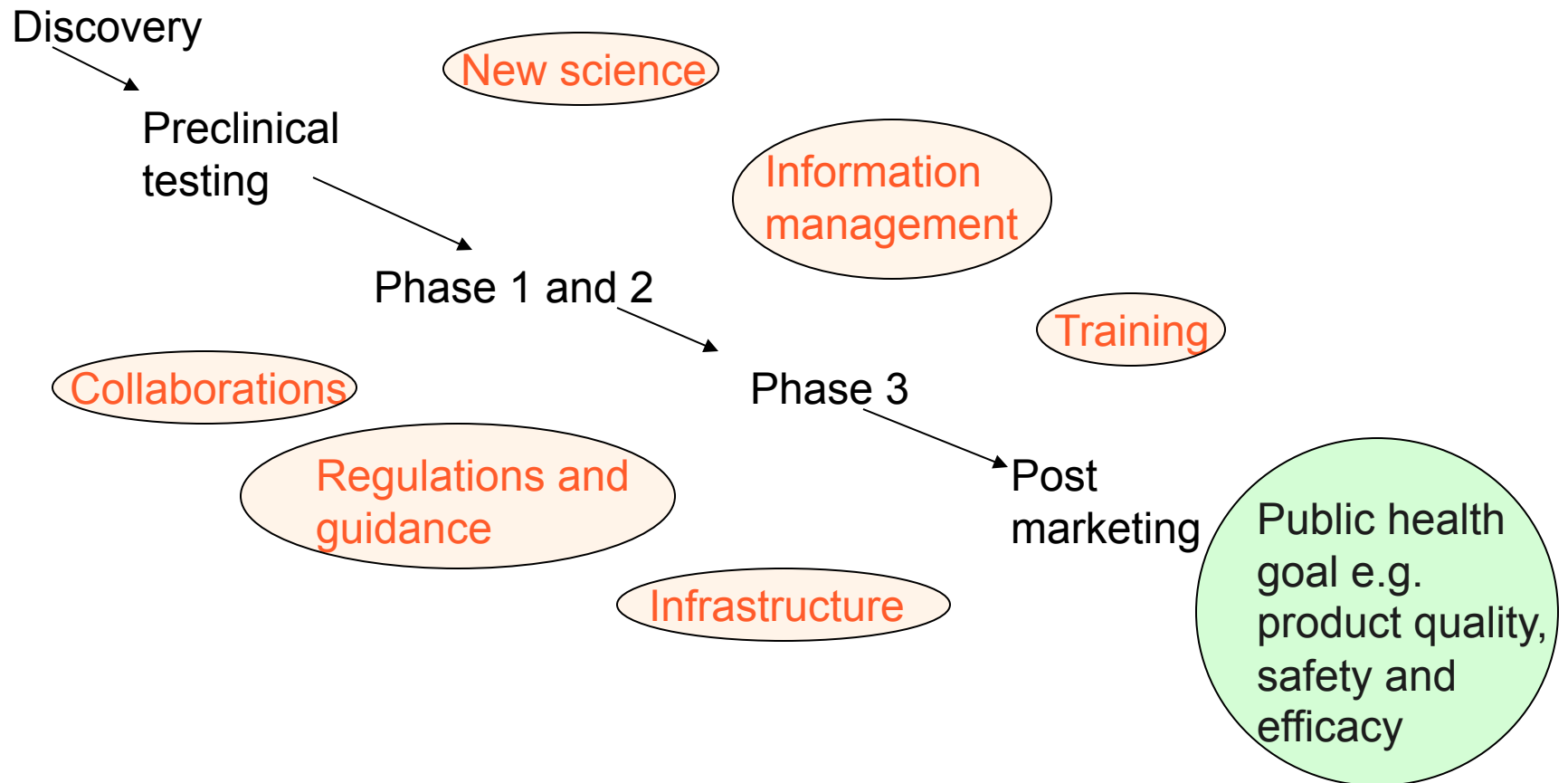
# Critical Path As Part of Solution

# What is the “Critical Path”?

- “Critical Path” of medical product development stretches from candidate identification to commercial production
- Involves serial evaluation of product performance through preclinical testing, clinical evaluation, and manufacturing
- FDA’s Critical Path Initiative launched in 2004 to focus on *the sciences* used to do these evaluations
- Aim to improve the efficiency of medical product development



# CPI Strategy



# FDA's Role in the CPI

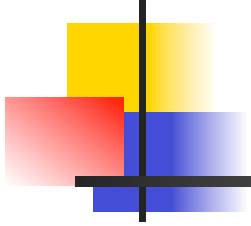
- Develop infrastructure and tools for product development (not focus on development of specific products but rather areas of need)
- Encourage collaborative efforts among government, academia, industry, and patient groups
- Develop relevant data standards and regulations
- Build support for relevant academic science
- Create opportunities to share existing knowledge and databases



# Critical Path Initiative— Broad Ongoing Activities

- Activities in OC as a part of Office of Critical Path Programs
- Activities in Centers
  - CDER through OTS
- Activities in Support of larger FDA efforts





# **FDA Efforts on CPI Through Office of Critical Path Programs (OCPP)**



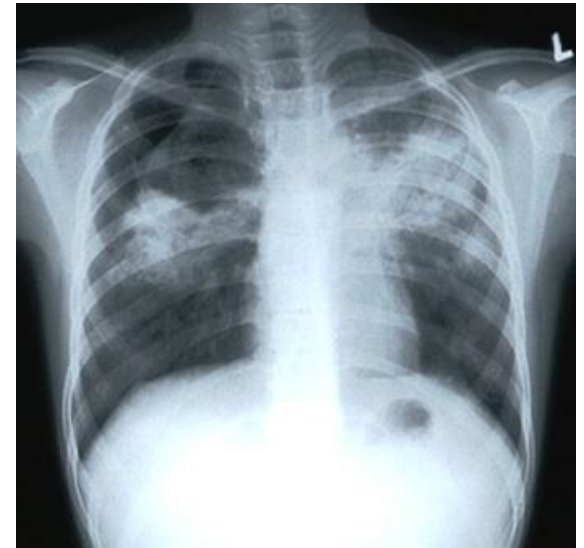
# OCPP Key Projects

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- Six silos of tools (OCPP programs) to expedite/facilitate medical product development
  - Biomarkers
  - Models and modeling
  - Trial designs and strategies
  - Bioinformatics
  - Manufacturing
  - Training and outreach

# Attacking Tuberculosis (TB)

- Congressional language interest: \$2m appropriated for TB and neglected diseases
- Report requested on neglected and rare diseases

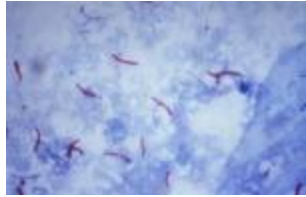




# Several Activities on TB

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- Cross center TB working group to identify priority areas
- TB diagnostic workshop together with CDC NIAID.
- RFA for projects related to TB and tropical diseases
  - 30 applications, many from premier institutions
- Reviewed by ad hoc committee of internal (FDA) and external (CDC NIH) experts



<b>Applicant</b>	<b>Project title</b>
Aeras Global TB Vaccine Foundation	Discovery of biological and immunological biomarkers for TB vaccines
Global Alliance for TB drug Development	Frozen trial (developing a repository of clinical trial specimens)
Global Alliance for TB drug Development	Qualifying new pre-clinical models for the development of tuberculosis drug combinations
The University of Georgia Research Foundation Inc	Development of a diagnostic for latent TB
Colorado State University	Small molecule biomarkers for tuberculosis treatment, relapse and cure
The University of Utah	Development and validation of Point-of -Care tests for tuberculosis (ultrasensitive detection technology for low concentration antigens)





# Improving the Tools of Development (With CDER)

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- Focus on Biomarkers, Animal Models and Patient Reported Outcomes (PROs)—all important tools to speed development
- New CDER Guidance: Process for Qualification of Drug Development Tools
  - Allows groups to submit data to FDA—Agency will determine if biomarker or patient reported outcome measurement tool is “Qualified” for a specific regulatory use



# Developing New Tools Through Collaboration

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- C-Path Institute (nonprofit):
  - Submitted new biomarkers for drug induced kidney injury (data produced by a consortium)
    - Biomarkers of non-clinical renal injury qualified, now undergoing clinical evaluation
  - Working on PROs for specific diseases for qualification
    - Example: Irritable Bowel Syndrome

# Regulatory Innovation: CTTI

- Clinical Trials Transformation Initiative
- Collaboration with Duke University, Industry, NIH, and FDA
- Focus on clinical research as a quality system to support efficient product development





# CTTI Mission/Scope

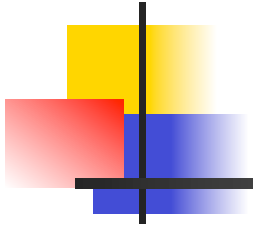
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- To generate evidence about how to improve the *design* and *execution* of clinical trials
- To focus on principles that can be generally applicable to all clinical trials
- To identify clinical trials practices that, when adopted broadly, will increase the quality and efficiency of clinical trials

# CTTI Current Projects

- Improving the public interface data from [clinicaltrials.gov](https://clinicaltrials.gov)
- Improving clinical trials oversight
- Use of central IRB for multicenter clinical trials





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# CDER Efforts on CPI



# Supporting Regulatory Research

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- Since 2008, funding awarded through a competitive intramural process
- 5.3M \$ in 2011 for 23 proposals
- Examples:
  - ACTION (Analgesic Clinical Trials Innovation, Opportunities and Networks): PPP
  - SmartTots: Safety of pediatric anesthetics
  - Systems biology modeling to predict drug toxicities



# Supporting Regulatory Innovation

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- Guidances for Industry to speed development:
  - Non-Inferiority Trials Designs (March 2010)
  - Adaptive Trial Designs (Feb 2010)
  - Development of Two or More Investigational Drugs (Dec 2010)
  - cGMPS for Phase One Studies (2008)

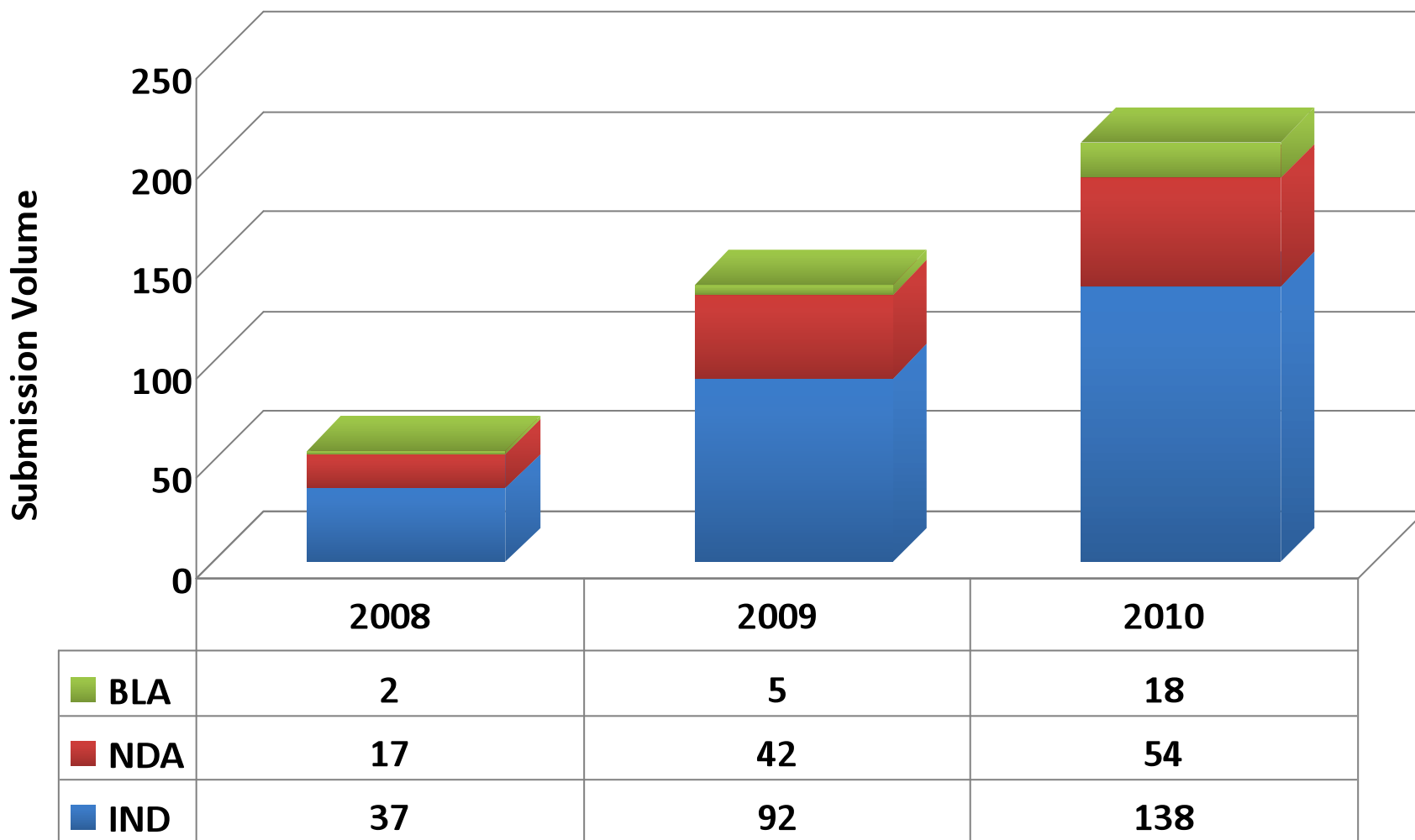


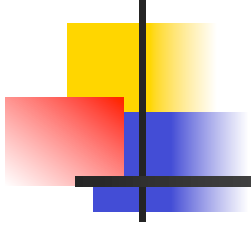
# Regulatory Innovation: VXDS

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- Important to have a space to discuss developing science without ‘risk’
- ‘--Omics’ data and its application are exploratory or research nature—may unresolved issues
- Voluntary Exploratory Data Submissions (VXDS) are an innovative way to share information with the FDA.
- VXDS benefiting both the industry and FDA scientists gain familiarity with new science critical to efficient product development

# CDER OCP Genomics Group Review Activity: 2008 - 2010





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# **CPI Supporting Larger FDA Efforts to Reinvigorate Development**

# 2009: FDA Initiative on Advancing Regulatory Science

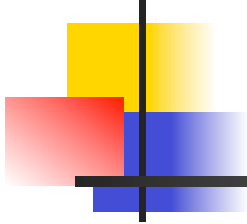
- Strategic plan for regulatory science, to improve the safety, efficacy, quality, and performance of FDA-regulated products
- Priority areas of regulatory science focus, advanced by CPI efforts:
  - Modernizing toxicology
  - Stimulating Innovation in Clinical Evaluations and Personalized Medicine
  - Supporting New Approaches Product Manufacturing
  - Improving Information Sciences
  - Implementing a New Prevention-Focused Food Safety System
  - Facilitating Development of Medical Countermeasures
  - Strengthening Social and Behavioral Science



# Summary: Critical Path Initiative

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- Current state of medical product development will meet the expectations of society and the promise of ongoing discovery science
- CPI is critical to reinvigorating efficient medical product development and delivering on the promise of the new science
- CPI activities are actively supported at all levels of FDA
- Central themes for CPI projects are collaboration and regulatory tools development



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