Center for Health Policy at BROOKINGS

Improving Productivity in Pharmaceutical Research and Development: The Role of Clinical Pharmacology and Experimental Medicine

July 28, 2015

The Embassy Row Hotel • Washington, DC

Day 1 – *Public Conference*

8:30 a.m. **Registration**

9:00 a.m. **Welcome, Overview, and Meeting Objectives**

Mark McClellan, Senior Fellow and Director, Health Care Innovation and Value Initiative, The Brookings Institution

9:10 a.m. **Introduction – Framing the Issues**

This opening session is designed to highlight the challenges and uncertainties in drug development and to discuss frameworks for understanding the role of clinical pharmacology and translational tools in addressing these uncertainties. It will provide an overview of how clinical pharmacology principles could be optimally utilized throughout drug development, with a specific focus on where clinical pharmacology designs and methodological approaches could add additional value in both drug development and regulation. Presentations will outline four key areas where clinical pharmacology could be deployed to further reduce uncertainty and improve decision-making; these four areas will form the backbone of the following sessions.

Regulatory Perspective: Janet Woodcock, Director, Center for Drug Evaluation and Research, U.S. Food and Drug Administration

Industry Perspective: Mark Rogge, Global Head of Clinical Pharmacology Early Development, Biogen

9:40 a.m. **Session I: Optimizing Target and Compound Selection to Enhance Early Stage Decision-Making**

Session Objective: To reduce the risk of clinical attrition due to lack of efficacy, it is critical to incorporate appropriate preclinical in vitro and in vivo studies to establish a detailed mechanistic understanding of therapeutic intervention, establish preclinical dose-response relations and identify biomarkers to enhance the likelihood of translatability of the anticipated pharmacology. This has strengthened the preclinical and clinical "learn and confirm" paradigm and allows proper clinical hypothesis testing to address unmet medical need. This session will address steps taken in preclinical space to enable a seamless and successful transition into the clinic for targeted therapies.

Lead Presentations:

- Paul Morgan, Head of Translational Safety, AstraZeneca
- James Barrett, Professor and Chair, Department of Pharmacology & Physiology, Drexel University

Perspectives:

- Piet Hein van der Graaf, Director of Research for the Academic Center for Drug Research, Leiden University
- Karen Davis-Bruno, Acting Associate Director Pharmacology/Toxicology, Center for Drug Evaluation and Research, U.S. Food and Drug Administration
- Chris Austin, Director, National Center for Advancing Translational Sciences, National Institutes of Health
- Volker Fischer, Vice President, Drug Metabolism and Pharmacokinetics, Abbvie

11:00 a.m. **Break**

11:10 a.m. **Session II: The Right Dose for the Right Patient: Challenges and Opportunities in Dose Optimization**

Session Objective: Emphasize the importance of proper dose finding and dose-exposure/response characterization for successful drug development, approval, labelling, and lifecycle management of medicinal products; discuss key challenges and actions.

Lead Presentation:

- Vikram Sinha, Director, Division of Pharmacometrics, Office of Clinical Pharmacology, Center for Drug Evaluation and Research, U.S. Food and Drug Administration

Case Studies:

- Amita Joshi, Senior Director, Clinical Pharmacology, Genentech
- Brenda Cirincione, Group Director Clinical Pharmacology & Pharmacometrics, Bristol-Myers Squibb

Perspectives:

- Sandy Allerheiligen, Vice President, Pharmacokinetics Pharmacometrics Drug Metabolism, Quantitative Pharmacology & Pharmacometrics, Merck Research Labs
- Lisa LaVange, Director, Office of Biostatistics, Center for Drug Evaluation and Research, U.S. Food and Drug Administration
- Michael Maitland, Assistant Professor of Medicine, The University of Chicago Medicine

12:30 p.m. **Lunch**

1:45 p.m. **Session III: Precision Medicine: Trial Enrichment, Biomarker Science, and Mechanistic Reasoning to Optimize Patient Selection**

Session Objective: Identify development scenarios wherein early phase clinical trials may be enriched to establish proof-of-concept or enhance dose-finding, and define parameters for translating early-phase biomarker discovery to confirmatory trial designs.

Lead Presentation:

- Michael Pacanowski, Associate Director for Genomics and Targeted Therapy, Office of Clinical Pharmacology, Center for Drug Evaluation and Research, U.S. Food and Drug Administration

Case Studies:

- Vissia Viglietta, Director Medical Research, Biogen
- Jim Sullivan, Director, Clinical Biomarkers, Vertex Pharmaceuticals

Perspectives:

- Richard Moscicki, Deputy Center Director for Science Operations, Center for Drug Evaluation and Research, U.S. Food and Drug Administration
- Alice Chen, Adjunct Staff Clinician, Developmental Therapeutics Clinic, Early Clinical Trials Development Program, Division of Cancer Treatment and Diagnosis, National Cancer Institute
- Stephen Friend, President, Co-Founder and Director, Sage Bionetworks

3:15 p.m. **Break**

3:25 p.m. **Session IV: Applications of Clinical Pharmacology to Support Demonstration of Efficacy**

***Session Objective*:** Discuss how we may make better use of the totality of evidence that clinical pharmacology has to offer to support the demonstration of efficacy.

Lead Presentation:

- Robert Temple, Deputy Director for Clinical Science, Center for Drug Evaluation and Research, U.S. Food and Drug Administration

Perspectives:

- Jack Cook, Vice President, Clinical Pharmacology, Pfizer
- Steve Ryder, Chief Development Officer, Alexion
- Carl Peck, Adjunct Professor, University of California, San Francisco Department of Bioengineering and Therapeutic Sciences
- Alasdair Breckenridge, Partner, NDA Partners LLC
- Issam Zineh, Director, Office of Clinical Pharmacology, Center for Drug Evaluation and Research, U.S. Food and Drug Administration

4:45 p.m. **Recap and Closing Remarks**

- Mark McClellan, Senior Fellow and Director, Health Care Innovation and Value Initiative, The Brookings Institution

5:00 p.m. **Adjournment**

Convened by the Center for Health Policy at Brookings and supported by a cooperative agreement with the U.S. Food and Drug Administration.

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July 29, 2015
Invitation Only

Day 2 – *Invitation Only*

9:00 a.m. **Welcome, Recap from Day One, and Meeting Objectives**
Mark McClellan, Senior Fellow and Director, Health Care Innovation and Value Initiative, The Brookings Institution

9:15 a.m. **Session I: Exploring Opportunities for Pre-Competitive Data Sharing and Collective Learning**
This session will focus on outlining key takeaways from discussions that took place on the first day, with a specific emphasis on exploring opportunities for academic researchers, product sponsors, and regulators to work together to share data and reach mutually beneficial conclusions.

Perspectives:
- Klaus Romero, Director, Clinical Pharmacology, Critical Path Initiative
- Dalvir Gill, Chief Executive Officer, TransCelerate BioPharma Inc.
- Cornelis Hop, Senior Director, Drug Metabolism & Pharmacokinetics, Genentech

10:30 a.m. **Break**

10:45 a.m. **Session II: Regulatory and Policy Considerations for the Application of Clinical Pharmacology Tools in Drug Development Programs**
This session will focus on relevant regulatory and policy issues and map out a strategy to overcome barriers to the successful implementation of clinical pharmacology in drug development and review. Discussion will also focus on topics that may require further exploration in subsequent workshops, as well as on identifying concrete next steps for industry, FDA, and other stakeholders.

Perspectives:
- Rob Califf, Deputy Commissioner for Medical Products and Tobacco, U.S. Food and Drug Administration
- Akintunde Bello, Executive Director Oncology and Immuno Oncology, Bristol-Myers Squibb
- Issam Zineh, Director, Office of Clinical Pharmacology, Center for Drug Evaluation and Research, U.S. Food and Drug Administration

12:00 p.m. **Adjournment**

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