U.S. FOOD & DRUG ADMINISTRATION

Overview of Workshop

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Advances in PBPK Modeling and its Regulatory Utility for Oral Drug Product Development

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Background

- Increasing applications of physiologically based pharmacokinetic (PBPK) absorption modeling and simulation (M&S) in drug development!
- PBPK absorption models has been used to assess
  - Alcohol dose dumping
  - Food effect on drug exposure
  - Excipient effect on drug exposure
  - Biowaiver
  - Sex impact on PK
  - Safe space for in vitro testings (e.g., drug release profile)
  - PK predictions for the pediatric population
  - Drug-drug interactions (e.g., pH-dependent drug interactions)
  - Predict local and systemic drug exposure for locally acting products, etc.

Purpose of the Workshop

- To discuss the challenges, experiences, and advances for the development of PBPK absorption modeling
  - to support the establishment of bio-predictive in vitro testing (e.g., dissolution) and
  - to address risks associated with the extrapolation of bioequivalence (BE) in various contexts
    - from a fasting to a fed state
    - from subjects with normal to elevated gastric pH
    - for a biopharmaceutics classification system (BCS)-based biowaiver
    - assessing BE in pediatrics and with other risk-based BE assessments for oral products
- To potentially support ICH's effort by consolidating scientific feedbacks and identifying new areas for harmonization

Workshop Topics

- Advances of PBPK modeling in regulatory contexts and to support harmonization
- PBPK modeling to evaluate food impact on bioequivalence supporting ICH M13A
- PBPK modeling to support bioavailability (BA) and BE assessments in pediatric populations

Three Round Table Breakouts

- Expect deliberations among industry, academic, and regulatory experts on a selection of the most important topics and key issues that will influence best practices in PBPK absorption modeling for BA and BE assessment and harmonization
- Correspond to each of the three workshop topics

Targeted Outcomes

- A consolidated view on current and future opportunities for PBPK absorption modeling
- A mutually recognized best practice to implement these models for regulatory use
- A scientifically driven feedback to ICH for their current and future harmonization effort

An Announcement: the MIE Industry Meeting Pilot

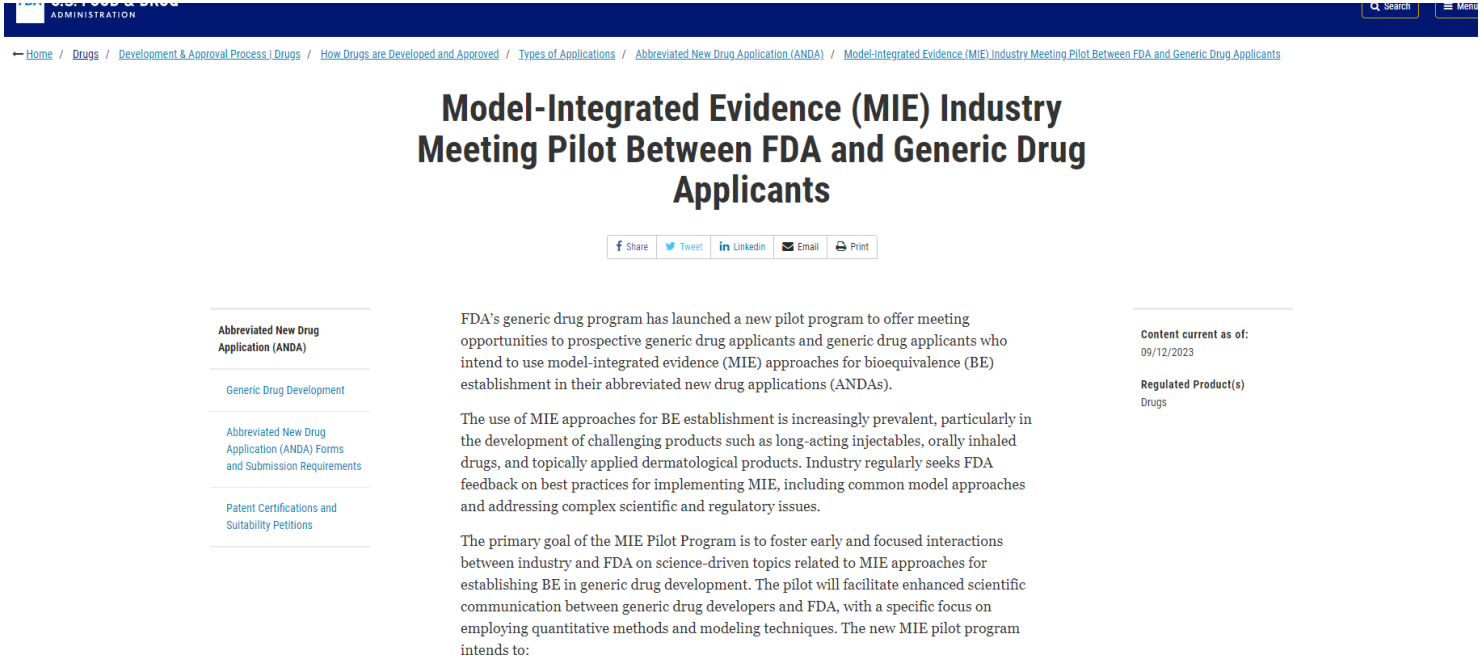
- **Mission:**

  This new pilot program is to provide industry with meetings and opportunities for early interaction for science-driven topics using model-integrated evidence (MIE) approaches for bioequivalence (BE) establishment to facilitate generic drug development and regulatory decision making

- **Vision:**

  The pilot program allows enhanced scientific communications between generic drug developers and FDA on using a broad range of quantitative methods and modeling techniques to address generic drug development issues or questions that are either out of the scope of or cannot be sufficiently addressed by the existing pre-ANDA and ANDA scientific meetings

MIE Announcement



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Model-Integrated Evidence (MIE) Industry Meeting Pilot Between FDA and Generic Drug Applicants

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Abbreviated New Drug Application (ANDA)

- Generic Drug Development
- Abbreviated New Drug Application (ANDA) Forms and Submission Requirements
- Patent Certifications and Suitability Petitions

FDA's generic drug program has launched a new pilot program to offer meeting opportunities to prospective generic drug applicants and generic drug applicants who intend to use model-integrated evidence (MIE) approaches for bioequivalence (BE) establishment in their abbreviated new drug applications (ANDAs).

The use of MIE approaches for BE establishment is increasingly prevalent, particularly in the development of challenging products such as long-acting injectables, orally inhaled drugs, and topically applied dermatological products. Industry regularly seeks FDA feedback on best practices for implementing MIE, including common model approaches and addressing complex scientific and regulatory issues.

The primary goal of the MIE Pilot Program is to foster early and focused interactions between industry and FDA on science-driven topics related to MIE approaches for establishing BE in generic drug development. The pilot will facilitate enhanced scientific communication between generic drug developers and FDA, with a specific focus on employing quantitative methods and modeling techniques. The new MIE pilot program intends to:

Content current as of:
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Regulated Product(s)
Drugs

https://www.fda.gov/drugs/abbreviated-new-drug-application-anda/model-integrated-evidence-mie-industry-meeting-pilot-between-fda-and-generic-drug-applicants

Thank You!