Overview: Role of MIE in Shaping FDA Product-Specific Guidances

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Advancing Generic Drug Development (AGDD): Leveraging Model-Integrated Evidence (MIE) in the Development & Approval of Complex Generic Drugs – August 27, 2026

The Use of MIE Within FDA

For generic drug products, PSG recommendations can be informed by MIE.

Such MIE is generated by FDA employees as well as external sources, such as research collaborators or industry.

While this session will focus on application of PBPK models, other modeling approaches may be used to generate MIE as well.

MIE – model-integrated evidence
PSG – product-specific guidance
PBPK – physiologically based pharmacokinetics

How MIE Shapes PSG Recommendations

MIE can provide information on:

- In vitro-in vivo relationships (IVIVRs)
- Virtual bioequivalence (BE)

This information can then:

- Identify alternatives to in vivo BE studies
- Facilitate streamlined in vivo study designs
- Support post-approval changes and biowaivers

Overarching Guidance

The ICH* M15 Guidance: General Principles for Model-Informed Drug Development

Provides a harmonized framework for model assessment and documentation standards.

Model Risk

"Contribution of the model outcomes to a possible wrong decision and subsequent potential undesirable consequences."

It is essential for determining the requirements of model evaluation.

* - *International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use*

Session Presentations

In Silico Modeling to Guide Charcoal Block PK BE Study Recommendations for Orally Inhaled Drug Products

Ross Walenga, PhD

PBPK Modeling to Support Product-Specific Guidance Revision for Cabotegravir Long-Acting Injectable Suspension

Khondoker Alam, PhD

PBPK/Pharmacodynamic Modeling to Support Product-Specific Guidance Development for Ophthalmic Drugs

Mingliang Tan, PhD

Session Presentations (cont'd)

PBPK Absorption Modeling to Support General and Product-Specific Guidance Development

Fang Wu, PhD

The ICH M15 Guidance: Assessment of Model-Informed Drug Development (MIDD) Evidence

Colleen Kuemmel, PhD

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References

1. International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use. M15 General Principles for Model-Informed Drug Development. (Recommended February 2026). Available from: https://www.ich.org/news/harmonised-ich-m15-guideline-general-principles-model-informed-drug-development-adopted. Accessed June 10, 2026.
2. ASME V&V 40-2018: Assessing credibility of computational modeling through verification and validation: Application to medical devices. New York, NY: American Society of Mechanical Engineers; 2018.