Breakout Session Overview – Disease Modeling

Gaps and Challenges:

- Lack of harnessing the MPS-representations of the disease for pre-clinical screening
  - what are some reasons for why this gap exist?
  - inefficient advocacy for using in silico alongside MPS - looking at ways to combine to these two mechanisms
- Hybrid models have been proposed, but regulators are stating that the MPS models are not sufficiently validated. So until those are validated, it's challenging to link with in silico
- Safe and secure DATA sharing, either federated learning platforms, or publicly available data sources not just for developing models but also validation
- Lack of DATA standards for collecting/collating/storage/processing data; standardization of endpoints;
- Clarity on context of use that could support regulatory decision making
- Lack of (funding) incentives for NAMs development for rare diseases
- Lack of NAMs data in drug applications so FDA lacks experience to give relevant guidance for NAMs developers
- Individual NAMs "success stories" are not generalizable to a broader category of regulatory applications

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Opportunities:

- Increase advocacy for combinatorial NAMs - are there success stories that can be highlighted and showcased?
- Examine mechanisms to feasibly combine to in silico and MPS, for example, pre-clinical screening
- Identify regulatory COUs that would be acceptable by the agency
- Borrow from successes from NAMs in (rare) oncology
- Validating NAMs during clinical trials
- Encourage, through incentives, the development of complex disease NAMs
- Encourage researchers to move from the discovery to development phase
- Could FDA incentivize sponsors to submit their NAMs data without “negative repercussions”?
- Pooling individual NAMs successes into a generalizable applications for community consensus