



Committee on Credible Practice of
Modeling & Simulation in Healthcare
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Credible Practice of Modeling and Simulation in Healthcare

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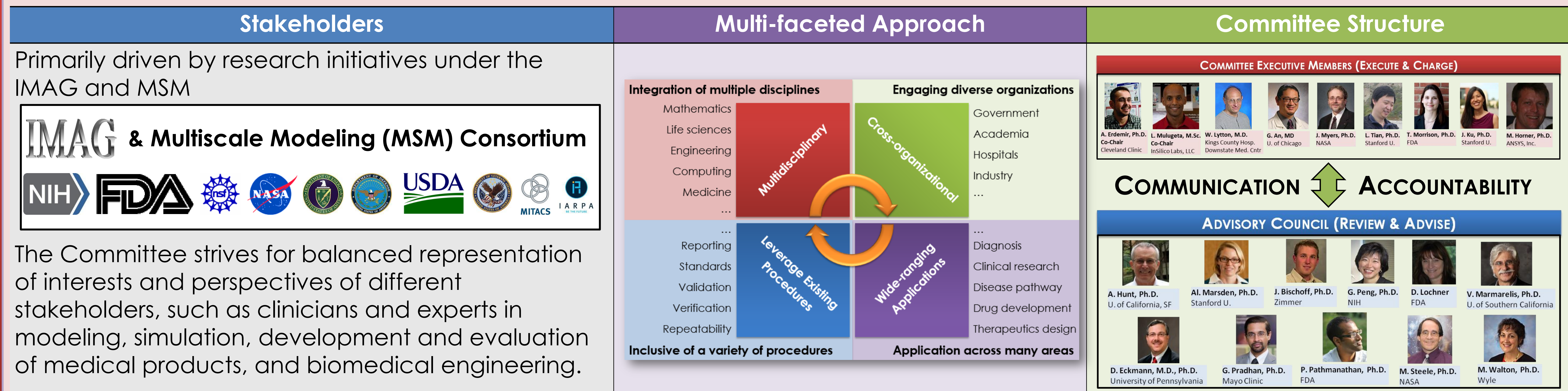
All listed authors are members of [the Committee on Credible Practice of Modeling & Simulation in Healthcare](#)

INTRODUCTION

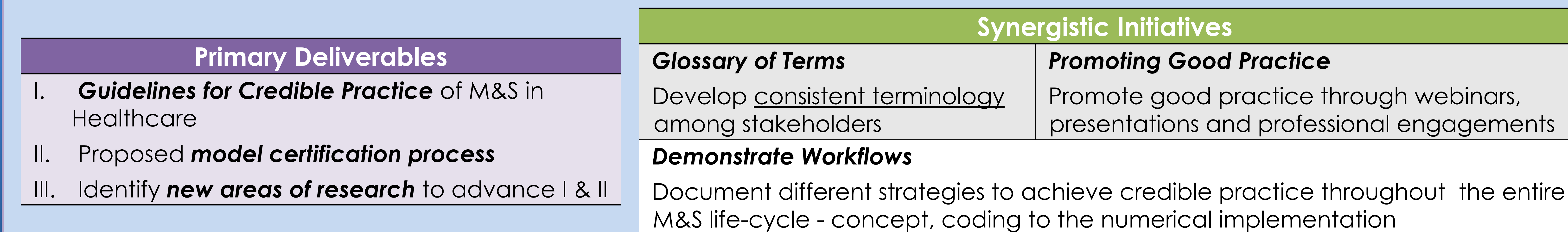
Leading government, health, academic and private institutions around the world recognize that computational methods have tremendous potential to support clinical research and decision making in healthcare [1-5]. To realize these goals, it is imperative to establish guidance and standards that can enable reliable use of computational modeling in the practice of healthcare and translational research [6,7]. To this end, we formed the Committee on Credible Practice of Modeling & Simulation in Healthcare (hereafter referred to as the Committee) to begin addressing these issues. The Committee is part of the Interagency Modeling and Analysis Group (IMAG) and the Multiscale Modeling (MSM) Consortium [8]. The IMAG and MSM are organized by the National Institutes of Health (NIH) in collaboration with ten other government agencies and many academic researchers to promote the advancement of computational methods in healthcare practice and translational research. This presentation will discuss the Committee's efforts to advance *in silico* methods in healthcare.

ABOUT THE COMMITTEE

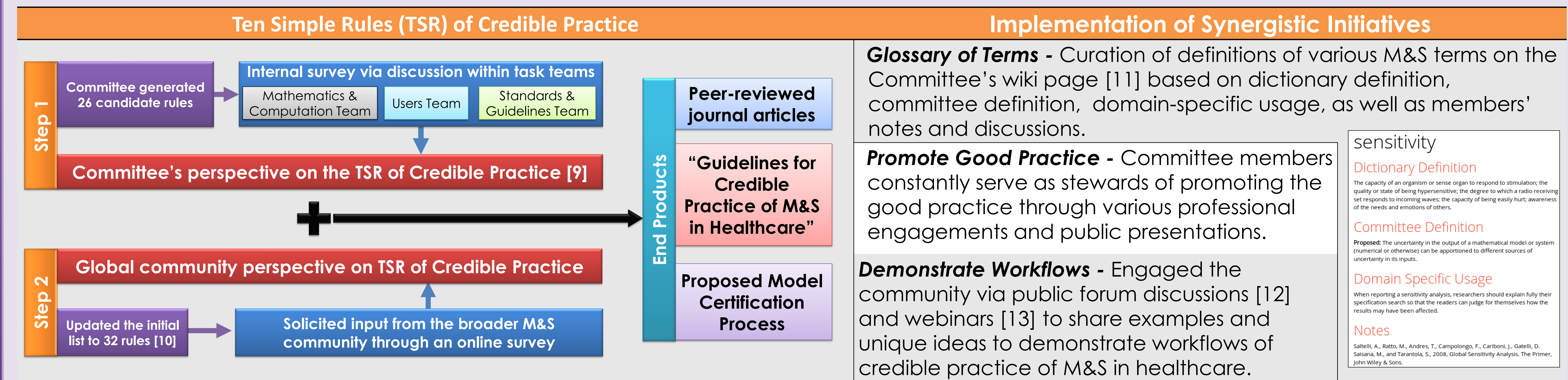
Mission: To establish credible practice guidelines, consistent terminology and a model certification process as well as to demonstrate workflows and identify new areas of research for reliable development and application of M&S in healthcare practice and research.



END PRODUCTS



METHODS



RESULTS AND FORWARD WORK

Current status: Analysis of the global survey data and consolidation with the Committee's perspective results are still in progress. However, the following four high priority rules have been identified by both the Committee and broader M&S stakeholder community.

Rule	Description	
Define context clearly	Develop and document the subject, purpose, and intended use(s) of the model or simulation.	The Committee's activities to establish broadly applicable strategies for credible modeling and simulation have also informed funding programs focusing on multiscale modeling and simulation in healthcare [14].
Use appropriate data	Employ relevant and traceable information in the development or operation of a model or simulation.	
Evaluate within context	Verification, validation, uncertainty quantification, and sensitivity analysis of the model or simulation are accomplished with respect to the reality of interest and intended use(s) of the model or simulation.	
List limitations explicitly	Restrictions, constraints, or qualifications for or on the use of the model or simulation are available for consideration by the users or customers of a model or simulation.	
		A projected outcome of the glossary initiative is a peer-reviewed manuscript and contribute to the Medical Dictionary maintained by the National Library of Medicine. The result of the other two synergistic initiatives will augment the guideline and certification process.

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