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**Mark V Albert\*** ([mark.albert@unt.edu](mailto:mark.albert@unt.edu)), **Riyad Bin Rafiq**, **François Modave** and **Shion Guha**. *Validation methods for machine learning to promote real-world applicability in medicine.*

The impact of AI on health care has been dramatic; however, there is a considerable degree of skepticism among clinicians about the real-world applicability of advanced predictive models; for this reason, it is particularly important to emphasize proper model validation in machine learning. Often model skepticism is well-placed as modelers may overclaim the real-world replicability for their models, understate the known limitations, or simply not be aware of the hidden limits of the modeling approach. Explanations limited to rigorous and thorough justification of all model design decisions may not be practical given model complexity. This also becomes more challenging as state-of-the-art models with the highest benchmark accuracy are becoming less interpretable, e.g. ensemble methods or deep learning. Here we provide an overview of the common limitations of model validation methods we have observed in medical predictive modeling, and we present solutions with a focus on strengthening the validity of predictive models in medical contexts. (Received March 03, 2020)