Tutorial Title: Healthcare Informatics and Analytics

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Abstract: The significant advances in clinical and consumer health technologies combined with the rapid developments in advanced analytics of high dimensional, high volume and complex healthcare data is powering a transformation of healthcare delivery worldwide. Innovative analytical techniques are being developed to support a range of decisions that include predicting responses to different treatment regimens, individual and population level risk assessments, detecting adverse events, and preventing deterioration in the health status of the patient. Supporting patient - provider communication and shared decision making via intelligent reminders, notifications and informed guidance, and providing smart healthcare delivery operations to increase satisfaction, efficiency and quality of care are further capabilities being architected using informatics tools and analytics methodologies. Learning current and potential best practices from data using quantitative methodologies, such as statistical machine learning and operations research, and translating the new evidence to the frontlines of care via efficient software implementations and institutional deployments, offer both major challenges and opportunities for researchers and practitioners alike. This tutorial will highlight some of the methods and tools to address these issues with illustrative examples drawn from clinical, consumer and public health domains.

Bio: Rema Padman is Trustees Professor of Management Science and Healthcare Informatics, Thrust Leader of Healthcare Informatics Research at iLab, Research Area Director for Operations and Informatics at the Center for Health Analytics in the H. John Heinz III College of Information Systems and Public Policy at Carnegie Mellon University, and Adjunct Professor in the Department of Biomedical Informatics at the University of Pittsburgh School of Medicine. Her research investigates healthcare analytics and operations, data-driven decision support and process modeling and risk analysis in the context of clinical and consumer-facing information technology interventions, such as e-health, m-health, chronic and infectious disease management and workflow analysis, in the inpatient, ambulatory and consumer self-health management settings. She is an elected Fellow of the American Medical Informatics Association.