New Jersey Alliance for Clinical and Translational Science

NJ ACTS Translational Medicine and Science Symposium
September 22 and 23, 2021

Scientific Session Descriptions

Session #1: Inclusion, Diversity and Equity in AI and Machine Learning

Session Description: Artificial Intelligence (AI) and associated machine learning (ML) techniques are gaining increasing popularity for their use in the biomedical domain to assist in diagnostic decisions and in treatment of patients, risk prediction, workflow optimization and patient engagement. The automated nature of these algorithms and methods make it possible to interrogate and analyze high-dimensional data with a high-level of objectivity and reproducibility. Unfortunately, care must be taken while applying AI techniques since they are vulnerable to limited and/or noisy data. Thus, it is critical to develop and deploy trustworthy AI techniques that proactively advance inclusion, diversity and equity for biomedical clinical and research applications. In this session, we will discuss potential adverse biases of AI systems and describe strategies, algorithmic improvements and validation methods to both reduce bias and support fairness, accountability and accessibility in the application of AI in biomedical applications with an ultimate goal of improving patient health.

Session #2: Social and Environmental Determinants of Health in the Urban Environment

Session Description: The Covid-19 pandemic has underscored inequities in health care delivery, vaccine acceptance and uptake, and mental, psychosocial and physical well-being. What are the factors that have exacerbated disparities among individuals and communities, particularly in the urban environment?

Session #3: Clinical Trial Science after the Pandemic

Session Description: This session will highlight how clinical trial design and science were impacted by the pandemic with an emphasis on lessons learned. We will explore the new and refined clinical research strategies learned from conducting trials during the pandemic: remote/telemedicine operations, recruitment strategies, improvement for enrollment of traditionally marginalized populations. The session will also discuss how to mobilize rapid evaluation of treatments during a pandemic for new infections such as COVID-19 through Platform trials and other approaches. Additionally, we will critically evaluate the lessons learned from the successes and failures in rapidly developing treatment and diagnostics for COVID-19.

Additional topics include:

- clinical research related to COVID-19 treatment and control. This includes COVID-19 control (e.g., vaccination, coadministration with other vaccines, social strategies, air filtration), post-acute syndrome related to COVID-19 infection (PASC), novel treatments and prevention strategies, and herd immunity.
- clinical research related to COVID-19 testing. This includes low-cost testing, point of care opportunities, global testing strategies, test performance.

Session #4: Biomarker Exploration in the Heterogeneity of Disease

Session Description: There is heterogeneity in presentation, natural history and response to treatment for essentially all of the important diseases in human medicine. With the explosion of science over recent decades, novel approaches in chemistry, genetics, microbiology and bioassay platforms show potential for the development of new tools for individualized or "precision"medicine. What is needed is clinical and translational research to discover and validate biomarkers to improve disease prevention, clinical diagnosis, selection of treatment and monitoring response and ascertainment of prognosis.