

Emory School of Nursing's Dr. Nicholas Metheny Awarded NIH R03 Grant to Explore Innovative Sweat-Based Biomarker Collection in HIV Research

Atlanta, GA – Emory University's Nell Hodgson Woodruff School of Nursing is proud to announce that Assistant Professor **Nicholas (Nick) Metheny, PhD, MPH, RN, FNE**, has been awarded a prestigious R03 grant from the National Institute on Drug Abuse (NIDA). His project, titled "Feasibility, Acceptability, and Validity of Remote Sweat-Derived Biomarker Collection," aims to improve how researchers measure inflammation in people living with HIV (PLWH), with an innovative and non-invasive approach utilizing human sweat.

This cutting-edge research addresses a longstanding challenge in measuring biomarkers in community-dwelling individuals: the need for reliable, accessible, and less invasive methods to monitor systemic inflammation. While inflammation plays a persistent role in HIV pathogenesis, even in individuals undergoing antiretroviral therapy, current biospecimen collection methods like blood draws, dry blood spots, and saliva each have significant limitations ranging from invasiveness to sample instability and contamination risk.

Dr. Metheny's research introduces sweat as a novel biospecimen, containing inflammatory biomarkers in similar proportions to blood and showing strong correlation with serum cytokine levels. The study will be the first of its kind to explore the feasibility, acceptability, and validity of remotely collected sweat-derived biomarkers.

"This approach has the potential to transform inflammatory biomarker collection by making it more accessible, cost-effective, and participant-friendly," said Dr. Metheny. "Our goal is to reduce barriers to participation, enhance data quality, and expand our understanding of how substance use and systemic stressors impact inflammation and impact long-term HIV outcomes."

The project will recruit 100 participants from the ongoing American Remote Collection HIV Epidemiology Study (ARCHES), a 1,000-person longitudinal cohort of sexual minority men living with HIV. This sub-study will focus on individuals who use stimulants (a pro-inflammatory behavior), comparing sweat biomarker data against more established methods like dry blood spots and venous blood samples. Participants will wear sweat patches for 24 hours, enabling the remote collection of biospecimens in a convenient, non-invasive way.

By demonstrating the scientific reliability of sweat as a biospecimen and creating scalable collection protocols, Dr. Metheny's work could pave the way for broader use of this method in both HIV research and other public health domains. The study also aligns closely with the NIDA Strategic Plan, promoting the development of innovative tools for research in substance use and related health outcomes.

Ultimately, this foundational work sets the stage for future R-level grant applications and supports Dr. Metheny's long-term research goals of understanding how violence, substance use, structural inequality, and treatment adherence affect inflammation and comorbidities in low-resource populations living with HIV.

Dr. Metheny holds a Bachelor of Arts in Public Health and Hispanic Studies from The College of William and Mary (2009), a Master of Public Health in Global Health Policy from the Milken Institute School of Public Health at George Washington University (2011), a Bachelor of Science in Nursing from the University of Pennsylvania School of Nursing (2014), and a PhD in Nursing Science from the University of Michigan, Ann Arbor (2019). He also completed a postdoctoral fellowship in Population Health at the MAP Centre for Urban Health Solutions, St. Michael's Hospital/University of Toronto (2020).

Using his training in nursing science, health policy, and public health, Dr. Metheny conducts interdisciplinary, community-engaged research using advanced quantitative methods with the goal of creating interventions to prevent and mitigate intimate partner violence. He is particularly interested in

the role of relationship violence mitigation in HIV-related outcomes among gay, bisexual, and other men who have sex with men as well as post-sexual violence nursing care in low-resource settings. His research has been funded by US, Canadian, and UK government agencies, including the Canadian Institutes of Health Research, the UK's National Institute of Health Research, and US National Institutes of Health via the Center for AIDS Research Adelante program.

Dr. Metheny holds affiliate positions at St. Michael's Hospital, Toronto and the University of Cape Town, South Africa.

For more information on Dr. Nick Metheny, visit his [faculty profile](#). To learn more about the R03 Research Project grant, visit the National Institute on Drug Abuse (NIDA) [website](#).

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