

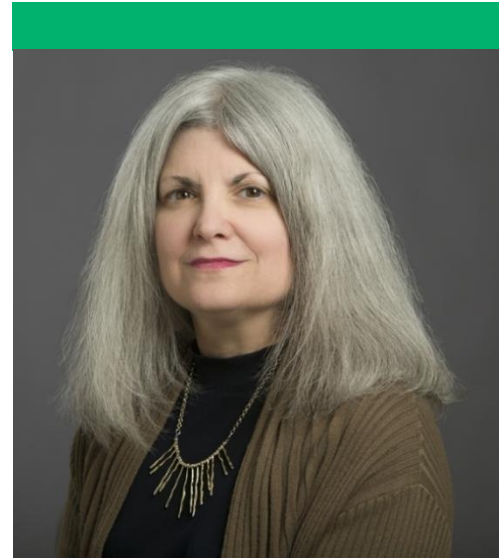
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The Nurses Alumni Association Professor of
Health and Aging

Advancement of Medicine

Our team is committed to advancing health equity among people experiencing socioeconomic disadvantage by developing biobehavioral interventions informed by a multi-omics lens. The science of omics encompasses genes (genomics) and how they're modified by living conditions (epigenomics), gut microorganisms (microbiome), metabolic byproducts (metabolome), and the social dimensions of daily life. It is increasingly clear that repeated and sustained exposures to stressors disrupt omics dimensions and contribute to the development of common chronic diseases. Therefore, interventions that restore omics dimensions to healthy states may improve, or even prevent, many chronic diseases. Our work focuses on two omics-targeted approaches: community screening of underserved populations for common conditions using portable sensor technology to identify omics signatures associated with certain diseases, and biobehavioral interventions that reprogram the gut microbiome toward a healthier state.

The support of the Nurses Alumni Association has advanced our team's work by covering publication costs and repairs to one of our portable sensor devices. Additionally, the funds were used to support travel to scientific conferences, enabling us to stay current with emerging trends and developments while disseminating our work to the broader scientific community. I also used endowed funds to create a Diversity, Equity & Inclusion annual speaker series to foster conversations about DEI issues among College of Nursing faculty and students. Our first speaker was **Kemi Doll, MD**, a nationally renowned expert and thought leader on maternal health equity, who delivered a fireside chat entitled "Advancing Health Equity" on November 13, 2025.



Grants

I used the protected time conferred by the endowed professorship to collaborate with College of Nursing colleagues on developing a P20 Exploratory Centers Grant application to the National Institutes of Health/National Institute of Nursing Research. This application was submitted in late January. If funded, this will create the infrastructure to support community-engaged research focused on preventing stress-related chronic diseases among individuals facing socioeconomic disadvantage. The center will utilize a multi-omics approach to facilitate studies exploring the molecular pathways underlying the stress response to identify targets for precision-based interventions.

Publication Highlights

- Webber-Ritchey, K.J., Julion, W., Aziz, S., Gardner, M., Knafl, K., Simpson, A., Stiles-Shields, C., **Swanson, B.**, Vanegas, J., & Reed, M. (2025). A scoping review of racial identity, racial socialization, and Africentric Worldview in the context of obesity in Black adolescent females. *Journal of Racial and Ethnic Health Disparities*.
- **Swanson, B.**, Bishop-Royse, J., Keshavarzian, A., Balk, R., Bhushan, A., Moy, J., Landay, A., Julion, W., Mehta, J., Arrieta, M., Behun, D., Bowlen, M., & Kang, M. (2025). Examination of unique volatile organic compound signatures in nasopharyngeal test swab viral transport media using an electronic nose. *PLOS One* 20(9): e0332399.
- Reed, M., Banks, T., Halloway, S., Julion, K., Kitsiou, S., Schoeny, M., **Swanson, B.**, Tangney, C., Webber-Ritchey, K., Wilbur, J., Wilhelm, K., Yeager, C., & Julion, W. (2025). Rationale and design of a race-conscious, school-linked, pilot randomized controlled trial to improve physical activity and dietary behaviors of Black adolescent daughter/mother dyads. *Contemporary Clinical Trials*, 156, 107996.
- Houlihan, M.C., Mayahara, M., **Swanson, B.**, Bishop-Royse, J., & Lee, Y.M. (2025). The role of informal caregiver knowledge and health literacy in home hospice pain management. *Home Health Now*, 43, 239-248
- O'Kelley, L., **Swanson, B.**, Bishop-Royse, J., Tam, J., Forsyth, C., & Buchanan, S. (2025). The effects of elevated levels of ethylene oxide gas exposure on low cognitive performance in older US adults. *International Journal of Environmental Research and Public Health*, 22, 852.



- Kosinski, L., Engen, P.A., Swanson, B., Villanueva, M., Shaikh, M., Green, S.J., Naqib, A., Hamaker, B., Cantu-Jungles, T., & Keshavarzian, A. (2025). Use of a novel passive e-nose to monitor fermentable prebiotic fiber consumption. *Sensors*, 25(3), 797.

The Year Ahead: 2026 and Beyond

Our team will emphasize promoting health equity among socioeconomically disadvantaged populations by developing preventive, community-partnered, omics-informed studies to prevent chronic diseases in these communities. We will prioritize mentoring promising, early-stage nurse investigators to develop and lead these studies.

With Gratitude

I am deeply thankful to the Nurses Alumni Association for their generous support. The support has enabled our team to expand our work that aims to advance health equity — the idea that everyone should have a fair chance to be healthy. Because of the Alumni Association's generosity, we have taken the first steps toward creating a federally funded center in the College of Nursing dedicated to advancing equity through nurse-led, community-informed research that incorporates a multi-omics lens.