



Jade E. Bowers, MPH

Associate Health Scientist

Summary of Experience

Jade E. Bowers is an epidemiologist with experience applying epidemiological principles and analytical methods to investigate human health outcomes related to infectious disease exposures and chronic disease risk factors. She received her Bachelor of Science in Health Science from Spelman College where she graduated Magna Cum Laude. After receiving her undergraduate degree, she earned her Master of Public Health with a concentration in Epidemiology from Vanderbilt University School of Medicine, where she was recognized as a David Satcher Public Health Scholar. Ms. Bowers has concentrated her research efforts in foodborne disease surveillance, nephrology epidemiology, and population health assessment. Through her work, she has examined the health impacts of various pathogens and dietary factors, including *Campylobacter* infections, adherence to heart-healthy dietary patterns like the DASH diet, and their relationships with disease progression. Her portfolio also encompasses public health risk evaluation through analysis of comprehensive population datasets, including veteran cohort studies and statewide surveillance networks. She demonstrates proficiency in executing robust epidemiological research designs and sophisticated analytical approaches, encompassing protocol development, comprehensive data management, rigorous quality assurance, and cutting-edge statistical methodologies to investigate relationships between risk factors and health outcomes. Her recent research emphasizes advanced causal inference methodologies in epidemiological investigations, incorporating Mendelian Randomization approaches, complex regression analyses, and systematic surveillance frameworks for infectious disease monitoring. Furthermore, her evolving research portfolio centers on leveraging extensive longitudinal cohort databases for chronic disease investigation, alongside establishing comprehensive surveillance methodologies to characterize infectious disease epidemiology and population-level risk patterns. Her epidemiological skillsets include foodborne illness surveillance, kidney disease research, systematic literature review across diverse health topics, causal inference methodology, and proficiency with data management systems, including REDCap and large-scale population datasets, making her well-equipped to solve complex epidemiological problems across multiple domains of public health research.

Education

Bachelor of Sciences (B.S.), Health Science, 2023, Spelman College

Master of Public Health (M.P.H), Epidemiology, 2025, Vanderbilt University School of Medicine

Project Experience

Foodborne Illness Surveillance

Led a comprehensive epidemiological analysis of 3,333 *Campylobacter* cases spanning 2021-2023 at the Tennessee Department of Health, utilizing systematic data collection and standardized interview protocols to characterize disease patterns across demographic groups. This analysis employed chi-square testing to identify significant exposure correlations and multivariable linear regression modeling to examine relationships between specific food exposures and hospital utilization rates while controlling for age, race, and ethnicity. The work involved extensive data management using REDCap systems and advanced statistical programming in R Studio to summarize demographic characteristics, seasonal patterns, and regional distribution of cases. This comprehensive surveillance effort has informed public health response strategies and contributed to statewide foodborne illness prevention initiatives, yielding multiple presentations at several conferences including the Emerging Infections Program Scientific Presentation Day and Population and Public Health Colloquium.

Implemented standardized epidemiological interview protocols for rapid response to foodborne disease outbreaks, conducting comprehensive patient interviews and coordinating environmental health assessments to identify exposure sources. This systematic approach to case investigation has enhanced laboratory surveillance capabilities and contributed to measurable performance indicators for public health response effectiveness.

Kidney Disease Research

Executed a longitudinal cohort analysis examining the association between Dietary Approaches to Stop Hypertension (DASH) diet adherence and kidney function decline or mortality among veterans in the Million Veteran Program, one of the world's largest genomic databases. This research employed sophisticated statistical methodologies to analyze dietary patterns and their relationship with kidney disease progression and mortality outcomes across diverse veteran populations. The analysis required extensive data management of complex longitudinal datasets and implementation of survival analysis techniques to account for varying follow-up periods and competing risks.

Applied advanced causal inference methodologies, specifically Mendelian Randomization techniques, to investigate causal relationships between plasma oxalate levels and kidney disease outcomes. This work utilized genetic instrumental variables to minimize confounding and establish causal pathways, representing a significant methodological advancement in nutritional epidemiology research. The research has generated multiple presentations at prestigious nephrology conferences including the American Society for Nephrology Kidney Week and Million Veteran Program Science Meeting, demonstrating the clinical relevance and scientific rigor of the findings.

Data Analysis and Statistics

Demonstrated expertise in implementing complex statistical analyses across diverse epidemiological datasets, including both infectious disease surveillance data and large-scale longitudinal cohort studies. Proficient in utilizing R programming for comprehensive data management, statistical modeling, and visualization, with particular strength in regression analyses, causal inference techniques, and population-level risk assessment methodologies. This includes experience with REDCap database management, quality assurance protocols, and

systematic approaches to handling missing data and measurement errors. Skilled in creating clear, informative data visualizations and translating complex statistical findings into actionable public health recommendations for diverse stakeholder audiences.

Professional Experience

Foodborne Illness Surveillance Team member, Tennessee Department of Health, – August 2023 – May 2025

Executed rapid-response epidemiological investigations through comprehensive, standardized patient interviews to identify exposure sources and prevent secondary transmission of foodborne illnesses. Collaborated with environmental health specialists to conduct thorough exposure assessments and strengthened public health laboratory surveillance capabilities through systematic data collection and quality assurance protocols. Designed and implemented measurable performance indicators for surveillance effectiveness and maintained comprehensive data management systems using REDCap for standardized epidemiological data entry and tracking.

Led a large-scale retrospective epidemiological analysis of 3,333 laboratory-confirmed *Campylobacter* cases spanning a three-year period (2021-2023), characterizing demographic patterns, seasonal trends, and regional distribution of infections. Employed advanced statistical methodologies in RStudio, including chi-square analyses to identify statistically significant exposure correlations and multivariable linear regression modeling to quantify relationships between specific food exposures and healthcare utilization outcomes while controlling for key demographic covariates including age, race, and ethnicity. This comprehensive analysis informed evidence-based public health interventions and outbreak response strategies at the state level.

FACETS Program Summer Research Program, Harvard T.H. Chan School of Public Health, – June 2022 – July 2022

Conducted comprehensive qualitative and mixed-methods research examining the complex relationship between household socioeconomic status and childhood immunization coverage in Odisha, India, synthesizing findings into evidence-based recommendations for public health intervention strategies. Performed systematic evaluation and analysis of existing literature on economic determinants of vaccination uptake across India, identifying key barriers and facilitators to immunization access among economically disadvantaged populations. Completed intensive coursework in Social and Behavioral Sciences and Environmental Health, gaining foundational knowledge in behavior change theory and environmental health assessment methodologies that informed the research approach and policy recommendations.

Presentations

Bowers, J.E., Hung, A.M. 2024. Causal association between plasma oxalate and kidney disease Mendelian Randomization analysis. Oral presentation at Million Veteran Program (MVP) Science Meeting. March 25th – 26th, 2025. Nashville, TN.

Bowers, J.E., Hung, A.M. 2025. The Dietary Approaches to Stop Hypertension (DASH) diet score and its association with the risk of kidney disease progression or death among veterans in the

Million Veteran Program. Poster Presentation at the Translational Research Forum. February 12th, 2025. Nashville, TN.

Bowers, J.E., Hung, A.M. 2025. The Dietary Approaches to Stop Hypertension (DASH) diet score and its association with the risk of kidney disease progression or death among veterans in the Million Veteran Program. Oral Presentation at the DRTC Young Investigators Showcase. January 31st, 2025. Nashville, TN.

Bowers, J.E., Irving, DJ. 2024. An epidemiological analysis of Campylobacter cases: Demographics, exposures, seasonality patterns, and regional distribution conducted at the Tennessee Department of Health. Poster Presentation at the 25th Annual Emerging Infections Program Scientific Presentation Day. November 14th, 2024. Nashville, TN.

Bowers, J.E., Irving, DJ. 2024. An epidemiological analysis of Campylobacter cases: Demographics, exposures, seasonality patterns, and regional distribution conducted at the Tennessee Department of Health. Oral Presentation at the Population and Public Health Colloquium. November 8th, 2024. Nashville, TN.

Bowers, J.E., Hung, A.M. 2024. Causal association between plasma oxalate and kidney disease mendelian randomization analysis. Poster Presentation at the American Society for Nephrology (ASN) Kidney Week. October 23rd – 27th, 2024. San Diego, CA.

Bowers, J.E., Dawwas, G.K. 2024. Utilization of oral anticoagulants among patients with atrial fibrillation from 2014 to 2021 in the United States. Poster Presentation at the International Society for Pharmacoepidemiology (ISPE) Mid-year meeting. April 14th – 16th, 2024. Orlando, FL.

Bowers, J.E., Dawwas, G.K. 2024. Utilization of oral anticoagulants among patients with atrial fibrillation from 2014 to 2021 in the United States. Poster Presentation at the Translational Research Forum. February 2nd, 2024. Nashville, TN.