

GARGI DESHPANDE

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EDUCATION

University of Oklahoma Health Science Center, Oklahoma City

Aug 2022 - August 2026

PhD Epidemiology - Department of Biostatistics and Epidemiology.

Coursework: Methods in Infectious Diseases, Advanced Epidemiological Methods, Survival and Longitudinal Data Analysis, Clinical Trials, Geographic Information System (GIS).

Texas A&M Health Science Center, College Station

Aug 2019 - May 2021

Master of Public Health- Department of Epidemiology and Biostatistics.

Coursework: Epidemiological Methods, Biostatistics, Infectious Disease Epidemiology, Categorical Data Analysis, Grant and Proposal writing.

Krishna Institute of Medical Sciences, Karad

Jul 2013 - Jun 2018

Bachelor of Dental Surgery.

Coursework: General Medicine, Human Pathology, Preventive Medicine, Pharmacology, Human Physiology, Biochemistry, Microbiology and Immunology.

TECHNICAL SKILLS

Data- RStudio, SAS, Stata, ArcGIS, Tableau, Minitab, EpiInfo

Others- MS Office (Word, Excel, PowerPoint), LaTeX

RESEARCH PROJECTS

Assessing the Impact of Climate Factors on Human West Nile Virus (WNV) Incidence Across High-Risk U.S. States.

- Integrated ArboNET human WNV case data with high-resolution NOAA climate datasets; applied Poisson and negative binomial regression models to quantify spatiotemporal associations between climate variability and WNV incidence across Texas, California, Colorado, and Oklahoma.
- Leveraged CMIP6 climate projections under multiple SSP scenarios to model future WNV transmission dynamics, assess climate-driven risk trajectories through 2069, and developed ArcGIS-based spatial risk maps to identify high-risk geographic corridors across projected climate scenarios.

Wastewater Surveillance of Influenza and RSV: Longitudinal Insights from Oklahoma.

- Designed a time series model to investigate seasonal patterns and correlation analysis to identify the time lag between peaks in positive tests/hospitalizations and wastewater concentrations of Influenza and RSV over a 21-month period.

Assessing the Influence of Climate Change and Environmental Factors on the Top Tick-Borne Diseases in the United States

- Collected and synthesized literature that examined climate change and other environmental factors that have influenced the epidemiology of these tick-borne diseases in the US while highlighting the opportunities for a One Health approach to mitigating their impact.

The Impact of COVID-19 Fear on Mental Health of Community Behavioral Health Providers.

- Performed structural equation modeling to assess the relationship between COVID-19 fear and depression using survey data from community behavioral health providers in Oklahoma City.

Global Impact: Exploring the Interplay Between Reported Malaria Cases, Insecticide-Treated Bednets, and Antimalarial Availability in Children (2015-2021).

- Performed multivariate, local, and global clustering in ArcGIS to assess associations between malaria cases, ITN use, and antimalarial access, and identified spatial autocorrelations as well as malaria hot and cold spots.

Modelling the Epidemiology of Malaria and a Hypothetical Vaccine in a Heterogeneous Host Population.

- Constructed a compartmental SIS model depicting the transmission dynamics of clinical vivax malaria capturing the variance in risk of the host population.

NSF 22-620 Grant application- Measuring and Modeling Epidemiological Landscapes to Predict Transmission Patterns and Outbreaks of Zoonotic Diseases.

- Contributed to the grant application process by assembling subcontract documents, thoroughly reviewing the grant application, and verifying the accuracy of the budget.

WORK EXPERIENCE

Department of Biostatistics and Epidemiology *Graduate Research Assistant* *Aug 2022 - Present*

- Routinely monitoring the OU wastewater surveillance data to track food and waterborne, respiratory, and vector-borne diseases enabling early detection of potential outbreaks.

Niramai Health Analytix, India *Clinical Research Associate* *July 2021-July 2022*

- Led clinical validation studies and advanced research activities through literature reviews, data management, and analysis while collaborating with stakeholders for international grant applications.
- Conducted community breast cancer screening and education programs in primary healthcare centers in rural India.

James Lind Institute *Adjunct Faculty- Epidemiology* *April 2021-July 2022*

- Designed teaching modules for Epidemiology and Biostatistics for MPH students and delivered lectures spanning detailed aspects of Disaster Epidemiology and the Impacts of Disasters on Public Health.
- Provided guidance to students throughout the course including the dissertation project.

Brazos County Health Department, USA *COVID-19 Case investigator/ Contact tracer* *Sept 2020 - May 2021*

- Contained COVID-19 transmission at the Texas A&M campus by tracing contacts and advocating for testing and isolation procedures and maintained the REDCap database as a part of the Emergency/Humanitarian Response team.

Department of Epidemiology and Biostatistics, SPH, USA *Research Assistant* *Sept 2020 - May 2021*

- Analyzed spatiotemporal trends of antibiotic resistance (MRSA) and vector-borne diseases in Texas (2006–2018) using electronic health records (ICD-9/ICD-10), generating correlation coefficients and disease distribution maps.

March of Dimes, Houston, USA *Research Intern* *May 2020 - Aug 2020*

- Advocated for extending postpartum Medicaid in Texas by analyzing existing policies, and evaluating policy implications, feasibility, sustainability, and health equity in Texas.
- Analyzed spatial distribution and health disparities in birth outcomes, pre-term births, and Infant Mortality rates.

School of Dental Sciences, India *Dental Surgery Intern* *Aug 2017 - Sep 2018*

- Improved oral health status by 50% by conducting sixty health camps in the surrounding rural areas with an objective of health awareness, education, and primary treatment delivery.
- Advocated for and counseled patients with pre-cancerous and cancerous lesions on tobacco cessation.

TEACHING EXPERIENCE

BSE 5333 001 Introduction to Emerging Infections and Bioterrorism *Instructor* *Fall 2025*

- Delivered a guest lecture on Emerging Infections: Vector-Borne Diseases, highlighting case studies that showcased digital and technological advances in disease surveillance.
- To provide hands-on experience, I also designed and facilitated an outbreak investigation exercise simulating an Mpox outbreak in a sparring clinic. This activity introduced students to applied epidemiologic methods, including the use of pivot tables in Excel to calculate attack rates.

BSE 5113 001 Principles of Epidemiology *Instructor* *Spring 2025*

BSE-5001-001 Problems in Epidemiology and Biostatistics *Instructor* *Spring 2026*

- Conducted a special class on Case Control and Cohort Epidemiological Studies. Guided students through critical evaluation of study designs and methods used in investigation, calculation and interpretation of measures of association, and identification of bias and error in epidemiologic research.

BSE 5193 001 Intermediate Epidemiologic Methods *Teaching Assistant* *Spring 2024*

- This course focuses on methods used in the design and conduct of observational epidemiologic studies. The emphasis is placed on the different types of study designs, selected analytical methods, identification and avoidance of biases and confounding, examination of data for interactions, and concepts of causation.

PUBLICATIONS

- **Deshpande, G., Rimal, B., Shelton, K., Vogel, J., Stevenson, B. & Kuhn, K. G. (2025). Wastewater-Based Surveillance for Influenza and Respiratory Syncytial Virus: Insights from a 21-month study in Oklahoma.**
- **Deshpande, G., Rimal, B and Kuhn, K. G. Modeling the Spread: A Systematic Review of Mosquito-Borne Viral Disease Drivers and Methods (In preparation)**
- **Deshpande, G. and Kuhn, K. G. Climate Impacts on West Nile Virus Transmission in high-risk states in the US: Evidence from Human and Wastewater Data (In preparation).**
- **Deshpande, G., Beetch, J. E., Heller, J. G., Naqvi, O. H., & Kuhn, K. G. (2023). Assessing the Influence of Climate Change and Environmental Factors on the Top Tick-Borne Diseases in the United States: A Systematic Review. *Microorganisms*, 12(1), 50.**
- **Shelton, K., Deshpande, G., Sanchez, G. J., Vogel, J. R., Miller, A. C., Florea, G., ... & Kuhn, K. G. (2024). Real-Time Monitoring of SARS-CoV-2 Variants in Oklahoma Wastewater through Allele-Specific RT-qPCR. *Microorganisms*, 12(10), 2001.**
- **Ramprasad, J., Krishnan, L., Gangadharan, C., Deshpande, G., Madhu, H., Kakileti, S. T., Manjunath, G. (2022). Performance of artificial intelligence-based breast cancer screening in a community setting: A real-world evaluation study. *The Lancet Oncology*, 23, S20.**
- **Manjunath, G., Krishnan, L., Deshpande, G., Madhivanan, P., Krupp, K. F. (2023). Abstract P5-04-03: Analyzing the performance of Thermalytix, an AI-based breast cancer screening solution, in a community setting. *Cancer Research*, 83(5Supplement), P5-04.**
- **Brand, M. W., Kuhn, K. G., Hilton, B. T., Boyina, K., Deshpande, G., Suh, J., ... & Wiskur, B. (2024). The Impact of COVID-19 Fear on Mental Health of Community Behavioral Health Providers. *Disaster Medicine and Public Health Preparedness*, 18, e114.**
- **Kuhn, K. G., Shukla, R., Mannell, M., Graves, G. M., Miller, A. C., Vogel, J., Malloy, K., Deshpande, G., Florea, G., Shelton, K., et al. Using Wastewater Surveillance to Monitor Gastrointestinal Pathogen Infections in the State of Oklahoma. *Microorganisms*. 2023; 11(9):2193. <https://doi.org/10.3390/microorganisms11092193>**
- **Wiskur, B., Boyina, K., Rimal, B., Kuhn, K. G., Garrett, K., Hilton, B. Deshpande, G., et al. Psychometric Validation of the Fear of COVID-19 Scale (FCV-19S) in a US Academic Health Sciences Center. *COVID*. 2026; 6(2), 26 <https://doi.org/10.3390/covid6020026>**
- **Desai, M., Deshpande, G., Elenwa, F., Foster, M. (2020). Barriers and facilitators to the self-management of mental health amongst the adult population in the United States during the COVID-19 pandemic: A systematic review.**

CONFERENCE PRESENTATIONS

- Poster presentation: Wastewater surveillance as a tool for understanding West Nile virus transmission and distribution in Oklahoma at the EPIDEMICS 10 International Conference on Infectious Disease, California, USA. December 2025.
- Paper presentation: Wastewater-Based Surveillance for Influenza and Respiratory Syncytial Virus: Insights from a 21-month study in Oklahoma at the Graduate Research Education and Technology Symposium, University of Oklahoma Health Sciences Center. April 2025.
- Poster presentation: Vaccines do not cause Autism: Evaluating injuries relating to Autism Spectrum Disorder using vaccine adverse event reporting system data (CDC) at National Public Health week, American Public Health Association. April 2020.
- Paper presentation: Association of bedsharing with oral health-related feeding behaviors among infants at the Biennial Paediatric Dentistry Conference, South Asian Association of Paediatric Dentistry. May 2018.
- Oral presentation: Dental Ozone, at the National Conference of Indian Association of Oral Medicine and Radiology. September 2018.
- Poster presentation: "Tooth in Eye" at the FDI Annual World Dental Congress. September 2014.

AWARDS AND HONOURS

- GREAT Graduate Student Association Award for Scientific Achievement, April 2025.
- Awarded the Hudson Fellowship under the Hudson Fellows in Public Health program, 2024.
- Recognised as Scientific Speaker by the South Asian Association of Paediatric Dentistry, 2018.
- First position for Scientific Poster presentation- Osteo-odonto kerato prosthesis at the First Interstate Dental Conference, School of Dental Sciences, 2016.