My research journey in public health began with my degree in Statistics from Shahjalal University of Science and Technology, Bangladesh, with an undergraduate project on "Cesarean Delivery and Early Childhood Diseases in Bangladesh", which was later published in *PLoS One.* This foundation equipped me with applied knowledge through hands-on research, underscoring my passion for biostatistics and epidemiology as vital tools for addressing public health challenges. Currently, I focus on some research with rabies control and dengue outbreaks.

My educational background has opened numerous opportunities, allowing me to take real-world challenges faced by research scientists. I am currently a Data Management and Reporting Officer with the Rohingya Response Program, collaborating with the Directorate General of Health Services of Bangladesh. A recent initiative I led, "Community Health, WASH, Health System Support & Health Post for Forcibly Displaced Myanmar Nationals (FDMN) and Host Community Population". In this role, I develop protocols, implement projects, conduct scientific analyses, and report on health initiatives aimed at improving healthcare access in Cox’s Bazar.

My current research aligns with Bangladesh's goal to eliminate dog-mediated rabies deaths by 2030. Understanding transmission trends is crucial for effective control measures. Recently, we analyzed the correlation between mass dog vaccination (MDV) and anti-rabies vaccines (ARV) with human rabies cases. Using hierarchical clustering, Seasonal Autoregressive Integrated Moving Average, and count time series following generalized linear models in R, we found a positive association between increased MDV and ARV usage and a reduction in human rabies cases, which was published in *The Lancet Regional Health - Southeast Asia*. The severe dengue outbreak in 2023 highlighted the need for advanced predictive methods. My team analyzed dengue infection data and mortality rates from 2022, focusing on meteorological factors influencing transmission. By employing machine learning techniques, we forecasted dengue cases based on historical data. Our findings revealed that rising temperatures and altered rainfall patterns significantly contribute to outbreaks in Bangladesh using generalized linear mixed model, with results appearing in *IEEE, Journal of Medical Entomology, and International Journal of Infectious Diseases*.

Previously, I researched the effectiveness of the Global Health Security Index and Joint External Evaluation in predicting responses to the COVID-19 pandemic. By mid-July 2020, our analysis of 20 countries indicated that these indices poorly predicted mortality outcomes and detection times. We utilized multiple linear regression analysis and time series models to evaluate trends in case fatality rates, associating vaccination rates and other factors to health outcomes using different time series and Beta regression models, with publications in *International Journal of Infectious Diseases, American Journal of Tropical Medicine and Hygiene, and Epidemiology and Infection*. My earlier studies also explored early childhood development, HIV/AIDS knowledge, published in *BMC Public Health and AIDS Research and Therapy*.

Looking ahead, we are preparing a manuscript on non-communicable diseases in South Asia, aiming to calculate prevalence rates and identify vulnerable regions. My ongoing studies also investigate healthcare utilization among women, IYCF practices, mental health and neonatal tetanus. Through these diverse projects, I aspire to make significant contributions to public health research and practice. While most of my projects is in infectious diseases, I tried to contribute vast potential for further growth in my knowledge and skills.

My commitment to public health drives me to integrate innovative methodologies with statistical tools, particularly in big data, deep learning, and machine learning. I aim to master public health research methods and aspire to lead a lab dedicated to advancing statistical methodologies while mentoring the next generation of researchers. By addressing critical health issues—from infectious diseases to maternal health and environmental factors—I strive to implement data-driven solutions that enhance health outcomes in my community and beyond. In summary, my academic and professional journey has fueled my passion for tackling public health challenges. With a solid foundation in statistics and applied research, I am eager to leverage my skills to advance health services and contribute to global efforts in improving health equity and outcomes.