My strong foundation in statistics, combined with over four years of professional experience in health intervention, has not only sharpened my analytical skills but also fueled my passion for solving complex Public Health issues through data-driven research. Pursuing a PhD in Biostatistics is the next essential step in expanding my expertise and preparing for an independent researcher as a faculty member. This program at Michigan State University aligns perfectly with my goals of deepening my Public Health knowledge, contributing to innovative health research, and through effective policy-making. In the short term, I aim to master the application of Public Health to address vital health problems, while in the long term, I aspire to lead a research lab that advances in statistical methods through different applications related to Public Health, trains future researchers, and fosters a collaborative research environment. This ambition is driven by the mentorship I have received and my commitment to continual learning and solving health issues in my community.

During my undergraduate studies, I became fascinated by various subfields of statistics. In particular, I found the Biostatistics and Epidemiology course particularly engaging due to its insightful applications, which sparked my strong interest in Public Health, included various projects, fieldwork, and progressing through multiple publications. These fields have equipped me with the tools to analyze complex real-life public health data and derive actionable conclusions to improve health outcomes. To strengthen my skills, I pursued a double major in Computer Science and Engineering. Through my double major, I gained proficiency in statistical data analysis by SAS, Stata, R, and Python. This interdisciplinary training has enhanced my ability to address pressing Public Health issues through rigorous, data-driven approaches.

To gain real-world experience, I began working with the Joint Rohingya Response Program in 2021, focusing on health projects as a Data Management and Reporting Officer. A recent initiative I led, 'Community Health, WASH, Health System Support & Health Post for Forcibly Displaced Myanmar Nationals and Host Community Population,' aims to improve healthcare access, emphasize surveillance methodologies in data collection, and reporting processes, and suggest policies to different stakeholders in Cox’s Bazar, Bangladesh. This role has expanded my understanding of the complex health challenges faced by marginalized populations during humanitarian crises and sharpened my skills in research, data analysis, and program implementation. During my professional work, I became involved in various cultural awareness and education programs catering to their specific needs. We organized health promotion activities, festive events building a sense of community, which would eventually encourage health awareness. Also, through professional work, I led a team of four Rohingya volunteers who are focused on data collection in health. This has shown how it is possible to bring together people from diverse backgrounds for the same goals. These have furthered my conviction that true leadership is in an individual's relation to the strengths of people and in inspiring them to work together in striving for common, meaningful objectives.

My research career has been distinguished by publications in prestigious journals and successful projects funded by the Government of Bangladesh. As a research assistant, I contributed to these projects at every stage, from developing research proposals to submitting reports, including supervising data collection, analyzing data, and writing the final reports. This is where my emphasis on open communication and teamwork ensured that all these initiatives were successfully executed and completed within their stipulated timeframe. Later, during my research career, I continued showing leadership by leading several research teams.

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*. This study's findings can inform policy decisions for national rabies control in Bangladesh and similar countries, advancing efforts to eliminate dog-mediated human rabies globally and achieve the Zero by 30 target. 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 a generalized linear mixed model, with results appearing in *IEEE, Journal of Medical Entomology, and International Journal of Infectious Diseases*. Those studies suggest that Bangladesh requires active surveillance of cases, deaths, and vectors, integrating meteorological data to identify causes of increased dengue deaths for better care.

I have presented my research at several conferences, including the 2020 World One Health Congress, serving as an editorial board member and reviewer for multiple journals. Moreover, I conducted multiple workshops on research methodology and statistical programming languages such as R and SPSS that helped team members enhance their valuable skill sets. I also engaged as a mentor in the Autumn 2020 Research Internship Program by mentoring students in their respective research pursuits. Reviewing other papers has inspired me with the innovative thinking of various authors and motivated me to explore new methods in health research and mentoring others on various research projects solidified my desire to pursue an academic career.

With a strong background in statistics, hands-on experience in research, program implementation, and a dedication to advancing public health research, I am confident that I will be able to make meaningful contributions to both the academic and public health communities. After earning my PhD, I aim to work in academia, leading a research lab focused on advancing public health research to address global health challenges. I look forward to engaging with the vibrant academic community at Michigan State University and contributing to research that addresses Public Health issues worldwide.