My strong foundation in statistics, combined with over four years of professional experience in health-related programs, has not only sharpened my analytical skills but also fueled my passion for solving complex public health challenges 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. The Biostatistics program at Virginia Commonwealth University (VCU) aligns perfectly with my goals of deepening my biostatistical knowledge, contributing to innovative research, and advancing the field of public health. In the short term, I aim to master in biostatistical methods to address urgent health concerns, while in the long term, I aspire to lead a research lab that advances biostatistical methodologies, 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 in Biostatistics.

During my undergraduate studies, I became fascinated by various subfields of statistics, including data mining, biostatistics and epidemiology, time series analysis, and statistical inference. In particular, the Biostatistics and Epidemiology course was quite interesting because of Professor Dr. Jamal Uddin's insightful presentations and course projects. Biostatistics and epidemiology, in particular, captivated me due to their crucial role in addressing public health challenges. These fields have equipped me with the tools to analyze complex health data and derive actionable conclusions to improve health outcomes. To enhance my skills, I pursued a double major in Computer Science and Engineering, gaining proficiency in statistical programming languages and data analysis such as SAS, Stata, R, and Python. This interdisciplinary training has enhanced my ability to address pressing public health challenges through rigorous, data-driven approaches. It has prepared me to utilize biostatistical tools and programming languages for conducting experimental research, incorporating advanced statistical applications as well as big data, deep learning, and machine learning techniques in public health.

To gain real-world experience, I began working with the Joint Rohingya Response Program in 2021, focusing on health-related 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 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.

My research career has been distinguished by publications in prestigious journals and successful projects funded by the Government of Bangladesh and university grants. 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. Most of those projects focused on socio-economic issues, such as the Vicious Cycle of Poverty, Social Safety Nets Program, and Food Security. My research work primarily focuses on infectious diseases, maternal and child health, and environmental health. Notably, my recent publication on rabies control employed time-series forecasting and multivariate techniques to predict future cases in Bangladesh. Additionally, I analyzed global COVID-19 data using various regression models, resulting in a significant publication on forecasting and pandemic preparedness. I have analyzed two decades of dengue data and the recent dengue pandemic in Bangladesh (2023), focusing on the geographical shifts in transmission and age/gender-related disparities in morbidity and mortality. This work employed various statistical models and graphical approaches, leading to a significant publication. Additionally, I utilized deep learning-based forecasting models to predict dengue outbreaks in Bangladesh, aiming to integrate artificial intelligence with dengue data for more in-depth insights. We also plan to expand our research to examine the global dengue situation, which is increasingly concerning. I have presented my research at several conferences, including the 2020 World One Health Congress, and serve as an editorial board member and reviewer for journals. Moreover, I teach and mentor students in data analysis and research methodologies, particularly using SPSS and R. Reviewing other papers has inspired me with the innovative thinking of various authors and motivated me to explore new methods in public health research. I also found great joy in mentoring students on their research projects, which solidified my desire to pursue a career in academia.

The PhD program in Biostatistics at VCU is the ideal platform for me to achieve my academic and professional aspirations. I am particularly excited about the opportunity to engage in advanced research on biostatistics and improving human health. The Department of Biostatistics at VCU is dedicated to excellence in research, education, and service. With diverse expertise, faculty and students collaborate to develop methodologies that address complex health issues. My aim to join Department of Biostatistics because the department committed to a supportive learning environment, the department has a strong history of training leaders in academia, industry, and government. The chance to collaborate with esteemed faculty such as Professor Dr. Dipankar Bandyopadhyay, whose work on "Long-term effects of center volume on transplant outcomes in adult kidney transplant recipients" has reinforced my belief that VCU is the best place for my PhD. I became particularly drawn to Dr. Bandyopadhyay’s another work on "A phase 1 study of regorafenib and sildenafil in adults with advanced solid tumors" seems to offer exciting doctoral training opportunities that resonate with my prior experience and research interest in Biostatistics and also Dr. Priyam Das, whose research on "Neurological diagnoses in hospitalized COVID-19 patients associated with adverse outcomes: A multinational cohort study" aligns with my interests, motivates me further.

With a strong background in statistics, hands-on experience in research and data analysis, and a dedication to advancing public health, 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 biostatistical methods to address global health challenges. I look forward to engaging with the vibrant academic community at Virginia Commonwealth University and contributing to research that addresses pressing health issues worldwide.