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| As a seasoned professional with more than six years of research experience at the International Centre for Diarrhoeal Diseases Research, Bangladesh (icddr,b), a leading global health research facility, I appreciate the need for further academic study to build the bridge between professional competency and research methods that form a life-long knowledge repository dedicated to addressing emerging health problems. My educational and professional objectives to pursue a doctoral program in Microbiology at Yale University have both short- and long-term objectives. In the short- term, my goals are to sharpen my skills in microbiology and infectious diseases in order to apply those skills in original research. My long-term goal is to head a research laboratory studying the molecular epidemiology of viral diseases, develop therapeutics to control them, and mentor the next generation of scientists. I am greatly influenced by parental role models and leading professionals because of their generosity and continuous learning encourage my desire to become a model infectious disease champion.  My love of health science began in early childhood, eagerly observing my parents, both health professionals, interact with patients in my village suffering from diseases including tuberculosis, cholera, salmonellosis, malaria, rabies, and influenza. Still, we experience various diseases caused by the natural dissemination of an array of pathogens into the environment. Growing up with a profound passion for medical science has given me a charitable disposition towards man and all animals. Hence, my overarching research interests revolve around the realm of infectious diseases, global health, molecular virology, antimicrobial resistance, and therapeutics. More specifically, I am interested in understanding how pathogens cause disease to be able to develop low- cost, potentially scalable preventive and therapeutic interventions.  My success in applying my educational objectives with | professional goals are demonstrated following graduation with a degree of Doctor of Veterinary Medicine (DVM) from the Chittagong Veterinary and Animal Sciences University, Bangladesh. I gained applied knowledge working in a research environment, beginning with my first undergraduate study, "Prevalence of fascioliasis in cattle in a Bangladesh community." However, my DVM second-year professional curriculum formally introduced me to microbiology. General Microbiology was an influential course encompassing various individual concepts (e.g., virology, infectious disease, immunology) that began to emerge as multiple contributing factors. This awareness has strengthened my skills and knowledge in academic and professional service. During my MS program, I developed a model for small-holder dairy production systems in Bangladesh as a part of my thesis. While these general studies resolved some community problems, I sought to expand my focus to a wider span of health problems relating to microbial diseases that could help prevent and bring solutions to emerging health problems.  My educational experience is the impetus for several fortunate opportunities to garner first-hand knowledge of the daily challenges and successes of a research scientist. While presently employed at icddr,b as a Research Veterinarian, I was invited to work on a large- scale project with the Communicable Disease Control Division (CDC) of the Directorate General of Health Services of Bangladesh. At the CDC, I was actively involved with the National Rabies Elimination Program via research recruitment and collaboration for data analysis. The program path was not always smooth; but, I was instrumental in driving the program forward by implementing four strategies i) advocacy, communication, and social mobilization, ii) modern treatment for dog bites, iii) mass dog vaccination, and  iv) dog population management. The project appears in *Scientific Reports,* Nature Research entitled, “Trends and clinico-epidemiological features of human rabies |

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| cases in Bangladesh 2006–2018.” Working with CDC gave me the confidence that I can produce solutions on my own. My years of active membership and fundraising for the Rabies in Asia Foundation, Bangladesh Chapter (RIAF,B) made this project meaningful.  My current research focuses on avian influenza surveillance, rabies control, and antimicrobial resistance. We detected highly pathogenic avian influenza viruses of the H5N6 subtype for the first time in Bangladesh under our avian influenza surveillance platform reported in *Virology,* Elsevier entitled, "Detection of highly pathogenic avian influenza A (H5N6) viruses in waterfowl in Bangladesh.” I enjoyed every aspect of the projects, particularly the opportunity to take part in cutting-edge projects and explore ideas with my peers and seniors.  Although my experience is based on Infectious Diseases and public health, I realize that while I enjoy carrying out my routine activities, there was still room to advance my knowledge that would, in turn, open up more possibilities for personal satisfaction and professional rewards. A new global appreciation of the role of microbes has brought forth the pressing need for microbiologists in my own country where ensuring public health and safety through basic research and environmental monitoring fuels my desire to be part of a team with these objectives.  I pursue graduate work in Microbiology under Biological & Biomedical Sciences (BBS) | at Yale University because of its worldwide reputation for addressing complex health problems, interdisciplinary nature, and excellent faculties that share a commitment to understanding the biology of microorganisms through cellular, molecular, and genetic approaches. I am intrigued to explore questions relevant to the fundamental life processes and microbial pathogenesis. I hope that the training I will gain at Yale in basic molecular pathogenesis in microbiology will fill a critical gap in my training. Pursuing my Ph.D. at Yale will fill this gap and will allow me to be an Independent Scientist in my home country, tackling microbial pathogens. I look forward to interacting with Dr. Amy Bei, whose research directions are aligned with my own. I am excited about the prospect of working in Dr. Bei’s lab because of the way that they combine genomics and experimental genetics to understand mechanisms influencing host-pathogen- vector interactions. The way that Bei’s lab spans both basic science and field epidemiology is a model that I would like to follow in my own lab one day, after receiving the stellar molecular basic microbiology experience from BBS. The opportunity to interact with other faculty, such as Professor Erol Fikrig and Dr. [Ellen F Foxman](https://medicine.yale.edu/bbs/microbiology/profile/ellen_foxman/), also piques my interest in microbiology. It would be great to learn more about the development of new diagnostic tests for respiratory pathogens based on the host response to infection from their lab. Together, these faculty provide a strong background I desire to shape my research leadership objectives. Coupled with my critical thinking skills developed from my own knowledge and experience, I am up to the challenge of a Yale education.  Thank you for your consideration of my application. |