

The Global and Local Infectious Diseases Research Seminar



April 23rd, 2025
17:00-18:00 JST

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Presenter : Dr. Najmul Haider, DVM, PhD
Lecturer in Epidemiology, Keele University, United Kingdom

Venue: OITA University RCGLID Meeting Room & Zoom

Breaking the Chain of Transmission: A One Health Approach in Low- and Middle-Income Countries of South Asia and Sub-Saharan Africa

Zoonotic diseases are major causes of illness and death in low- and middle-income countries (LMICs), posing a significant threat to global health. This presentation explores One Health research on anthrax outbreak investigations and the drivers of dengue virus transmission, with a focus on climate change in Bangladesh. It also examines the One Health approach to rabies virus transmission in Bangladesh and the risk factors for Lassa virus transmission in Sierra Leone.

Anthrax: A multidisciplinary One Health outbreak investigation team comprising epidemiologists, veterinarians, physicians, and social scientists conducted over 50 outbreak investigations across Bangladesh between 2009 and 2018. This presentation will highlight key findings, including risk factors for cutaneous anthrax in humans and infections in livestock.

Dengue: Between 2000 and 2024, Bangladesh reported 648,543 dengue cases and 3,111 deaths, with a case fatality rate of 0.47%. Annual dengue cases have risen 22-fold in the recent decade (2011–2024) compared to the previous one (2000–2010), while deaths have increased 11-fold. During this period, the average temperature rose by 0.49° C, contributing to 4,292 additional degree-hours of heat annually. Although overall rainfall declined by 254 mm per year, unusually high post-monsoon rainfall has extended the mosquito transmission season.

Rabies: The Mass Dog Vaccination campaign has led to the vaccination of an average of 21,295 dogs per district annually out of an estimated 26,065 dogs. A declining trend in predicted and observed human rabies cases has been identified, suggesting that Bangladesh is poised to make substantial progress towards achieving the 'Zero by 30' goal, provided the current trajectory continues

Lassa Fever: Lassa virus (LASV) has circulated in West Africa for at least six decades, posing an ongoing public health risk. However, case-control studies identifying risk factors remain scarce. Between 2011 and 2022, we conducted a case-control study in Sierra Leone, identifying household rodent presence (adjusted odds ratio: 11.1) as an independent risk factor for clinical Lassa fever. An infrared camera study detected significant rodent activity in food storage areas in rural Sierra Leone.

Zoonotic diseases continue to pose a serious global health threat, while climate change is increasingly driving the spread of dengue and other vector-borne diseases in LMICs. A One Health approach is essential in breaking the transmission cycle of these diseases.

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