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Applied Biological and
Biosecurity Research Laboratory



'One Health' approach to surveillance of emerging viral pathogens in West Africa

Improving capacity for biosurveillance through education and collaboration

Overview

Viral infections are complicated to monitor because often they are zoonoses and utilize multiple hosts. In addition, the early detection of viral pathogens in resource-limited settings is further complicated by the similar clinical presentation of many co-endemic pathogens and the reliance on syndrome-based guidelines. West Africa is home to a number of pathogens likely to cause severe outbreaks in the near future such as Ebola, Lassa Fever and Crimean-Congo Hemorrhagic Fever, however current surveillance efforts are limited. We hypothesize that high-consequence pathogens are maintained in West Africa and being misdiagnosed. In addition, highly infectious pathogens are not being identified in human or animal populations due to the lack of appropriate surveillance, resulting in a serious global public health threat. By building a regional network of skilled personnel and the foundation for local partnership, viral surveillance can be integrated into the local health infrastructure in West Africa. This project will foster local and international collaboration and develop sustained resources for early threat detection.

Objectives / Goals

The project is designed to increase the ability to detect, characterize and report viral pathogens of concern in West Africa through training and hypothesis-driven science. We strive to improve local surveillance by sharing experiences and techniques between regional and international collaborators from laboratories experienced in epidemiological studies and those experienced in viral surveillance. In addition, this study is designed to engage and train local graduate students and post-doctoral fellows to help them establish their careers in infectious disease control, epidemiology and/or molecular biology. This study not only gives them the training they need develop their own projects, but also gives them the opportunity to engage with local and international health care professionals and researchers for future collaborations.

Mission Area:

Understanding Pathogen Dynamics and Creating Sustainable Interventions

Type: Hypothesis-Driven

Research, Capacity Building

Region: Africa

Countries: Mali, Burkina Faso, Senegal

Status: In Development



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Technical Approach

We plan to train and deploy local teams of medical epidemiologists with standardized sampling and testing techniques to conduct cross-sectional and longitudinal evaluations of viral threats present in the human, animal and vector populations in geographically diverse regions of Mali, Senegal and Burkina Faso.

Partners

Funders:

- Seeking

Implementation / Scientific:

- The Malaria Research and Training Center and the Department of Epidemiology of Parasitic Diseases, University of Bamako; Bamako, Mali
- Charles Mérieux Infectiology Center of Mali (CICM); Bamako, Mali
- Ministry of Health and Public Hygiene of Mali; Bamako, Mali
- Research Institute for Development - Senegal
- National Laboratory for Livestock Production and Veterinary Research; Dakar, Senegal
- The Senegalese Institute for Agricultural Research; Dakar, Senegal
- Senegal Ministry of Health
- Center Muraz; Bobo-Dioulasso, Burkina Faso
- Ministry of Health; Ouagadougou, Burkina Faso
- University of Ouagadougou; Ouagadougou, Burkina Faso
- Fondation Mérieux (FM); Lyon, France