Challenge, approach and impact:

Acute respiratory, enteric, and febrile diseases are leading causes of illness and death in SSA, particularly among children. They are so widespread in part because the capacity to diagnose the responsible microorganisms is often limited and the risk factors are unknown. ANDEMIA has applied classic bacteriology and modern molecular methods targeting a broad spectrum of possible pathogens and investigated potential risk factors of infection, such as age, occupation, and the availability of clean drinking water. ANDEMIA researchers have examined over 20,000 patients and tested 50,000 samples to help clarify the aetiology of disease (pathogens were identified in 88% of respiratory, 31.2% of diarrhoeal, and 32.9% of fever cases). Common respiratory viruses and bacteria were detected, with respiratory syncytial virus (RSV), rhinovirus, coronaviruses, and influenza being the most frequent. Common enteric pathogens detected included Shigella spp., norovirus, and rotavirus, with most of the burden in children under five years of age. We noted (in South Africa, for instance) a shift in the seasonality of respiratory and enteric viruses during the COVID-19 pandemic when lockdowns occurred.

For AFDUC cases, common viruses such as Epstein Barr virus (EBV), adenovirus, and enteroviruses were detected year-round. To prevent the spread of disease, training on the prevention and control of infections has been carried out in hospitals and followed up with train-the-trainer courses. The participating research groups have thus far contributed to 41 scientific publications. Furthermore, due to the comprehensive training and education provided to scientific and technical staff, competent personnel will be available to investigate future disease outbreaks and, in the case of COVID-19, have already been involved in the pandemic response.