

Patterns and household implications of foot-and-mouth disease in rural Tanzanian communities

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Foot-and-mouth disease (FMD) is one of the world's most important livestock diseases, yet very little is known about its epidemiology and socio-economic impacts in endemic settings, where the disease affects communities heavily reliant upon livestock production. Key questions relate to the spatio-temporal distribution of FMD strains needed to inform vaccine selection, and the role of buffalo in endemic disease. Infection patterns were examined through cross-sectional studies in protected ecosystems in northern Tanzania, including questionnaires to quantify socio-economic impact. Seroprevalences and probang PCR-positivity varied among ecosystems, with high levels of exposure in livestock in pastoralist and agropastoralist communities (66.3% seropositive; 6.1% PCR positive), and lower rates in peri-urban livestock systems (33.5% seropositive; 1.4% PCR positive). Prevalence in buffaloes was high (82.0% seropositive; 35.3% PCR positive), with only a low seroprevalence detected in non-buffalo species (4.3%). Among livestock-keepers FMD was ranked amongst the most important diseases. In high prevalence areas, multiple outbreaks were reported each year in many herds, with considerable impacts on herd productivity. SAT-2 viruses isolated from livestock outbreaks across three ecosystems were closely related, suggesting that livestock contact patterns are likely to be important in understanding the source of outbreaks and spread of disease. This study supports evidence that FMD is very prevalent in rural African communities and has important consequences for rural livelihoods.