9th AFRICAN POPULATION CONFERENCE
20th - 24th MAY 2024
LILONGWE, MALAWI
Road to 2030: Leveraging Africa's Human Capital to achieve transformation in a world of uncertainty

Incidence, Predictors and Survival Outcomes of Secondary Transmission of Ebola among Contacts in Central Uganda, 2022: a Retrospective Cohort Study.

Muhamed Mulongo, *MPH Fellow, Busitema University, Faculty of Health Sciences*
Peter Olupot-Olupot, *Professor of Infectious Disease Epidemiology, Mbale Clinical Research Institute and Busitema University Faculty of Health Sciences*
Yovani Moses A Lubaale, *Professor of Biostatistics, Busitema University, Faculty of Health Sciences*

Background: Ebola disease (EBOD) is a zoonotic, highly fatal viral hemorrhagic fever. Uganda is highly prone to EBOD outbreaks and experienced 6 outbreaks since 2000. The latest outbreak in Uganda was in 2022 in which 142 cases were confirmed, with a case fatality rate of 39%. Although secondary transmission is a major determinant of the size and complexity of EBOD breaks, it has not been fully studied for all outbreaks. Outbreaks are unique due to causative agents, context, and response interventions.


Evolution of 2022 SUDV Outbreak — Epidemic curve. By classification, confirmed and probable.
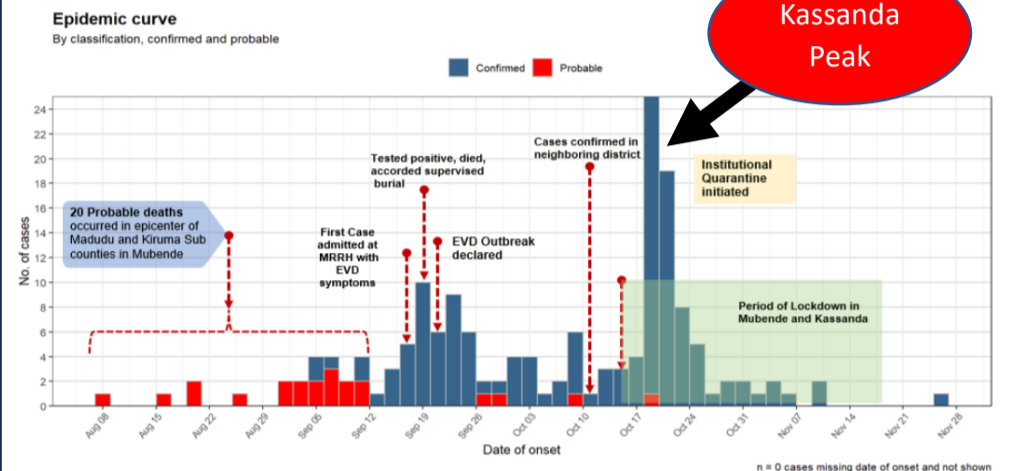
Methods: A retrospective analysis was conducted using surveillance records from Kassanda district, Central Uganda, collected during the 2022 Ebola outbreak. The data was collected by trained contact tracers and epidemiologists using tools approved by the World Health Organization (WHO) for integrated disease surveillance and response (IDSR). The data was extracted, cleaned and analyzed using STATA version 15. Household (HH) size was defined as the number of people living in a home with one household head. The risk of Ebola transmission was determined using the HH attack rates i.e. the proportion of HH contacts who got the disease. The relationship between HH size and risk of Ebola was the determined using the Pearson product moment correlation coefficient.

Results: 1,075 contacts were registered in Kassanda district during the Ebola outbreak in 2022. Of these, 528 (49%) were females, and 547 (51%) were males. 176 (18%) contacts were aged 0 to 5 years, 280 (28%) were aged 6 to 17 years, 487 (49%) were aged 18 to 49 years, and 56 (6%) were aged 50 years and above. Average age was 20.7 and median age was 19. Minimum was 0.04 years; Maximum was 84 years. The contacts were from 393 households and one school which had 38 pupils registered as contacts. The average household size was 2.64. The incidence of Ebola among contacts was 4% (42/1074). 31 (7.9%) HHs registered cases of Ebola. The average number of cases per HH was 1.35 (Min 1, Max 5). In HHs with cases, the average HH attack rate was 70% (Min 10% and Max 100%). The Pearson product moment correlation coefficient (r) between HH size and HH attack rate was -0.045 and the coefficient of determination (RSQ), r^2, was 0.55. This suggests a moderate relationship between HH size and attack rates

Scatter plot for the relationship between HH size and EBOD attack rates in Kassanda district during the 2022 EBOD outbreak.
$y = 0.8928 - 0.0446x$
$R^2 = 0.5458$
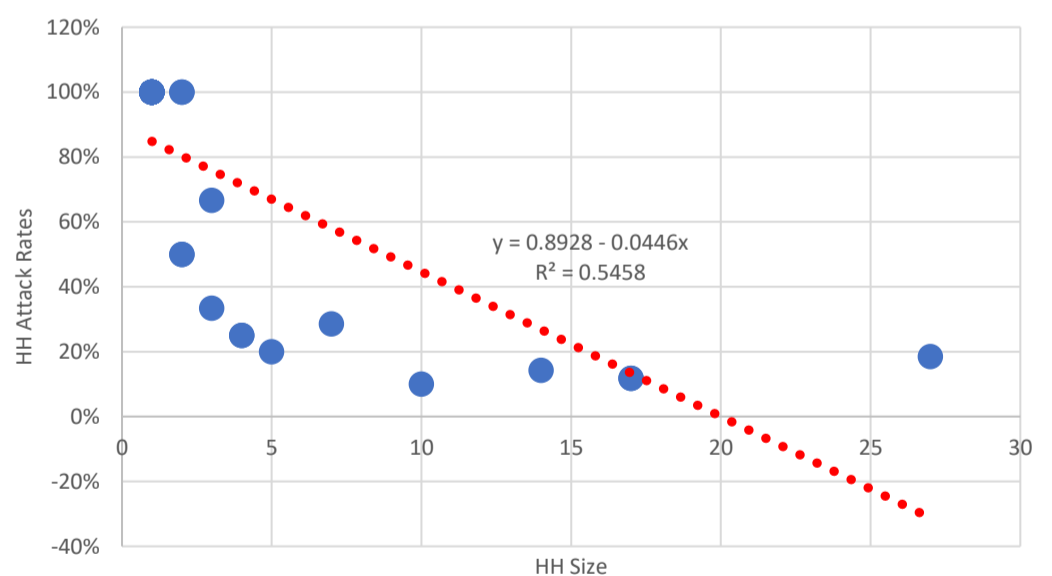
Conclusion: The incidence of Ebola was 4% but there were high attack rates in households with confirmed cases. The attack rates were higher in households with fewer people which implies the risk associated with caring for the sick.

Recommendations: Strengthen surveillance and contact tracing during outbreaks to reduce secondary transmission of Ebola.

MINISTRY OF HEALTH
REPUBLIC OF UGANDA

BUSITEMA UNIVERSITY
Pursuing excellence