

# Early hospitalization key to survival for Ebola victims

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A retrospective study of Ebola epidemics in the Democratic Republic of Congo (DRC) suggested that each day of delay in hospital admittance was associated with an 11% increased risk of death for Ebola patients during epidemics.

The DRC has experienced more Ebola outbreaks than any other country since the virus was discovered in 1976. A study published in *eLife* combines epidemiological information and patient outcomes from all those outbreaks to provide insights into the mortality patterns of Ebola virus disease and describes the national and international interventions carried out during each outbreak.

Alicia Rosello from UCL and Public Health England worked with colleagues from the DRC Ministry of Public Health, the Institut National de Recherche Biomédicale in the DRC and the London School of Hygiene and Tropical Medicine to combine, for the first time, data from almost 1,000 Ebola cases in The Democratic Republic of Congo, reported over 38 years across the country.

The data suggest that rapidly-progressing outbreaks, where a sick person, on average, is likely to transfer the disease to at least three other people, are swiftly brought under control. Yet, during the slower-paced epidemics the national and international responses were slower and outbreaks were longer.

The study showed that nearly all the epidemics in the analysis were in

decline before a national or international response, such as setting up isolation centres, was in place. The authors propose that behavioural changes in communities could be behind these early declines.

The researchers found that adults (individuals aged 25-64) are proportionately more likely to be affected by Ebola. This is similar to the experience during the West African outbreak, and could be explained by this section of the population being more likely to care for Ebola patients.

In outbreaks occurring in the DRC, children over the age of five and under 15 were consistently the least likely group to get sick or die from the virus. In contrast, contracting Ebola was fatal for all patients under the age of two.

The time between the onset of symptoms and admittance to hospital had a significant impact on the outcomes for the patients. Each day of delay before hospitalisation increased the risk of death by 11%. Delays in admittance to hospital could be influenced by many factors including geography, infrastructure and cultural influences.

This analysis could help target age groups for interventions such as vaccination if, for example, there is a shortage of supplies. It also highlights the importance of speed in future national and international responses to Ebola virus disease even if there are few cases. To this aim, dissemination of information about the disease, even in remote locations, is key. In addition, it shows the importance of rapid hospitalisation of future patients to their survival.

The dataset collated by Rosello's team also allows for comparisons in trends between Ebola [outbreaks](#) in DRC and similar data gathered in other regions, to draw further lessons about the demographics, climate and political influences for the control of Ebola epidemics.

**More information:** Alicia Rosello et al. Ebola virus disease in the Democratic Republic of the Congo, 1976-2014, *eLife* (2015). [DOI: 10.7554/eLife.09015](https://doi.org/10.7554/eLife.09015)

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