

Mortality rates in Ebola survivors after hospital discharge could be 5 times higher compared with the general population

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First study of its kind suggests Ebola survivors may be at increased risk of death in the first year after hospital discharge, particularly those who

spent longer in hospital.

In the first year after hospital discharge, [mortality](#) in Ebola survivors was five times higher than would be expected in general Guinean population (55 deaths versus 11 deaths), according to an observational study of 1,130 people published in *The Lancet Infectious Diseases* journal.

Over the full follow-up period, 59 deaths were reported, of which 37 were tentatively attributed to [renal failure](#) based on reports of the deceased's symptoms made by [family members](#). The authors note that there was a lack of documentation or autopsies available to rule out other causes of [death](#), and call for more research to be done to investigate whether renal failure is a common long-term effect of the [disease](#).

This study confirms that the high vulnerability of survivors of Ebola virus disease persists after [hospital discharge](#), particularly for those with prolonged severe forms of the disease, and suggests that the overall case fatality rate for the disease may have been previously underestimated.

Study author Dr. Ibrahima Socé Fall, Assistant Director-General for Emergency Response, WHO, Geneva, comments on the importance of the study, "Our findings highlights the need to strengthen Ebola survivor programmes, particularly as the number of people surviving the infection are increasing."

Professor Judith Glynn, London School of Hygiene & Tropical Medicine, London, UK, continues "Our results could help to guide current and future survivors' programmes and the prioritisation of funds in resource-constrained settings. For example, those hospitalised with Ebola for longer may be at greater risk, and could be specifically targeted."

From December 8, 2015, the study followed-up 89% (1,130/1,270) of

the Guinean survivors of the 2013-16 Ebola outbreak in west Africa and recorded 59 subsequent deaths. Survivors were followed up until September 30, 2016, and deaths up to this time point were recorded. Family members were interviewed about any deaths, and [survivor's](#) medical records were reviewed, if available. The authors then calculated the mortality rate compared with the general Guinean population, accounting for differences in age.

Survivors of Ebola discharged from treatment units in Guinea had an overall mortality of 5.2% (59 deaths out of 1,130 discharged patients enrolled in the study) after a median follow-up of 22 months.

Mortality was higher in those who stayed longer in treatment units during their episode of Ebola virus: 7% (14/486) for survivors who were hospitalised for at least 12 days (the median average stay) compared with 3% (42/571) for those hospitalised for fewer than 12 days. The authors suggest this difference could be down to patients with longer stays having more prolonged, acute forms of the disease.

Mortality was lower in survivors living in the capital than those living in other regions, with 2% mortality in Conakry (five deaths out of 240 discharged patients) compared with 6% mortality elsewhere in Guinea (54 out of 890 discharged patients). The authors suggest better access to health care in urban areas as a possible reason for this disparity.

Exact date of death was unknown for 43 of the 59 deaths recorded. Of the 16 initial survivors for whom an exact date of death was available, five died within a month of discharge from Ebola treatment units, a further three died within three months of discharge, four died three-12 months after discharge, and four died more than a year after discharge.

The authors suggest that the distribution of deaths over time and the finding that over 60% of deaths may have been due to renal failure,

suggest that most deaths were linked to longer-term effects of Ebola.

Dr. Mory Keita, a medical doctor and epidemiologist from Guinea, currently WHO field Coordinator in Beni, North Kivu, DR Congo says, "Although cause of death evidence was weak for most patients, renal failure is a biologically plausible cause of death in survivors of Ebola virus disease. Previously, the virus has been detected in urine samples during the acute phase of the disease demonstrating that it can infect the kidney. Some patients with Ebola virus disease develop acute kidney injury, which could lead to longer-term renal failure and increased mortality even after initial apparent recovery."

The authors note that there was no control group for comparing the mortality rates of survivors to that of the general population. Instead, the researchers used data extrapolated from a questionnaire given to the census participants, noting that people with Ebola virus disease may have been poorer than the general population, so would be expected to have a higher background risk of mortality. However, these biases are unlikely to explain such a large increase in early mortality.

Writing in a linked commentary, Dr. Gary Kobinger from Québec-Université Laval, Québec City, Canada, says "The high case fatality associated with Ebola virus infection, together with the long-term sequelae and late mortality associated with the infection, highlight the importance of preventive and early therapeutic clinical interventions against severe acute infections such as Ebola virus disease. Such measures should include immunisation of at-risk individuals, early treatment of patients, and education and social intervention within affected communities."

More information: Mory Keita et al, Subsequent mortality in survivors of Ebola virus disease in Guinea: a nationwide retrospective cohort study, *The Lancet Infectious Diseases* (2019). [DOI:](#)

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