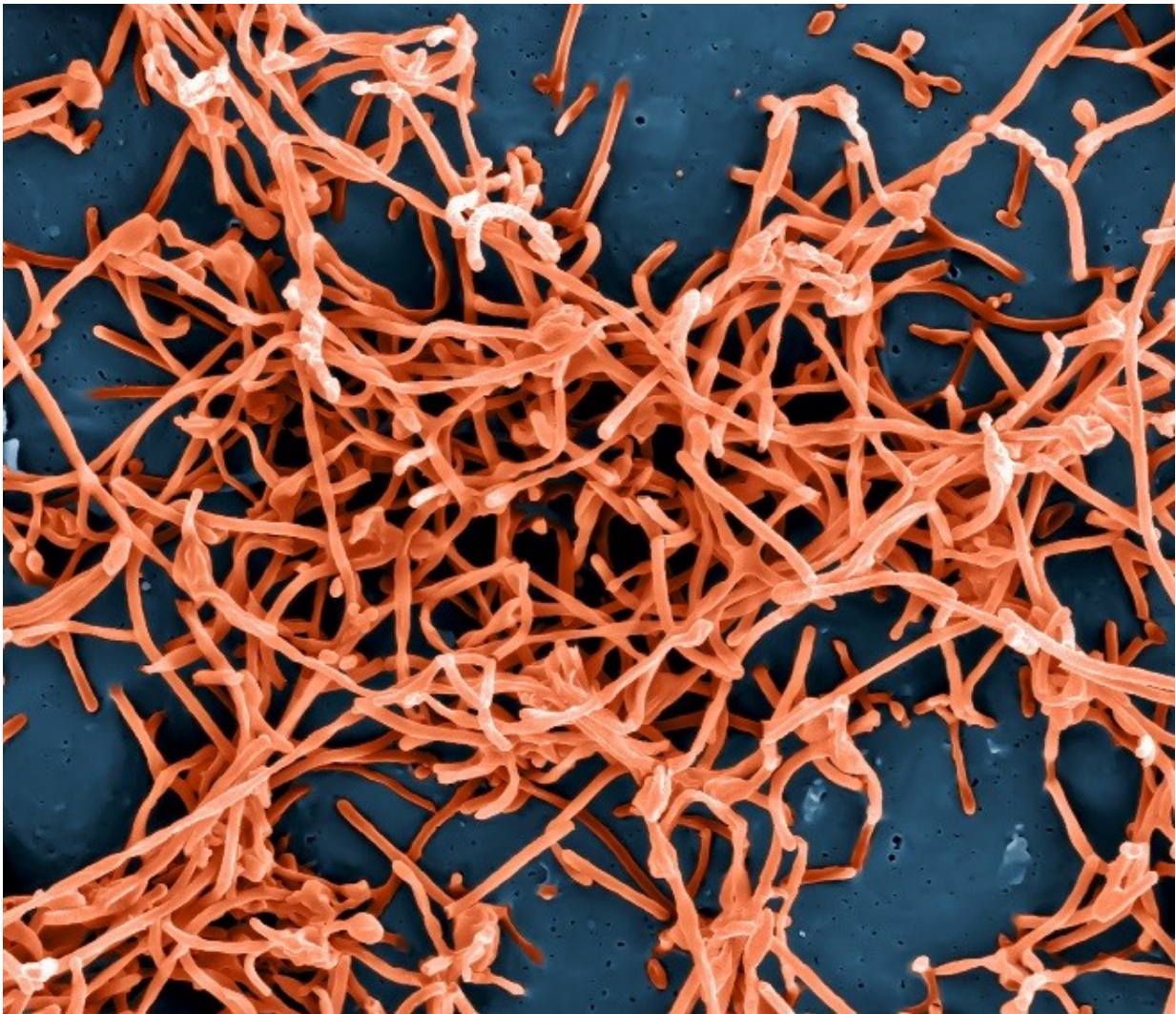


# Study finds people with Ebola may not always show symptoms

November 15 2016

---



Ebola virus particles. Credit: NIAID, Flickr

A year after the Ebola epidemic in West Africa, researchers from the Stanford University School of Medicine and other institutions identified 14 individuals previously unknown to have had the disease in a Sierra Leone village that was an Ebola hot spot.

These individuals had antibodies to the virus, suggesting they had been infected at one time. Yet 12 of these individuals said they had had no symptoms during the time of active transmission in the village.

The research confirms previous suspicions that the Ebola virus does not uniformly cause severe disease, and that people may be infected without showing signs of illness, said Gene Richardson, MD, a former fellow in the Division of Infectious Diseases and Geographic Medicine at Stanford who is now a PhD candidate in anthropology at the university. The findings also suggest that the epidemic was more widespread than previously believed. Based on the results of the study, the researchers calculated the prevalence of minimally symptomatic infection to be 25 percent.

"The study corroborates previous evidence that Ebola is like most other viruses in that it causes a spectrum of manifestations, including minimally symptomatic infection," Richardson said. "It provides important evidence on that front. It also means a significant portion of transmission events may have gone undetected during the outbreak. This shows there was a lot more human-to-human transmission than we thought."

The study will be published online Nov. 15 in *PLOS Neglected Tropical Diseases*. The study also will be presented Nov. 14 at the American Society of Tropical Medicine and Hygiene's annual meeting in Atlanta. Richardson is lead author of the study, and Paul Farmer, MD, PhD, a Harvard professor and director of Partners In Health, is the senior author.

## Testing individuals

The research was done in the rural village of Sukudu in Sierra Leone, a country where Richardson and his colleagues cared for hundreds of patients in Ebola treatment units managed by Partners In Health.

The village, with about 900 residents, had been one of three major hot spots in the Kono District, in the eastern part of the country, during the heat of the Ebola crisis between November 2014 and February 2015. There were 34 reported cases of Ebola in the village, including 28 deaths.

More than 28,000 cases of Ebola infection were reported in Africa during the epidemic, the largest and longest in history. More than 11,000 people are estimated to have died because of the disease.

In the aftermath, Richardson and his colleagues decided to go back to the village to try to determine whether the Ebola infection could be minimally symptomatic, as previous studies have suggested. He worked with a local physician and two community health workers in gathering data for the study, a process that was approved by the local village chief.

They used a test known as the ELISA assay, a technique that can detect the presence of an antibody. They first made sure the test was accurate by comparing results from 30 Ebola survivors in Sukudu with those of 132 people in other villages where the virus had not been reported.

Richardson said the test proved to be a reasonable measure of viral antibodies. The researchers then recruited 187 men, women and children from Sukudu who had likely been exposed to Ebola, either because they were living in the same household or had shared a public toilet with a person confirmed to have had the disease.

Of these, 14 were found to be carrying antibodies to Ebola, suggesting they had been infected at some point, though they had not been included in the original count. Twelve of them said they had had no symptoms of the disease, which typically causes fever, unexplained bleeding, headache, muscle pain, rash, vomiting, diarrhea, breathing problems and difficulty swallowing. Two recalled having had a fever at the time of the outbreak, the scientists reported.

## **Public health efforts not entirely effective**

In combining the initial reports of 34 infections with the 14 newly identified cases, the researchers calculated the prevalence of minimally symptomatic infection in the village to have been 25 percent.

Richardson said it is unknown if an asymptomatic individual is capable of transmitting the virus. Because these individuals did not have an active case of the disease, "They were not passing it along in the usual way, through vomiting or diarrhea," he said. "It's unclear if they can pass it along it sexually."

The virus has been shown to hide out for months in semen, even after symptoms have subsided, with some published cases of survivors transmitting the virus through sexual contact.

Richardson said the study indicates that public health efforts to prevent infection and contain the virus during the epidemic were not entirely effective.

"It reminds us that we need to do a much, much better job in future epidemics," Richardson said.

He and his colleagues are now working in other villages in Sierra Leone where public health surveillance was poor during the epidemic, testing

and interviewing individuals to get a better handle on the true number of people affected during the crisis.

"We expect to find a lot more undocumented survivors, so we can begin to answer the question of what was the true burden of disease," he said.

**More information:** *PLOS Neglected Tropical Diseases*,  
[dx.plos.org/10.1371/journal.pntd.0005087](https://doi.org/10.1371/journal.pntd.0005087)

Provided by Stanford University Medical Center

Citation: Study finds people with Ebola may not always show symptoms (2016, November 15)  
retrieved 18 April 2024 from  
<https://medicalxpress.com/news/2016-11-people-ebola-symptoms.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.