

# **Analysis of 1976 Ebola outbreak holds lessons relevant today**

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Dr. Breman, pictured on the far right in dark shirt and beard, was part of a team of scientists that studied the 1976 Ebola outbreak in Yambuku, located in what is now the Democratic Republic of Congo. Credit: Dr. Joel Breman

With the recent Ebola epidemic in West Africa reviving interest in the first outbreak of the deadly hemorrhagic fever 40 years ago, scientists led by Dr. Joel Breman of the Fogarty International Center at the National Institutes of Health have released a report highlighting lessons learned from the smaller, more quickly contained 1976 outbreak.

"Key to diagnosis in 1976 was the relatively quick clinical recognition of a severe, possibly new disease by national authorities," according to Breman and his co-authors. "International notification and specimen provision occurred within five weeks from onset of the first cases; this did not occur in the 2013-2016 epidemic, when the delay was over three months."

The report, published in *The Journal of Infectious Diseases*, identifies an adult male who was hospitalized in late August 1976 at Yambuku Mission Hospital in the Democratic Republic of Congo (DRC)—known as Zaire at the time—as the first Ebola patient. It describes how "several dozen patients...developed a similar febrile hemorrhagic syndrome and died in about one week, as did many of their contacts."

A month after "patient zero" was hospitalized, blood taken from a Belgian midwife-nun who had contracted the virus was sent to Belgium for analysis. Within days of the nun's death, the area where the outbreak was occurring was placed under quarantine and Yambuku Hospital was shut down on the advice of Zairean, Belgian and French health officials.

In total, there were 318 cases of Ebola in 1976 and 280 deaths in an outbreak that lasted less than 11 weeks. In the recent West Africa outbreak, there were 11,310 deaths out of nearly 29,000 cases, and the epidemic lasted more than two years—almost 10 times as long as in 1976. The death rate in 1976—88 percent—was much higher than in the recent outbreak in Liberia, Guinea and Sierra Leone—around 50 percent.

The report also tries to settle the debate over who "discovered" the Ebola virus in 1976. Local Zairean, Belgian and French doctors and health officials were the first to see and assess patients in Yambuku, while the Institute of Tropical Medicine in Antwerp, Belgium, received the first Ebola specimens and recovered what they called "a Marburg-like virus." However, it was the Centers for Disease Control and Prevention in the United States that identified and recognized a new, unknown virus that fulfilled the criteria for discovery of a new virus, according to the report.

Researchers give specific credit to Drs. Patricia Webb, James Lange and Karl Johnson, of the CDC's Special Pathogens Branch.

As for what carried the virus into DRC in the first place, investigators in Zaire determined at the time by questioning community leaders, people recovering from Ebola and the families of 1976 victims about their contact with animals that bats were not the vector. However, in the 40 years since the first Ebola [outbreak](#), fruit bats have been found to be probable reservoirs for filoviruses—the type that causes Ebola—and the Ebola genome and antibodies have been found in bat and rodent species in East and West Africa.

More extensive preparations, including improved screening capabilities, are needed to detect and manage future outbreaks promptly, the scientists recommend. Primary prevention through strengthened prediction models, detection, response, control mechanisms, and

international cooperation and coordination are essential for all countries in Africa and elsewhere where Ebola and new and re-emergent pathogens are sure to surface again.

**More information:** Discovery and description of Ebola Zaire Virus in 1976 and relevance to the West African epidemic during 2013–2016, *The Journal of Infectious Diseases*, [DOI: 10.1093/infdis/jiw207](https://doi.org/10.1093/infdis/jiw207)

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