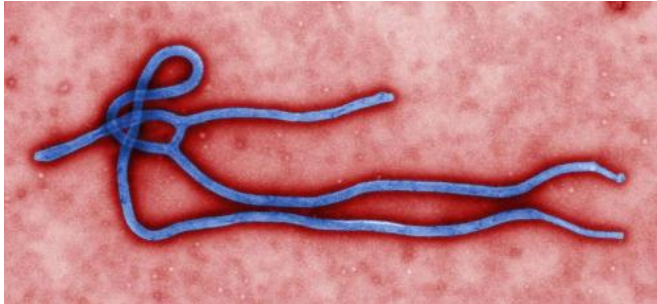


Area of animal-to-human Ebola risk bigger than thought (Update)

8 September 2014



Ebola virus virion. Credit: CDC

More than 22 million people live in parts of Africa where conditions exist for the Ebola virus to jump from animals to humans, a bigger area than previously thought, researchers said Monday.

While the actual risk of animal-to-human or "zoonotic" transmission is low—with just 30 confirmed cases in history—the wide geographic spread boosts the potential for future human outbreaks, which always start with the virus crossing the species barrier, they said.

The risk area covers countries as far north on the continent as Nigeria and as far south as Mozambique, the team of disease specialists wrote in the journal *eLife*.

People can in very rare cases contract the virus from handling or eating infected animals like bats, chimpanzees or gorillas, and then infect other people.

Human-to-human transmission of the haemorrhagic fever-causing virus with a death rate of up to 90 percent is not easy either—it requires direct contact with the body fluids of an infected person or corpse.

Countries that have never had a direct animal-to-

human infection, but are at risk, are Angola, Burundi, Cameroon, the Central African Republic, Ethiopia, Ghana, Liberia, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Sierra Leone, Tanzania and Togo, the team reported.

Cases of zoonotic transmission had in the past been reported in the Republic of Congo, Democratic Republic of Congo, Gabon, Guinea, Ivory Coast, South Sudan and Uganda.

The expanded list showed the risk area was "more widespread than previously predicted or appreciated," said the team, which compiled a series of maps for disease control experts.

"We have shown that the human population living within (the risk area) is larger, more mobile and better internationally connected than when the pathogen was first observed" in then-Zaire in 1976, they wrote.

"As a result, when spillover events do occur, the likelihood of continued spread amongst the human population is greater, particularly in areas with poor healthcare infrastructure."

This, in turn, threatened fragile economies and health care systems.

In total, 22.2 million people were estimated to live in at-risk areas in 22 countries—some 21.7 (97 percent) of them in rural areas, according to the study.

The current Ebola outbreak, the biggest in the disease's 40-year history, has killed more than 2,000 people out of nearly 4,000 infected in West Africa from December last year to August 31, according to the UN's World Health Organisation (WHO).

Outbreaks 'substantially' more frequent

The current outbreak emerged in Guinea, from where it spread to Liberia, Sierra Leone and Nigeria, said the study authors, adding the frequency of Ebola outbreaks appears to have increased "substantially" since 2000.

would be most effective in stopping Ebola outbreaks.

No licensed Ebola vaccine or treatment exists, although several are being tested.

This may be explained by people venturing deeper into remote rainforest areas where infected animals live, and virus spread made easier by an explosion in urban populations and global travel. © 2014 AFP

The scientists urged stricter surveillance, including the testing of bats in high-risk countries, where they act as virus reservoirs.

"The increasing connectedness of the African region means that EVD (Ebola virus disease) is now a problem of international concern," the team warned, while stressing an outbreak remained unlikely in western countries with functioning health systems.

"Secondary transmissions can be restricted by effective case detection and isolation measures," they wrote.

But "where this cannot be achieved, either due to a lack of infrastructure, poor understanding of the disease or distrust of medical practices, secondary cases can continue to occur"—as in the current West African outbreak.

The study pulled together data on Ebola virus infection in primates and fruit bats, its spread in humans, and environmental factors.

The team did not consider the risk of spread among humans.

The 30 known animal-to-human infections since 1976 have caused 23 outbreaks in Africa, they wrote.

Before the current outbreak, the Ebola virus had caused a confirmed 2,322 cases, mainly from the Zaire ebolavirus strain.

Commenting on the study, University of Reading virologist Ben Neuman said the maps were useful in outlining areas where investment in infrastructure

APA citation: Area of animal-to-human Ebola risk bigger than thought (Update) (2014, September 8) retrieved 12 May 2021 from <https://medicalxpress.com/news/2014-09-area-ebola-animals-bigger-thought.html>

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