



*Prevention includes avoiding direct contact with those infected and health officials following decontamination procedures*

#### How is Ebola spread?

The Ebola virus is transmitted in the bodily fluids of people who are seriously ill, who are likely to be vomiting, bleeding or have diarrhoea. Blood, faeces and vomit are the most infectious fluids, and in late stages of the disease even tiny amounts can carry high loads of virus. But a nurse who got a patient's blood on their hands could wash it off with soap and water without any ill-effects. He or she would become ill only if they had a cut or abrasion on their hand or touched their mouth, eyes or nose, which would allow the virus to pass into their bodily fluids.

#### What about sweat – for example could I get Ebola from using gym equipment?

No. Nobody who had Ebola and was symptomatic, with intense muscle weakness and a fever in the early stages, would be well enough to go to the gym – and until they are symptomatic, they are not infectious. Sweat, anyway, is probably not a source of large amounts of virus – in fact, the World Health Organisation (WHO) says whole live virus has never been isolated from sweat.

#### How about saliva?

WHO says saliva at the most severe stage of the disease, and also tears, may carry some risk, but the studies are inconclusive. The virus has been detected in breast milk. A 2007 study in the Journal of Infectious Diseases is probably the

most informative on where the virus hides.

#### Can I get Ebola from a toilet seat?

Yes – faeces from somebody with Ebola are a real hazard and the virus has also been detected in urine. But there would only be a danger if a seriously sick person had used the toilet and contaminated it and that is most likely in their home or hospital. Public toilets, in general, are very unlikely to be a risk.

#### Can it be sexually transmitted?

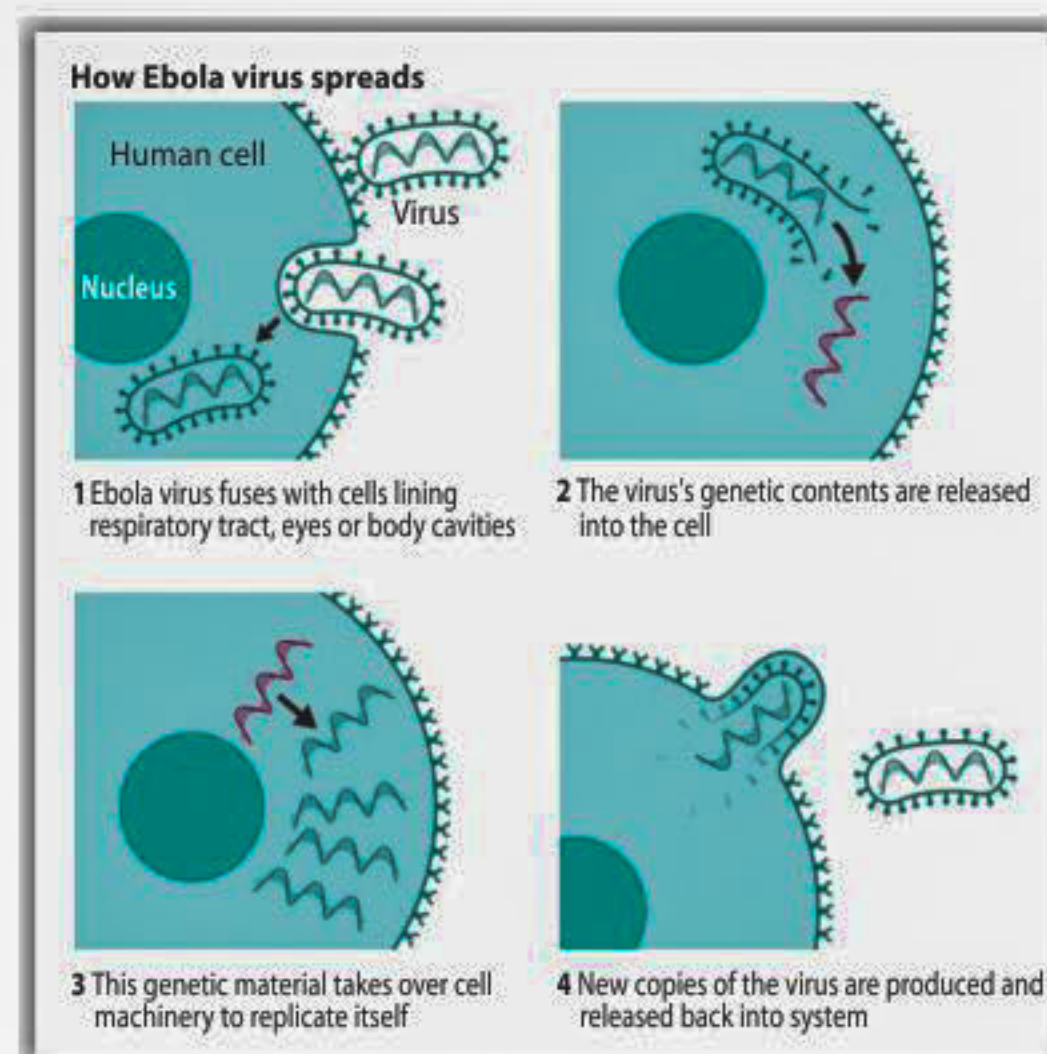
Yes, and the virus lasts in the semen of people who have recovered, maybe for as long as 90 days.

#### Could I catch Ebola from using a taxi that has taken a patient to hospital?

The virus can be transmitted on surfaces that bodily fluids have touched, so if somebody had bled or vomited on the seat, there would be a risk to anybody who had a cut or touched their face with contaminated hands. In Europe or the US, if a patient was diagnosed with Ebola, there would be a massive effort from the public health authorities to trace their movements as well as their contacts. Any taxi they had travelled in while sick would have to be decontaminated.

#### Could I catch Ebola from door handles a patient had touched?

Yes, if the handle was contaminated with blood, vomit or faeces, which would be more likely in the house where the patient had been living



when they fell sick, or in the hospital. But if people have intact skin, do not touch their eyes, nose or mouth and frequently wash their hands, they will not get infected.

#### How long can the virus survive?

The virus is quite fragile and is easily destroyed by UV light, drying out, high temperatures (which is helpful in west Africa) and disinfectants including soapy water and alcohol gel. The longest it is likely to survive is a few days, if left in a pool of bodily fluid in a cool, damp place.

#### Is food safe?

Yes, if it is cooked. The Ebola virus is inactivated through cooking. Raw bush meat is a risk. Past outbreaks of Ebola in Africa came from the hunting, butchering and preparing of bush meat for people to eat.

#### Is Ebola virus airborne? Should I wear a mask?

No. The virus is not airborne. In spite of speculation, the UN Ebola Mission for Emergency Response says extensive studies of the virus have not shown any airborne transmission. Patients do not cough and sneeze a lot with this disease and the WHO states in an advisory notice: "Epidemiological data emerging from the outbreak are not consistent with the pattern of spread seen with airborne viruses, like those that cause measles and chickenpox, or the airborne bacterium that causes tuberculosis."

#### What if somebody coughs or sneezes in my face?

There is a theoretical possibility that a person heavily infected with Ebola could cough violently and send wet, heavy droplets into the face of somebody nearby. The person most at risk of catching Ebola this way would be whoever is nursing the patient, and they would hopefully be wearing protective clothing including a mask.

SOURCE: GUARDIAN

## The Ebola Conspiracy Theories

*THE spread of Ebola from western Africa to suburban Texas has brought with it another strain of contagion: conspiracy theories.*

The outbreak began in September, when The Daily Observer, a Liberian newspaper, published an article alleging that the virus was not what it seemed — a medical disaster — but rather a bioweapon designed by the United States military to depopulate the planet. Not long after, accusations appeared online contending that the federal Centers for Disease Control and Prevention had patented the virus and was poised to make a fortune from a new vaccine it had created with the pharmaceutical industry. There were even reports that the New World Order, that classic conspiracy bugbear involving global elites, had engineered Ebola in order to impose quarantines, travel bans and eventually martial law.

While most of these theories have so far lingered on the fringes of the Internet, a few stubborn cases have crept into the main-

stream. In the last few weeks, conservative figures like Rush Limbaugh and Laura Ingraham have floated the idea that President Obama had sent aid to Africa, risking American lives, because of his guilt over slavery and colonialism.

Conspiracy theories have always moved in tandem with the news, offering shadow explanations for distressing or perplexing events. Though typically dismissed as a destructive mix of mendacity and nonsense, they often reflect societal fears.

"Conspiracy theories don't have to be true to tell us something about ourselves," said Michael Barkun, a professor emeritus of political science at Syracuse University and the author of "Culture of Conspiracy: Apocalyptic Visions in Contemporary America." "They're not effective as accurate accounts — they're effective as expressions of anxiety."

The notion, for example, that health officials are conspiring with Big Pharma to consciously spread — and then cure — Ebola as a profit-making venture might sound like the plot to a cheesy summer thriller, but in fact it

touches on a genuine aspect of our health care system, said Mark Fenster, a professor at the University of Florida's Levin College of Law and the author of "Conspiracy Theories: Secrecy and Power in American Culture." "The truth is that we do rely on private corporations to develop and produce our pharmaceuticals," he said.

OUTBREAKS, as a genre, have long attracted conspiracy theorists, beginning in medieval times when the Jewish leaders of Toledo, Spain, were blamed for having spread the Black Plague. More recently, the AIDS epidemic was also said to have been caused by a government plot.

The Ebola virus, experts say, is classic conspiracy theory fodder: a silent killer that penetrates the body undetected and lies dormant for weeks. Its sources are obscure, its symptoms horrific.

Many conspiracy theorists pride themselves on having inside information, but in the case of Ebola such alleged information, or misinformation — the government is in on it! — can erode the public trust when it's needed most.

SOURCE: NEW YORK TIMES

## EBOLA IS 50 TIMES OLDER THAN MANKIND

*And That Could Be the Key to Stopping It*

The tiger and the elephant and the polar bear may be stars at the Buffalo Zoo, but it was a humble wallaby that helped scientists prove Ebola is tens of millions of years old, not a mere 10 millennia, as was previously supposed.

The determination was made in recent years by scientists at the University of Buffalo who tested wallaby hair from the zoo along with a brown bat snared on campus to confirm what they had identified in existing databases for the first time: The genetic material of various small animals contains "fossil" fragments of filoviruses, the family that includes Ebola and Marburg.

"Who knew that the bats in the attic as well as modern marsupials harbored fossil gene copies of the group of viruses that is most lethal to humans?" co-author Dr. Derek Taylor said when the paper was published in BMC Evolutionary Biology in 2010. "Our findings demonstrate that filoviruses are, at a minimum, between 10 million and 24 million years old, and probably much older."

Unlike other viruses such as HIV, the filoviruses lack the capacity to create their own DNA and were therefore assumed to be incapable of inserting themselves into a host's genetic makeup.



Taylor and his co-authors, Dr. Jeremy Bruenn and Dr. Robert Leach, came upon the fossils by chance during a more general database search.

By studying hair from a wallaby, scientists in Buffalo discovered Ebola and other filoviruses were tens of millions of years old. How the finding may show us how to defend against them.

"It was a fortuitous discovery," Bruenn told The Daily Beast last week. "I was looking for all viral genomes, and that's what I found."

The mammal profiles in the genetic databases included the wallaby, and the scientists decided to

verify their finding by looking directly at the animal's DNA. They asked the director of the Buffalo Zoo for some wallaby hair.

"We didn't want to hurt the wallaby," Bruenn says. "They shed hair."

The zoo is blessed with multiple wallabies and was happy to oblige. The scientists were able to extract sufficient DNA from the roots, and they did indeed find the virus fossils. They got the same result from the campus bat.

One remaining question was how those fossils got there when these particular viruses had been presumed to lack the capacity to insinuate themselves into an animal's genetic makeup.

One possible answer was that the animal integrated fragments of the virus into its genes as a result of persistent infection.

This, in turn, raised the possibility that in the course of continued evolution, the mammals had incorporated the fossil as a genetic defense against the viruses—a kind of vaccine generated by natural selection.

And that could now help us in developing our own defenses against a virus for which there is presently no proven treatment.

### From host to healthcare

#### Transmission Animals

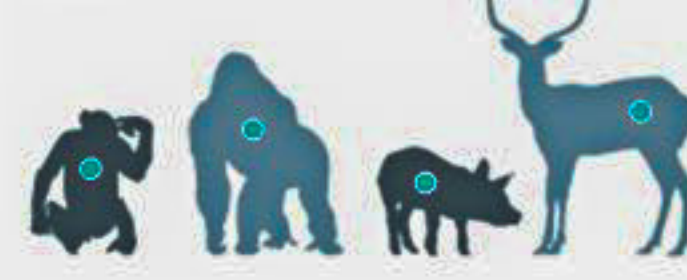
##### Fruit bat

The natural host of the Ebola virus, it can pass it on to other animals



##### Mammals

Become infected by eating infected animals or contact with their bodily fluids



#### Transmission Humans

##### Bodily fluids

Direct through broken skin or through the mouth, nose or eyes



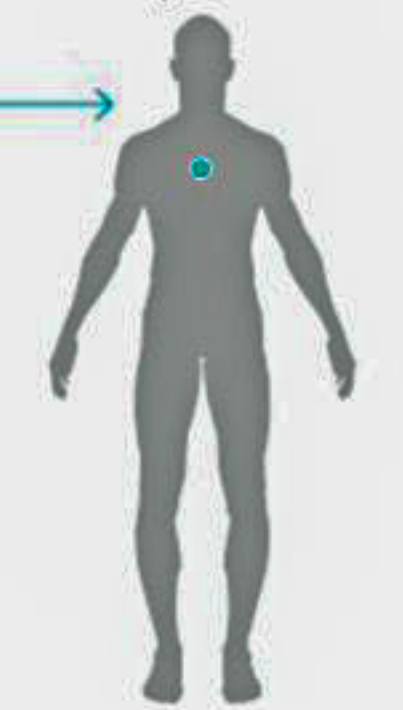
##### Food and drink

Eating food made or served by an infected person



##### Semen

Infectious for 82 days after onset and up to seven weeks after recovery



#### Healthcare workers The frontline

##### Protection suit

Designed to cover the entire skin. Each worker has a partner to spot for exposed skin.

Rubber gloves worn over latex gloves. Outer gloves should be changed when moving to each new patient



##### Exit strategy

###### Washing

Before exiting the suit, workers should be sprayed with a chlorine solution and step through a trough filled with disinfectant



###### Taking off the suit

The time when workers are most at risk. A careful sequence must be followed to prevent any contamination being transferred from protective garments to the worker's skin