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Human trials of vaccine for multiple species of Ebola to begin soon

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The first jab of a new Ebola vaccine that may protect against multiple species of the virus is to be given on Thursday, researchers have said, with the vaccine based on similar technology to the Oxford Covid jab.

Ebola haemorrhagic fever is caused by the Ebola virus and has caused devastation in some parts of the world. It is thought the outbreak in west Africa in 2014-16 may have led to more than 11,000 deaths, while the outbreak in the DRC between August 2018 and June 2020 claimed more than 2,200 lives.

Highly effective vaccines against Ebola have been developed in recent years but experts warn these have only been approved for one of the four species of the Ebola virus. This is the Zaire species that is responsible for many outbreaks, and has the highest mortality rate, with estimates of between 70% and 90%.

"There are three other important species of Ebola virus out there that these vaccines aren't approved to prevent," said Dr Daniel Jenkin, principal investigator of the trial at the Jenner Institute, University of Oxford.

Of these other species, the Sudan Ebola virus is thought to have a mortality rate of about 50%, with Jenkin noting it has caused the second largest number of outbreaks.

Now researchers at the University of Oxford say they are due to start human trials of a new Ebola vaccine that has been designed to protect against both the Zaire and Sudan species of the Ebola virus.

"The two species that we're targeting in this vaccine have caused almost all of the outbreaks and deaths," said Jenkin.

As with the Oxford/AstraZeneca Covid jab, the Ebola vaccine is based on a virus that causes the common cold in chimpanzees, but which has been modified so it cannot cause illness in humans.

However, instead of inserting spike protein genes from the coronavirus into the genetic material of this chimp virus – as was the case for the Covid vaccine – the team have loaded the chimp virus with genes for the main protein on the surface of the Ebola virus.

"Basically, we have two copies of that – one copy from the Zaire Ebola virus species and one copy from the Sudan Ebola virus species," said Jenkin.

While there are other vaccines in development to protect against more than one species of the Ebola virus, Jenkin said the new jab was the first to use the same underlying technology as employed for the Oxford/AstraZeneca Covid vaccine. That, he added, could bring practical benefits.

"[The Covid jab] is now being manufactured at 20 different manufacturing sites, including in middle income countries," he said. "Having that proof of concept that a similar vaccine can be manufac-

tured on an incredibly large scale is also a very big advantage."

While the first jab of the new Ebola vaccine is being given on Thursday, the team say they are looking for 26 healthy volunteers, aged between 18 and 55, for the phase 1 clinical trial. Those interested in signing up can do so online.

Participants will be given one dose of the jab and then followed up over a six-month period to allow researchers to explore the safety of the vaccine and the immune response it triggers.

David Matthews, professor of virology at the University of Bristol, who was not involved in the development of the new Ebola jab, but was involved in studying mechanisms by which the Oxford/AstraZeneca Covid vaccine works, said using the same technology made sense.

"You have a huge safety profile database and you have [a] well-understood manufacturing process," he said.