Ebola vaccine being used in Congo produces lasting antibody response, study finds

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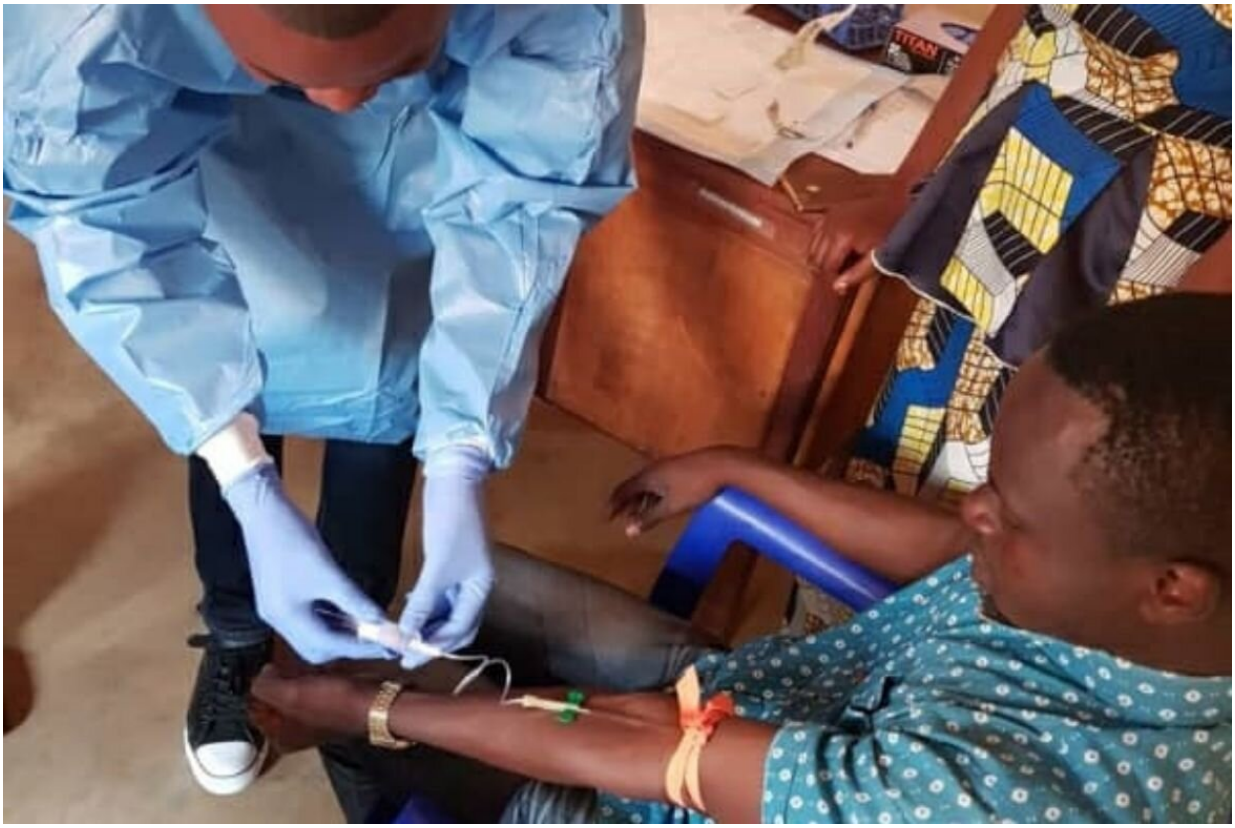

A team member from the Democratic Republic of Congo's National Institute of Biomedical Research takes a blood sample from a vaccinated man in North Kivu Province. Credit: Kamy Musene, UCLA–DRC Research Program / INRB

A new study by UCLA researchers and colleagues demonstrates that the

Ebola vaccine known as rVSVΔG-ZEBOV-GP results in a robust and enduring antibody response among vaccinated individuals in areas of the Democratic Republic of Congo that are experiencing outbreaks of the disease. Among the more than 600 study participants, 95.6% demonstrated antibody persistence six months after they received the vaccine.

The study is the first published research examining post–Ebola-vaccination antibody response in the DRC, a nation of nearly 90 million. While long-term analyses of the study cohort continue, the findings will help inform health officials' approach to vaccine use for outbreak control, the researchers said.

Ebola, one of the world's deadliest viral diseases, was first identified in 1976 following an outbreak near the Ebola River in the DRC. Since then, outbreaks have occurred intermittently in sub-Saharan Africa, including 12 outbreaks in the DRC, where the disease remains endemic.

The single-dose rVSVΔG-ZEBOV-GP vaccine, officially licensed in 2019 by both the U.S. Food and Drug Administration and the European Medicines Agency, was administered to more than 300,000 individuals in the DRC during outbreaks between 2018 and 2020. Until now, however, studies examining the antibody response of vaccinated Congolese populations were lacking.

UCLA researchers and their colleagues from the Democratic Republic of Congo's National Institute of Biomedical Research studied individuals who received the vaccine during an Ebola outbreak in the DRC's North Kivu Province. Between August and September 2018, the team worked alongside the DRC Ministry of Health's Expanded Program for Immunization and the World Health Organization to enroll and vaccinate 608 eligible individuals who were contacts of people infected with Ebola or contacts of those contacts—an approach known as "ring

vaccination"—as well as health care and frontline workers in affected or potentially affected areas.

The researchers collected blood samples at the time of vaccination, 21 days later and again after six months. The found that after 21 days, 87.2% of the study participants showed an antibody response. After six months, 95.6% of all participants showed antibody persistence.

The study provides crucial evidence that antibody response and persistence after rVSVΔG-ZEBOV-GP vaccination is robust in outbreak settings in the DRC. The findings are an important contribution to researchers' and public health officials' understanding of the vaccine response, which will aid in the ongoing development of strategies for deploying vaccines to control future outbreaks of Ebola in areas of the DRC and beyond.

The study's first author is Nicole Hoff, an assistant professor of epidemiology at the UCLA Fielding School of Public Health and the Kinshasa-based country director for the UCLA–DRC Research Program at UCLA; the corresponding author is Anne Rimoin, the Gordon–Levin Professor of Infectious Diseases and Public Health at the Fielding School. Additional authors are Fielding School researchers Adva Gadoth and doctoral student Anna Bratcher (co-first author).

More information: Nicole A. Hoff et al, Immunogenicity of rVSVΔG-ZEBOV-GP Ebola vaccination in exposed and potentially exposed persons in the Democratic Republic of the Congo, *Proceedings of the National Academy of Sciences* (2022). DOI: 10.1073/pnas.2118895119

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