

Ebola vaccination: what's the Problem?

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In late 2013 an outbreak of Ebola Virus Disease (EVD) began in Guinea and spread to neighboring Liberia and Sierra Leone. Over 2,5 years the outbreak resulted in more than 28,000 cases, and more than 11,000 deaths. The *Ebola Ça Suffit!* rVSV-ZEBOV vaccine trial began in Guinea in 2015, at the tail end of the West African epidemic. A ring vaccination study design was used in the aim of obtaining rapid, high-quality effectiveness data and addressing ethical concerns about the use of placebos during an outbreak. The trial concluded that rVSV-ZEBOV offers substantial protection against EVD. The vaccine is now named Ervebo and approved by the FDA, EMA and prequalified by the WHO, but the original study design has continued to determine how the vaccine is deployed. Since the results of *Ebola Ça Suffit!* were published, more than 300,000 doses of rVSV-ZEBOV have been administered via a reactive ring vaccination strategy, mainly in Eastern DRC in response to an epidemic declared in August 2018.

Although ring vaccination may help to control the transmission of EVD, it seems far from the ideal strategy, as indicated by the fact that the outbreak in Eastern DRC continued for nearly two years despite vaccination starting quickly after the declaration of the epidemic. There are both logistical and social challenges to effective real-life implementation of the ring strategy.

Testing new strategies of vaccination will be necessary to better protect at-risk populations and to better prevent and control outbreaks. This should include the routine vaccination outside epidemic periods of all healthcare, frontline workers and other high-risk population groups in areas that have recurrent epidemics or endemic EVD. During outbreaks, targeted geographic or population-based reactive vaccination campaigns are likely to be more successful than the current ring strategy. We should also return to the initial hypothesis that a range of vaccines with different specificities is probably necessary. Today there are two different vaccines against EVD with different profiles.

This presentation provides an overview of current Ebola vaccination strategies, their challenges and the way forward.