

Can ring vaccination stop Ebola in the DRC?

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Ebola virus. Credit: NIAID

The deployment of an experimental Ebola vaccine in the Democratic Republic of the Congo (DRC) is an important development in the fight against the disease. If the vaccine proves effective, it will spare many people from sickness and death. However, according to analysis by the New England Complex Systems Institute (NECSI) this approach may not be able to stop the outbreak itself.

Thousands of doses of a recently developed Ebola vaccine are being deployed in the DRC. The World Health Organization (WHO) is prioritizing inoculations through a "ring vaccination" strategy, dosing identified contacts of confirmed or suspected Ebola patients, as well as the contacts of those contacts. Health care workers will also be immunized.

While ring vaccination can alleviate a great deal of suffering, it may not be able to stop the outbreak as a whole. Vaccination supplements the standard WHO approach of contact tracing and the isolation of known contacts until it is determined if they are sick. It can take days or weeks for Ebola symptoms to develop. Immunization can prevent the [disease](#), but it can take as long as two weeks to be effective. This means that exposed contacts will still have to be isolated after receiving the [vaccine](#), because they may still develop or be able to transmit the disease.

An even more significant problem is that unknown contacts, which are neither isolated nor vaccinated, can quickly spread the disease in densely populated areas like Mbandaka. Contact tracing was not able to stop the spread of Ebola in the urban centers of West Africa in 2014 because of unknown contacts. If more cases occur in Mbandaka, contact tracing, even with vaccination, will not work in the DRC either.

NECSI recommends a community monitoring approach. Door-to-door checks for fever, an early symptom of Ebola, can identify potentially infected individuals before they have a chance to infect others, allowing for targeted vaccinations and isolation, as well as other care.

NECSI's simulations have provided strong evidence that community monitoring is ultimately what stopped the spread of Ebola in Liberia and Sierra Leon. Adopting this strategy sooner in the DRC can prevent the outbreak from becoming a far more serious epidemic.

More information: Yaneer Bar-Yam, Will the new ring vaccination stop the spread of Ebola?, New England Complex Systems Institute. [necsi.edu/research/social/pand ... ringvaccination.html](https://necsi.edu/research/social/pand...ringvaccination.html)

Provided by New England Complex Systems Institute

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