Stopping the next Ebola outbreak

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When the West African Ebola outbreak was at its peak in 2014, NECSI advocated for a community-level containment strategy. Unprecedented transmission levels within dense urban centers had overwhelmed traditional responses. Other studies at the time were projecting millions dead, but community responses stopped them at a few thousand. Last week, the paper showing NECSI was right was published in *PLoS Currents Outbreaks*.

NECSI's approach to disease containment changes the focus from the individual to community level by identifying neighborhoods with the highest incidence rates or susceptibility to infection, allowing public health services to focus on the communities most in need. The implementation of a similar strategy in Liberia in September 2014 contributed to a rapid drop in Ebola cases. This paper includes simulations matching that sharp decline.

To test their hypothesis, NECSI researchers conducted simulations of communities with local and long-range interactions to analyze the success of screening and travel restrictions. An absolute quarantine in which no one moves or meets others would halt transmission altogether, but is impractical. In the real world, any intervention will face non-compliance, oversights and accidents.

With that in mind, the community screening approach was found to be successful in simulation with just a 50 percent compliance rate, resulting in an exponential decline in new cases. Even at 40 percent compliance, new infections gradually tapered off. Combining community screening

with travel restrictions proved even more effective at bringing a simulated outbreak to a quick end.

Further simulations demonstrated that this strategy would be essential to combating a wide range of communicable diseases. Professor Bar-Yam, president of NECSI, says, "It is so important that the community response was implemented in Liberia and we hope it will become integral to public health strategies in the future."

More information: The report can be accessed at necsi.edu/research/social/pand … s/beyondcontact.html

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