

Research predicts possible 6,800 new Ebola cases this month

September 19 2014



A scanning electron micrograph of Ebola virus budding from a cell (African green monkey kidney epithelial cell line). Credit: NIAID

New research published today in the online journal *PLoS Outbreaks* predicts new Ebola cases could reach 6,800 in West Africa by the end of the month if new control measures are not enacted.

Arizona State University and Harvard University researchers also

discovered through modelling analysis that the rate of rise in cases significantly increased in August in Liberia and Guinea, around the time that a mass quarantine was put in place, indicating that the mass quarantine efforts may have made the [outbreak](#) worse than it would have been otherwise. Deteriorating living and hygiene conditions in some of the quarantined areas sparked riots last month. Sierra Leone began a three day country-wide quarantine today, where all citizens have been asked to stay at home, said Sherry Towers, research professor for the ASU Simon A. Levin Mathematical, Computational and Modelling Sciences Center (MCMSC).

"There may be other reasons for the worsening of the outbreak spread, including the possibility that the virus has become more transmissible, but it's also possible that the quarantine control efforts actually made the outbreak spread more quickly by crowding people together in unsanitary conditions," Towers said.

The study, "Temporal variations in the effective reproduction number of the 2014 West Africa Ebola outbreak," is authored by Towers, Oscar Patterson-Lomba of the Harvard School of Public Health and Carlos Castillo-Chavez, ASU Regent's professor and MCMSC executive director.

Researchers assessed whether or not attempted control efforts are effective in curbing the ongoing West African Ebola outbreak that has spread over a large geographic area, causing thousands of infections and deaths. Because the outbreak has spread to densely populated areas, the risk of international spread is increased. Also compounding the problem is a lack of resources for effective quarantine and isolation in the under-developed countries that have been affected, and the high mobility of the population in a region with porous borders, according to the study.

"No licensed vaccine or specific treatment for the disease is currently

available. This leaves improved hygiene, quarantine, isolation and social distancing as the only potential interventions," Castillo-Chavez said. "Improved [control measures](#) must be put into place." On Tuesday, President Obama announced that 3,000 US troops and medical personnel would be sent to the region to help control the outbreak, he added.

Researchers examined the current outbreak data for Guinea, Sierra Leone and Liberia through statistical research methods up until Sept. 8, 2014, as estimated by the World Health Organization. The analysis examines the local rates of exponential rise to estimate how the reproduction number of cases appears to be changing over time. Calculations showed a range of 6,800 predicted new cases at the upper end of the spectrum and 4,400 on average. The study was funded by the National Institute of General Medical Sciences at the National Institutes of Health.

Provided by Arizona State University

Citation: Research predicts possible 6,800 new Ebola cases this month (2014, September 19) retrieved 19 April 2024 from <https://medicalxpress.com/news/2014-09-ebola-cases-month.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--