

# Tools can identify nations vulnerable to Ebola and aid response, analysis finds

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Public health experts can identify nations that are vulnerable to the occurrence and impact of future outbreaks of Ebola or other emergencies by using a screening tool that evaluates a nation's strengths across a wide range of measures such as political strength and health care capabilities, according to a new analysis from the RAND Corporation.

The process is part of a suite of "proof-of-concept" tools developed to help policymakers prepare for and respond to health disasters, such as Ebola.

"While these tools need further refinement, our work suggests these methods can be useful to identify future 'hot zones' before they develop and help emergency workers evaluate their options for response," said Dr. Melinda Moore, the project's leader and a senior natural scientist at RAND, a nonprofit research organization.

The [tool](#) uses widely available statistical indicators to assess nations across four broad domains—political, economic, socio-cultural and health. Individual topics that make up each of the domains include items such as government effectiveness, availability of communications, and the status of a nation's health care infrastructure and workforce.

RAND researchers used the preliminary tool to show how it could help identify possible future hot zones for Ebola. For illustrative purposes, they selected a handful of nations to examine in sub-Saharan Africa, the Middle East, South Asia and Southeast Asia.

In addition to Guinea, Liberia and Sierra Leone where the current Ebola outbreak has been severe, researchers rated six additional countries in Africa as at high risk. Those nations are Burkina Faso, the Central African Republic, Chad, Côte d'Ivoire, Ethiopia and Mali.

Afghanistan was rated as a high risk in South Asia, while no nations were ranked as [high risk](#) among the handful examined in either the Middle East or in Southeast Asia.

Researchers also used the tool to develop a hypothetical narrative about why and how an Ebola outbreak could spread in three nations. Those countries are Côte d'Ivoire and Ethiopia in Africa, and Pakistan in South Asia, where the tool had assessed the risk at a medium level. Finally, they describe how a tabletop exercise could be used—preferably in advance of a disaster—for planning purposes to identify and implement concrete actions that will enable a country to respond quickly and effectively and minimize the impact of a disaster.

While the RAND report uses the tool to examine nations' vulnerability to Ebola, the same methods can be used to assess vulnerability to other types of natural, accidental or intentional emergencies, according to researchers.

The RAND research team also has created two other tools that can help officials prepare for and respond to future emergencies. One can still be used during the ongoing Ebola 2014-2015 outbreak.

One of those tools provides a way to assess potential [public health emergency](#) interventions either before or during a crisis.

For example, Moore said, the tool could have helped U.S. [public health officials](#) assess the likely effectiveness of a travel ban on people coming from Africa to the United States after Ebola was detected in Dallas last

year. It also could have been used to compare alternative approaches to achieve the same aim.

While a travel ban was urged by many political leaders in the United States, there was no direct evidence whether it might have been helpful. Most public health leaders worldwide renounced the proposed travel bans. The RAND tool would have provided a systematic way for public health officials to assess the likely impact of such a move and, hopefully, convince political leaders of preferable alternative measures.

The third tool developed by RAND researchers is a dynamic "intra-action report" to help emergency managers and policymakers assess progress during an ongoing crisis. The method can identify opportunities for addressing initial failures or challenges, and for replicating initial successes.

"After a [public health](#) emergency, our usual course is to wait until an after-action review to determine what we could have done better," Moore said. "One benefit of the new intra-action tool is it gives officials a framework to more-formally assess an ongoing event that unfolds over a protracted timeframe and make changes to an ongoing strategy. It also helps officials communicate progress to higher authorities and to the public. "

Provided by RAND Corporation

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