

Middle East respiratory syndrome: A global health challenge

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MERS coronavirus particles (green) on camel epithelial cells. Credit: NIAID in collaboration with Colorado State University.

The ongoing outbreak in the Republic of Korea (South Korea) is an

important reminder that the Middle East respiratory virus (MERS-CoV) requires constant vigilance and could spread to other countries including the United States. However, MERS can be brought under control with effective public health strategies, say two Georgetown University public health experts.

In a *JAMA* Viewpoint published online June 17, Georgetown [public health](#) law professor Lawrence O. Gostin and infectious disease physician Daniel Lucey outline strategies for managing the outbreak, focusing on transparency, trust and infection control in [health](#) care settings. The duo also outline weaknesses in a World Health Organization's (WHO) framework designed to govern patents on certain viruses, which is likely to impact critical future research.

MERS-CoV, which affects the respiratory system and is sometimes fatal, was first diagnosed in 2012 in Saudi Arabia. The first outbreak occurred that year in Jordan with nine laboratory-confirmed cases. In May 2015, South Korea reported what has been described as a "super-spreading" event with dozens diagnosed MERS-CoV cases after exposure to a single patient. While more difficult to spread person-to-person than its cousin, SARS, MERS-CoV is most likely to spread in health care environments.

"South Korea repeated many of the fundamental mistakes evident during the SARS and Ebola epidemics: lack of transparency, poor infection control, and social disruption, including unnecessary school closures," says Gostin.

"Public health measures—infection prevention and control, isolation, contact tracing, and quarantine—historically have controlled MERS-CoV and were also widely employed during SARS and Ebola outbreaks," Gostin and Lucey write.

However, they point out that public fear and government mistrust can hinder effective epidemic response.

"In the case of MERS-CoV, health authorities initially withheld the names of hospitals handling cases. Transparency builds public trust; given the scientific uncertainty, health authorities should fully disclose what is and is not known about the MERS-CoV outbreak."

Key points Gostin and Lucey make about MERS-CoV [infection control](#) include:

- Training health workers and conducting diagnostic testing of certain travelers;
- Limiting quarantine use to well-documented exposures using the least restrictive means possible;
- Restricting travel should be avoided as it would be ineffective as evidence is lacking of MERS-CoV community transmission; and
- Closing schools also should be avoided given the lack of community transmission of MERS-CoV.

In addition, Gostin and Lucey point out that deficiencies in a WHO framework for virus sharing have led to challenges of intellectual property ownership of MERS-CoV that could hinder research.

After Saudi Arabia sent blood samples to Erasmus Medical Center in the Netherlands and MERS-CoV was identified, Erasmus filed for a patent. Saudi Arabia says that action violates national rules and that Erasmus acted unethically.

Gostin and Lucey say the WHO's Pandemic Influenza Preparedness Framework fails to cover non-influenza pathogens like MERS-CoV noting, "...there remain substantial holes in international rules needed to facilitate critical research."

In conclusion, the two public health experts say that by fully funding and implementing requirements put forth in WHO's International Health Regulations, such as building core capacities (diagnosis, treatment, laboratories contact tracing and human forms of quarantine) offers "the best assurance of global health security."

Provided by O'Neill Institute for National and Global Health Law

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