

Surveillance system can identify and track emerging infectious diseases

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A team of researchers have developed a method to identify the cause of infectious disease outbreaks based on online reports about the symptoms, the season, and the ratio of cases to fatalities. Using data from the Internet outbreak reporting system ProMED-mail, the researchers applied this method to more than 100 outbreaks of encephalitis in South Asia, recently identified as an emerging infectious disease "hotspot," to determine which of 10 infectious diseases was causing symptoms of encephalitis, and whether Nipah—a serious emerging infection—could be reliably differentiated from the others.

The findings showed that three quarters of the disease outbreaks formed distinct clusters, and that previously unknown disease outbreaks could be correctly identified 88% of the time. For Nipah virus [encephalitis](#) that number rose to 100%.

Results of the study are published in the *Journal of the Royal Society, Interface*.

Particularly noteworthy according to author Dr. Stephen S. Morse, professor of Epidemiology at Columbia University's Mailman School of Public Health and an originator of ProMED-[mail](#), was that unknown outbreaks in resource-poor settings could be evaluated in real time, leading to more rapid responses and reducing the risk of a pandemic. The model provides a quick and inexpensive means to assess outbreaks and allows for the tracking of infectious disease outbreaks in the earliest stages of an epidemic.

"Our approach is especially beneficial in resource-poor countries because of their limited surveillance capacity and lack of laboratories to diagnose unusual outbreaks," said Dr. Morse, who is also founder of ProMed. "Such countries are often where new [infectious diseases](#) emerge."

Provided by Columbia University's Mailman School of Public Health

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