Social networking sites could be used to monitor and respond to global disease outbreaks

April 7 2017

The researchers conclude that there is significant potential for social media monitoring to be included in mainstream disease surveillance and response systems. Credit: DENYS Rudyi / 123rf

That social networking sites are a pervasive force won't come as a surprise to the billions of users worldwide. But how effective are they when it comes to informing the public health response to disease outbreaks? To answer this question and provide clear, quantitative data on how social media supports disease monitoring and response, a joint study between the Agency for Science, Technology and Research (A*STAR) Institute of High Performance Computing and Singapore's Ministry of Health examined the 2013 avian flu outbreak in China.

Avian influenza A (H7N9) is a severe viral infection characterized by pneumonia and acute respiratory distress syndrome. China announced its first three human cases in March 2013. International concern about the impact of this infection on global health and security grew quickly. Obtaining documented information on cases is key to limiting disease spread. To assess the efficacy and accuracy of social media in reporting incidents, researchers compared the timing of reporting new cases by means of conventional news agencies, public health agency reports (like the National Health and Family Planning Commission of China and the World Health Organization), and posts from Sina Weibo, a popular social networking site with more than 500 million registered users at the time of the outbreak.

Their results illustrate that Weibo was significantly faster in reporting new cases of infection than conventional reporting sites and public health agency reports. Weibo also provided access to additional crowdsourced information, such as updates on patients' health conditions, exposure history and family contacts, which were not readily available through official sources. This rapid disclosure of information helped accelerate official responses and recording by Chinese health authorities. In addition, the authorities were able to leverage Weibo as an interactive platform for risk communication to the general public, by holding, for example, real time question and answer sessions.

The researchers conclude that there is significant potential for social media monitoring to be included in mainstream disease surveillance and response systems. Their research also indicates that it could provide an early warning system for unusual public health events abroad.

More information: Zhang, E. X., Yang, Y., Shang, R. D., Simons, J. J. P., Quek, B. K. et al. "Leveraging social networking sites for disease surveillance and public sensing: the case of the 2013 avian influenza A (H7N9) outbreak in China." Western Pacific Surveillance and Response Journal. (2015).

Provided by Agency for Science, Technology and Research (A*STAR), Singapore