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Correspondence

Big data integration and analytics to prevent a potential hospital outbreak of COVID-19 in Taiwan



KEYWORDS

COVID-19;
Prevention strategies;
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To Editor:

Big data integration and analytics play the key role to successfully prevent COVID-19 hospital outbreaks in Taiwan. A 30 year-old lady came to our outdoor quarantine station in front of our hospital and planned to visit the clinic inside our hospital due to cough and diarrhea for 3 days. However, her travel history of abroad to a COVID-19 epidemic country one week ago was identified automatically outside the hospital via Taiwan National Health Insurance (NHI) identification card data by a card reader. The infection control personnel referred the patient to our emergent department for a throat swab of SARS-CoV-2 immediately without entering the hospital building. Later, she was confirmed with COVID-19 infection and transferred to a negative-pressure isolation room in a medical center.

Kaohsiung Municipal Ta-Tung hospital (KMTTH) is a 428-bed community hospital in Kaohsiung, Taiwan. Currently, a “limited community transmission” of COVID-19 was announced in Taiwan Centers for Disease Control (CDC). The policy of our hospital is to explore any person with suspected COVID-19 infection as soon as possible in outdoor quarantine station and transferred to a negative-pressure isolated room in medical centers to avoid hospital infection and outbreak.

Healthcare system collapse has been the major damage of COVID-19 pandemic in many countries worldwide

because the hospitals were overwhelmed by huge number of COVID-19 patients. One of the leading factors is hospital outbreak, which resulting in consecutive infection and illness of healthcare workers and patients in the hospital and community.^{1–3} To find and isolate any infected patient with all-out effort to prevent in-hospital infection could reserve the healthcare capacities. Although cross-border control is very important to prevent pandemic in many countries, the accurate personal travel and contact history for every visitor or patient before entering the hospital might not be accessible if the person does not inform it honestly.⁴ False TOCC (travel, occupation, contact and cluster) history by verbal or written questionnaire lead to a high risk of hospital infection. In fact, more than 99% residents in Taiwan were covered by the National Health Insurance System. Taiwan government integrated and analyzed several big data, especially from National Health Insurance Administration, National Immigration Agency and Taiwan Centers for Disease Control, and provided real time and accurate immigration and contact information for outdoor quarantine station of each clinic and hospital in Taiwan. It would let all hospital staffs can easily access the travel abroad history via personal NHI identification card for all visitors who will enter the hospital.⁵ Before entering the building, any suspected person would be transferred to emergent department for further examination.

A comprehensive public health system that covered almost all residents can offer appropriate medical service for all residents and the effective and efficient national big data integration and analysis presented a valuable contribution on preventing further hospital outbreak to reserve the healthcare system and public health.

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Declaration of Competing Interest

None declared.

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