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A case of imported Monkeypox in Singapore

Increasing international travel from areas with infectious disease outbreaks poses continual risks for the global spread of emerging infectious diseases (EIDs). As reported by Adesola Yinka-Ogunleye and colleagues,¹ the re-emergence of monkeypox in Nigeria in 2017 resulted in disease exportation by two travellers to the UK and one to Israel. Singapore, a globally connected city-state with 5.6 million people and where 65.6 million air travellers were received in 2018, is not spared.^{2,3} On May 7, 2019, a 38-year-old Nigerian man was admitted to the National Centre for Infectious Diseases with fever, muscle aches, chills, and nodular skin lesions since April 30, 2 days after arrival in Singapore.⁴ As monkeypox was suspected on clinical presentation, the patient was isolated immediately in a negative-pressure room and notified, as legally required, to the Ministry of Health.

Diagnosis was confirmed on May 8, 2019, by the National Public Health Laboratory using electron microscopy, PCR, and genome sequencing of blister fluid. The Ministry of Health immediately initiated contact tracing of individuals at risk using traditional interviews and surveillance camera footage at venues the patient had visited. 22 close contacts were offered the vaccinia vaccine as prophylaxis and were placed under quarantine (home-based or in designated government quarantine facilities). Because all health-care workers managing the patient had used appropriate personal protective equipment, they could continue to work while monitoring their own potential symptoms. The Nigerian National International Health Regulations Focal Point were informed about the patient. No secondary cases were detected.

Various EID preparedness capabilities were in place owing to Singapore's previous experiences with EIDs (eg, severe acute respiratory syndrome, Nipah, and Zika). The Ministry of Health routinely assesses risk of EIDs and proactively communicates information to all medical practitioners about disease epidemiology, diagnostic criteria, notification guidelines, and referral platforms. In 2018, in response to the Nigerian monkeypox outbreak, the Ministry of Health had alerted medical practitioners, a factor which contributed to awareness and early diagnosis. To enable EID management within a single centre, the National Centre for Infectious Diseases was purpose built as a 330-bed facility with onsite capabilities including the National Public Health Laboratory, which develops certified testing protocols for EIDs. This laboratory enables rapid diagnostic confirmation and provision of appropriate patient management. Additionally, frequent simulations test the national infectious disease preparedness framework to ensure readiness and competency.

This case reinforces the need for constant global disease monitoring, preparedness training including regular simulations, and capacity building of health-care systems as important measures that could be adopted, especially in other areas at high risk of disease importation.

OTN and VL contributed equally. We declare no competing interests.

Oon Tek Ng, Vernon Lee,
Kalisvar Marimuthu, Shawn Vasoo,
Guanhao Chan, Raymond Tzer Pin Lin,
*Yee Sin Leo
yee_sin_leo@ncid.sg

National Centre for Infectious Diseases, Singapore 308422, Singapore (OTN, KM, SV, RTPL, YSL); Department of Infectious Diseases, Tan Tock Seng Hospital, Singapore (OTN, KM, SV, YSL); Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore (OTN, SV, YSL); Ministry of Health Singapore, Singapore (VL, GC); and Yong Loo Lin School of Medicine, National University of Singapore, Singapore (KM, YSL, RTPL)

- 1 Yinka-Ogunleye A, Auna O, Dalhat M, et al. Outbreak of human monkeypox in Nigeria in 2017–18: a clinical and epidemiological report. *Lancet Infect Dis* 2019; **19**: 872–79.
- 2 Singapore Department of Statistics. Singapore population. <https://www.singstat.gov.sg/modules/infographics/population> (accessed Sept 5, 2019).
- 3 Changi Airport Group. Air traffic statistics. <http://www.changiairport.com/corporate/our-expertise/air-hub/traffic-statistics.html> (accessed Sept 5, 2019).
- 4 WHO. Monkeypox—Singapore. <https://www.who.int/csr/don/16-may-2019-monkeypox-singapore/en> (accessed Sept 5, 2019).

Sustainable actions needed to mitigate dengue outbreak in Bangladesh

We read with interest the Review by Lydia Franklins and colleagues¹ about the effect of global change on mosquito-borne disease, which was published around the same time there was an increasing death toll from, and hospitals full of patients with, dengue in Bangladesh. The country is facing its worst dengue outbreak since 2000, with fears of mortality running deep as the infection reaches all parts of the country, particularly affecting children, pregnant women, and older people.^{2–4} In 2018, 10 148 dengue cases were reported,² and as of Aug 23, 2019, 59 592 people have been infected, with 47 confirmed deaths (the unofficial death toll is 111).³

Dengue infection in tropical and subtropical countries is not new, but the outbreak in Bangladesh requires further contemplation. Poor water, sanitation, and hygiene systems, alongside a dense population, are prolonging the outbreak in Bangladesh. To prevent outbreak progression, short-term nationwide actions by government officials, non-governmental organisations, policy makers, and institutions must be initiated. Key mosquito breeding areas should be destroyed and sprayed with insecticides. Measures to address waterlogging and cleaning of canals, water tanks, rainwater collection tanks, sump pits, downpipes, and gutters