

Vulnerability of community-based isolation: a case of concurrent COVID-19 and primary varicella infection

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Dear Sir,

This case report highlights the vulnerability of migrant workers isolated in community-based facilities to infectious pathogens such as varicella, which is transmitted via airborne, droplet and contact routes.

A 28-year-old Bangladeshi migrant worker sought medical attention for fever and headache on Day 12 of his stay in a community care facility for COVID-19 infection. 16 days prior to this event, he had presented to an emergency department for fever and myalgia, having been exposed to a contact who was diagnosed with COVID-19. His reverse transcriptase-polymerase chain reaction (PCR) test from a nasopharyngeal swab was positive for COVID-19. At the community care facility, he was found to be febrile (38.4°C) with bilateral cervical lymphadenopathy. There were no focal neurological deficits or signs that were suggestive of meningism. He was monitored in the facility's sick bay. The next day, he developed a vesicular rash over his face, neck and upper chest, which was suggestive of chickenpox. On further questioning, he reported no prior varicella infection or vaccination and no contact with varicella infection. He was promptly transferred to a tertiary hospital for isolation and treatment with oral acyclovir. PCR test from vesicle fluid was positive for the varicella zoster virus.

A post-exposure vaccination response was implemented on the same day by Travellers' Health and Vaccination Clinic staff who were deployed on-site. About 460 (75%) migrant workers who resided in the same hall at the community care facility were vaccinated within 72–96 hours of exposure. The Singapore Ministry of Health (MOH) then consulted the Expert Committee on COVID-19 Immunisation regarding a coordinated approach to sporadic cases of chickenpox in community isolation facilities. MOH was able to obtain data that demonstrated a high level of herd immunity among the foreign workers, which then informed the approach to extract the infectious chickenpox case from the COVID-19 community isolation facilities, identify close contacts and assess them for post-exposure vaccination.

As the COVID-19 pandemic has placed unprecedented strain on healthcare systems worldwide, affected countries have employed different strategies to reduce the burden on hospitals. In Singapore, community-based isolation was one of the measures employed to reduce community transmission while providing care for individuals with asymptomatic or mildly symptomatic infections.⁽¹⁾

This case of varicella highlights the vulnerability of community-based isolation, namely the possibility of an outbreak within an outbreak. On 25 May 2020, the Chinese newspaper *Lianhe Zaobao* reported on four migrant workers with COVID-19 isolated in community-based facilities, who were diagnosed with varicella infection and subsequently transferred to tertiary hospitals for further management. These cases were likely sporadic, with no direct association identified between the migrant workers and the source of infection.⁽²⁾ Varicella is highly contagious, and transmission occurs via inhalation of airborne droplet nuclei, aerosolised either from the respiratory tract or vesicular skin lesions.⁽³⁾ The close contact and shared ventilation among individuals in community care facilities may facilitate transmission, with potentially serious consequences. Moreover, with an incubation period of up to 21 days, infected individuals may continue to spread the infection after they are discharged to step-down facilities and dormitories.⁽⁴⁾ Furthermore, adults with no evidence of immunity are at increased risk of severe varicella infection and complications.⁽⁵⁾

Migrant workers housed in isolation facilities who may not have received prior immunisation represent an especially vulnerable subpopulation.⁽⁶⁾ Appropriate post-exposure management comprises determination of immunity and provision of post-exposure prophylaxis with vaccination in eligible immunocompetent patients and varicella zoster immunoglobulin in immunosuppressed patients with contraindications to vaccination.⁽⁵⁾ While there is no substitute for prompt detection and early isolation of affected individuals, measures such as physical distancing and hand hygiene should be emphasised. Pre-employment testing, periodic health examinations, and a vaccination policy for outbreak-prone respiratory infections and vaccine-preventable diseases such as measles, influenza and diphtheria should be considered to minimise the spread of communicable diseases within congregate housing settings such as dormitories and refugee camps.⁽⁶⁾

Yours sincerely,

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