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The first 2019 novel coronavirus case in Nepal

In January, 2020, the outbreak of the 2019 novel coronavirus (2019-nCoV) in China spread progressively to other countries,^{1,2} with WHO declaring it a public health emergency of international concern.³ Among the affected countries beyond China (where 12 307 cases and 259 deaths were reported as of Feb 1, 2020) are others in Asia, including Nepal.⁴

On Jan 13, 2020, a 32-year-old man, a Nepalese student at Wuhan University of Technology, Wuhan, China, with no previous history of comorbidities, returned to Nepal. He presented at the outpatient department of the Sukraraj Tropical and Infectious Disease Hospital, Kathmandu, with a cough. He had become ill on Jan 3, 6 days before he flew to Nepal. He indicated no exposure to the so-called wet market in Wuhan. Throat swabs obtained from the patient tested positive for 2019-nCoV on real-time RT-PCR assays at the WHO laboratory in Hong Kong. On admission to hospital in Kathmandu, his temperature was 37.2°C (99°F), with throat congestion, but with no other relevant signs or symptoms. He was isolated and treated with broad-spectrum antibiotics, and supportive therapies. After 6 h, he complained of mild breathing difficulty and decreased oxygen saturation (SpO₂ 87% on room air). Chest radiographs obtained on admission showed an infiltrate in the upper lobe of the left lung (figure). On Jan 14, his temperature rose to 38.9°C (102°F) and the next day he had breathing difficulties while in the supine position, with crepitations in the right lower lung field. His fever was no longer present on Jan 16, and his clinical condition improved. He was discharged the next day, and instructed to self-quarantine at home. Laboratory tests

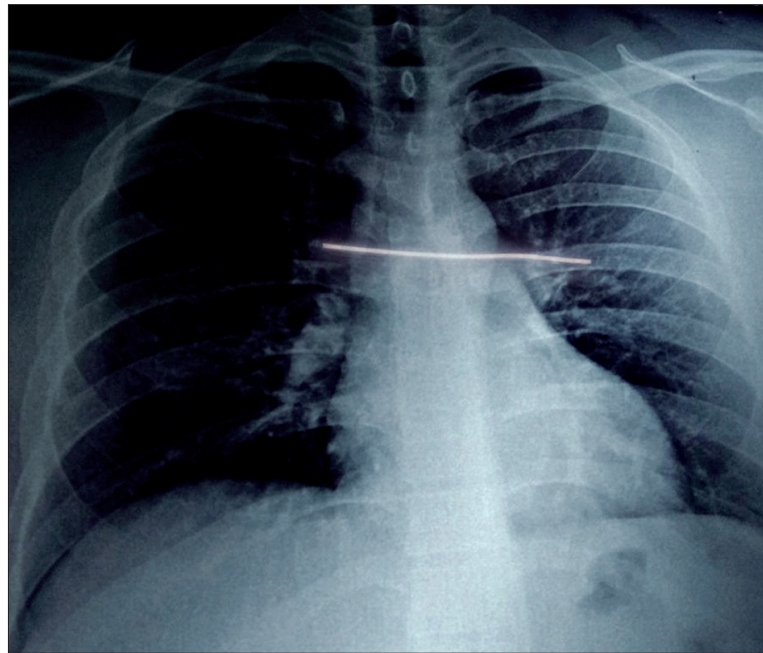


Figure: Initial radiograph of the patient

showed no abnormalities. Real-time RT-PCR assays for influenza A and B viruses, and NS1 antigen rapid tests for dengue viruses, scrub typhus, and *Brucella* were negative. Follow-up assessments on Jan 29 and Jan 31 gave an RT-PCR negative throat swab for 2019-nCoV. Informed consent was obtained from the patient to be included in this correspondence.

Compared with other recently reported cases, which included rapid worsening and even progression to death,^{1,2,5,6} our patient survived and recovered after 13 days with mild disease. A previous importation of 2019-nCoV in a family cluster in Vietnam included a father returning from Wuhan who transmitted the virus to his wife and son. They all recovered in less than 2 weeks.⁵ In two cohorts in China (n=41, n=99), the case fatality rates were 15%,¹ and 11%.⁷ Some reports have indicated that few patients with 2019-nCoV infection have prominent upper respiratory tract signs and symptoms (eg, sore throat),^{1,7} as occurred with the Nepalese student. As expected, fever and cough are the main clinical findings in patients with confirmed

2019-nCoV infection, with up to a quarter requiring admission to the intensive care unit.

Further studies in outpatient, primary care, and community settings are needed to get a full spectrum of clinical severity in imported, secondary, or autochthonous cases in all countries. These studies will be increasingly relevant as more cases of 2019-nCoV are diagnosed among people returning from Wuhan and other affected cities in China, but also acquiring the infection from imported cases, even asymptomatic ones, as occurred in Germany.⁸

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Pandemic potential of 2019-nCoV

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An important determinant of whether or not 2019 novel coronavirus (2019-nCoV) will ultimately cause a global pandemic is its ability to become established upon its importation to a new country. Cases of 2019-nCoV infection have so far

been reported in 24 countries, yet little human-to-human transmission outside of China has occurred.

The key quantity governing whether or not 2019-nCoV can establish and generate a sustained outbreak on arrival in a new country is the reproduction number, R , which represents the average number of individuals that each infector will transmit the virus to. If R is greater than 1, sustained transmission can occur; if R is less than 1, then chains of transmission will simply stutter out.

In the ongoing outbreak, assuming an R of 2.2, as reported by Li and colleagues,¹ then just over half of infections must be prevented to bring R below 1. This might be expected to be challenging if 2019-nCoV can be transmitted when infectors are not symptomatic.

However, there is little evidence to suggest presymptomatic transmission of 2019-nCoV.² Even if 20% of infections are occurring because of presymptomatic infectors (a level roughly halfway between the respective values for severe acute respiratory syndrome and influenza viruses,³ which is likely to be an overestimate), then 80% of infections would be due to symptomatic infectors. Because only slightly more than half of infections need to be prevented to bring R below 1, effective isolation of symptomatic hosts alone should be sufficient to prevent sustained outbreaks of 2019-nCoV outside China.

Of course, detection and isolation of symptomatic hosts is not always carried out effectively, and detection is challenging when symptoms are mild. Therefore, efforts to counter presymptomatic transmission might sometimes be merited. However, when implementing such measures (eg, the UK's isolation of passengers returning from Hubei, infected or not), the substantial cost to individuals who might not be carrying the virus should be considered carefully. With fast isolation of symptomatic individuals

alone, including self-isolation of those with mild symptoms, sustained outbreaks outside of China can be prevented.

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Measles vaccination in infants younger than 9 months

In their meta-analyses, Laura Nic Lochlainn and colleagues^{1,2} reported moderate to very low quality of evidence for good seropositivity, T-cell responses, and vaccine effectiveness in infants vaccinated with a first dose of measles-containing vaccine (MCV1) before 9 months of age, although the beneficial effects increased with increased age at vaccination. We are concerned about the data presented in one of the Articles.¹ For example, in the table the same number (54/106) is listed for the study by Murray and Rasmussen³ regarding the number of measles infections in unvaccinated infants younger than 9 months and the number of infections in unvaccinated infants aged 9 months and older. However, in the original paper,³ 563 (94%) of 601 Pakistani children were older than 9 months and therefore eligible for vaccination. The remaining 38 children were younger than 9 months, of whom five (13%) were infected with measles. In their crude analysis, Murray and