

## Research Letter

# Nepal's first case of COVID-19 and public health response

Ranish Shrestha, B.Sc. Microbiology <sup>1</sup>, Sunil Shrestha, Pharm.D <sup>2,3</sup>, Pratik Khanal, MPH <sup>4</sup>, and Bhuvan KC, Ph.D <sup>5</sup>

<sup>1</sup>Infection Control Unit, Nepal Cancer Hospital and Research Center, Harisidhhi, 44700 Lalitpur, Nepal, <sup>2</sup>Department of Pharmacy, Nepal Cancer Hospital and Research Center, Harisidhhi, 44700 Lalitpur, Nepal, <sup>3</sup>Department of Pharmaceutical and Health Service Research, Nepal Health Research and Innovation Foundation, 44700 Lalitpur, Nepal, <sup>4</sup>Central Department of Public Health, Institute of Medicine, 44600 Kathmandu, Nepal and <sup>5</sup>School of Pharmacy, Monash University Malaysia, Jalan Lagoon Selatan, 47500 Subang Jaya, Selangor, Malaysia

\*To whom correspondence should be addressed. Tel: +977-9851220488; Email sunilcresta@gmail.com

Submitted 13 February 2020; Revised 21 February 2020; Editorial Decision 22 February 2020; Accepted 25 February 2020

**Key words:** 2019-nCov, airport screening, coronavirus, COVID-19, geographic spread, public health emergency of international concern, Wuhan,

As of 20 February 2020, there have been 75 748 confirmed cases of the coronavirus disease 2019 (COVID-19) caused by the novel coronavirus (2019-nCov) with 2129 deaths.<sup>1</sup> On 30 January 2020, World Health Organization (WHO) declared the current outbreak that originated in Wuhan, China as a Public Health Emergency of International Concern, while recommending against travel or trade disruptions to and from China.<sup>2</sup> In Nepal, as of 20 February 2020, only one positive case has been identified among 212 tested.<sup>3</sup>

Severe acute respiratory syndrome (SARS), in 2003, spread both within a geographical region and, more significantly, to different cities from a single location through infected travelers.<sup>4</sup> The air-travel frequency from major cities in China to Nepal is lower compared to that of other countries.<sup>5</sup> However, there are other factors to consider. Firstly, Nepal is an emerging tourist destination and 2020 has been declared 'Visit Nepal' year with an expected 500 000 tourists. Among the total number of tourists in 2018, 153 633, the second highest number, were Chinese tourists, with the highest influx during February and December.<sup>6</sup> COVID-19 outbreak coincides (similar to SARS) with Chinese new year during which the Chinese travel extensively, thereby increasing chances for transmission.<sup>7</sup> Study of coronavirus infections in Nepal has shown the incidence to be higher in winter (December to February).<sup>8</sup> Furthermore, Nepal shares northern border with China with several border crossing points. Several Nepalese students study in China and in Wuhan, the epicentre of the outbreak. Thus, the potential for the spread of COVID-19 through travel

and the overlap between the months of peak tourist season in Nepal and the months of the emergence of the epidemic could pose a risk to Nepal.

One confirmed case in Nepal was a native student, studying in Wuhan, with symptom onset on 3 January 2020. The infected 32-year-old male had returned on 9 January to spend winter holidays in Nepal. He had prior knowledge about the outbreak in China and visited the Sukraraj Tropical and Infectious Disease Hospital (STIDH) in Kathmandu on 13 January.<sup>3</sup> Taking into account his travel history, he was isolated and was given supportive treatment with broad-spectrum antibiotics. The throat swab sample of the person was sent to the WHO Collaborating Center, Hong Kong and was tested positive. There were no complications, except for a surge in temperature to 102°F on 14 January, which then subsided on 16 January. Upon clinical improvement, he was discharged on 17 January, with a total 4 days in isolation. On 23 January 2020, the test results came back confirming COVID-19, although the man had been discharged. He was requested to remain under self-quarantine. Negative results for COVID-19 were given by consecutive follow-up tests on 29 and 31 January.<sup>9</sup>

Currently, Nepal, under the leadership of the Ministry of Health and Population, has taken various steps to prevent COVID-19. Monitoring teams and health desks have been established at major border checkpoints and cities such as Kathmandu, Lumbini, Chitwan, Pokhara, Bhairahawa and Ilam.<sup>3</sup> A 24-h operating health desk has been established at the Tribhuvan International Airport (TIA), Kathmandu (the only

international airport in Nepal) to screen incoming persons with infrared thermometers along with a dedicated ambulance service to promptly transport suspected cases.<sup>3</sup> Any person with fever (>100°F), cough or shortness of breath are referred to STIDH. However, the sensitivity of such screening has not been assessed and its effectiveness could be reduced by asymptomatic cases.<sup>10</sup> To curb this issue, focus could be diverted towards improving awareness among travelers about the symptoms of COVID-19 and the algorithm to follow thereafter.

A network of five hub and several satellite hospitals has been mobilized in Kathmandu. All hospitals in the network have developed hospital disaster preparedness plans and have mapped available resources such as isolation spaces. Fifty-five isolation beds have been provisioned at the hub hospitals.<sup>3</sup> Isolation beds have also been provisioned at three health science institutions in Gandaki Province and in Surkhet Province Hospital in Karnali Province and Lumbini Province Hospital in Province-5.<sup>3</sup> Several sets of personal protective equipment (PPE) have been provisioned at the hospitals, with five sets on standby at TIA. The confirmatory real-time reverse transcription polymerase chain reaction was introduced at National Public Health Laboratory (NPHL), Kathmandu on 27 January. Laboratory sample collection form developed by NPHL, reporting form for suspected COVID-19 cases and contact listing form have been provided to all healthcare institutes.<sup>3</sup>

Information, education and communication materials have been disseminated via several forums and media with regular updates regarding COVID-19.<sup>3</sup> On 10 February, 86 health-care workers were trained on quarantine and screening at the National Health Training Center. Similarly, training on contact tracing and PPE use has been conducted for medical personnel and hoteliers.<sup>3</sup> On February 3, a standard operating procedures (SOP) for repatriation of Nepalese nationals in China was finalized. The requirements for quarantine according to the WHO and International Health Regulations 2005 were met and drills had been conducted. On 16 February, 175 Nepalese nationals were flown into Nepal from China after exit screening. The repatriated citizens were transported under quarantine from TIA to quarantine site at Kharipati, Bhaktapur district, east of Kathmandu and have been placed under 24-h monitoring. Samples of all 175 persons, sampled on 16 February, were reported negative on 19 February. A second sample would be drawn on the 14th day after the arrival. A dedicated ambulance has been provisioned to one of three hospitals—STIDH, Patan hospital or Armed Police Force hospital in case of a positive test or in case of symptom onset.<sup>3</sup>

Considering the possibility of travel of infected cases, high vigilance coupled with a strong response plan is required to address the current risk of COVID-19. In this regard, a directive from the Government of Nepal is vital for educating the public to respond to the outbreak through necessary precautions and inform travelers about possible risk. Likewise, it is necessary to identify and contain suspected cases from the site of origin for which the capacity of the primary health system needs to be strengthened. COVID-19 and past outbreak scenarios should

be a learning experience for Nepal not only on emergency management but also towards developing a strong surveillance system and taking preventive actions for similar events in the future.

## Conflicts of interest

None declared.

## Funding

The authors did not receive any financial support for this work.

## References

1. World Health Organization. *Coronavirus Disease 2019 (COVID-19) Situation Report –31*. [Internet]. 2020 [cited 08 February 2020] Available from: [https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200220-sitrep-31-covid-19.pdf?sfvrsn=dfd11d24\\_2](https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200220-sitrep-31-covid-19.pdf?sfvrsn=dfd11d24_2) [Accessed 08 February 2020, date last accessed].
2. WHO. Statement on the second meeting of the international health regulations (2005) emergency committee regarding the outbreak of novel coronavirus (2019-nCoV), [internet]. 2020 [cited 08 February 2020] Available from: [https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)) [Accessed 08 February 2020, date last accessed].
3. Health Emergency Operation Center, Health Emergency and Disaster Management Unit (HEDMU), Ministry of Health and Population, Government of Nepal. Heoc.mohp.gov.np. (2020). Resource materials on novel coronavirus (2019-nCoV) – health emergency operation center. [online] Available at: [https://heoc.mohp.gov.np/update-on-novel-corona-virus-2019\\_ncov/](https://heoc.mohp.gov.np/update-on-novel-corona-virus-2019_ncov/) [Accessed 08 February 2020, date last accessed].
4. World Health Organization. Severe acute respiratory syndrome (SARS): status of the outbreak and lessons for the immediate future.. Geneva; 2003. [https://www.who.int/csr/media/sars\\_wha.pdf](https://www.who.int/csr/media/sars_wha.pdf) [Accessed 08 February 2020, date last accessed].
5. Bogoch II, Watts A, Thomas-Bachli A *et al*. Potential for global spread of a novel coronavirus from China. *J Travel Med* 2020 27(2):1–3.
6. Government of Nepal, Ministry of Culture, Tourism & Civil Aviation. *Nepal Tourism Statistics 2018*. [internet]. Kathmandu: Government of Nepal; 2019 [cited 08 February 2020]. Available from: <http://tourism.gov.np/files/statistics/19.pdf> [Accessed 08 February 2020, date last accessed].
7. Chen Z, Zhang W, Lu Y *et al*. From SARS-CoV to Wuhan 2019-nCoV: will history repeat itself? *bioRxiv* 2020.01.24.919241.
8. Uddin SI, Englund JA, Kuypers JY *et al*. Burden and risk factors for coronavirus infections in infants in rural Nepal. *Clin Infect Dis* 2018; 67:1507–14.
9. Bastola A, Sah R, Rodriguez-Morales AJ *et al*. The first 2019 novel coronavirus case in Nepal. *Lancet Infect Dis* 2020; 20(3): 279–280.
10. Quilty BJ, Clifford S, Flasche S, Eggo RM. CmmidnCoV working group. Effectiveness of airport screening at detecting travellers infected with novel coronavirus (2019-nCoV). *Eurosurveillance* 2020; 25:2000080.