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## Nepal's Response to Contain COVID-19 Infection

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### ABSTRACT

Nepal is a landlocked country bordering two most populous countries, India and China. Nepal shares open border with India from three sides, east, south and west. And, in north with China, where the novel coronavirus infection (COVID-19) began in late December 2019. The first confirmed imported case in Nepal was reported in 2<sup>nd</sup> week of January 2020. The initial response of Nepal to COVID-19 were comparably slow but country geared efforts after it was declared a 'global pandemic' by WHO on 11 March, 2020. Government of Nepal's steps from 18 March, 2020 led to partial lock down and countrywide lockdown imposed on 24 March, 2020. Government devised comprehensive plan on 27 March, 2020 for quarantine for peoples who arrived in Nepal from COVID-19 affected countries. This article covers summary of global status, South Asian Association of Regional Cooperation (SAARC) status, and Nepal's response to contain COVID-19 infection discussed under three headings: Steps taken before and after WHO declared COVID-19 a global pandemic and lab services regarding detection of COVID-19. Nepal has documented five confirmed cases of COVID-19 till the end of March 2020, first in second week of 15 January, 2020 and 2<sup>nd</sup> case 8-weeks thereafter and 3<sup>rd</sup> case two days later, 4<sup>th</sup> on 27 March and 5<sup>th</sup> on 28 March. Four more cases detected during first week of April. Non-Pharmacological interventions like social distancing and excellent personal habits are widely practiced. Country has to enhance testing and strengthen tracing, isolation and quarantine mechanism and care of COVID-19 patients as Nepal is in risk zone because of comparably weak health system and porous borders with India. The time will tell regarding further outbreak and how it will be tackled.

**Keywords:** COVID-19; lockdown; Nepal; pandemic; response

### INTRODUCTION

On 31 December 2019, Wuhan city in Hubei province, China informed WHO China country office of cases of pneumonia of unknown etiology.<sup>1</sup> China quickly shared the genome sequence to the international community. Officially it was named COVID-19 (coronavirus disease 2019) caused by the SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2), a new strain of RNA viruses.<sup>2</sup> The WHO declared it an outbreak of 'public health emergency of international concern' on 30 January 2020 and 'pandemic' on 11 March 2020. The clinical characteristics COVID-19 pneumonia, and cluster infection indicating person-to-person transmission, intrauterine vertical transmission potential in pregnant women and treatment recommendations for pediatric has been reported from Wuhan in early February 2020.<sup>3-6</sup> By, 6 April 2020, in more than 208 countries and territories and 2 international conveyances 1,273, 499

people got infected with over 69,451 deaths.<sup>7</sup>

### SUMMARY STATUS OF COVID-19 IN WORLD AND SAARC COUNTRIES

As per 'worldmeters info' till GMT 01+48 of April 06, 2020; 1,273, 499 coronavirus cases and 69,451 deaths were reported globally. COVID-19 Pandemic is rapidly accelerating. First case was reported on Dec 31, 2019; 1<sup>st</sup> hundred thousand in 67 days, 2<sup>nd</sup> in 11 days, 3<sup>rd</sup> in 4 days, 4<sup>th</sup> in 3 days, 5<sup>th</sup> in 2.5 days, 6<sup>th</sup> in 2 days and 7<sup>th</sup> 2 days, 8<sup>th</sup> 1.5 days and then increase by more than one hundred thousand per day in next four days.<sup>8</sup>

From eight countries of South Asian Association Regional Countries- SAARC (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka 8091 cases and 185 deaths have been reported till midnight GMT+1.48 April 6, 2020<sup>8</sup> (Table 1).

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Table 1. COVID-19 Status of SAARC Countries till midnight GMT+1.48 April 6, 2020. <sup>8</sup>

Country	Total Cases	Total Deaths	Death Percent	Total Recovered	Active cases	Serious Critical
India	4288	117	2.73%	328	3843	-
Pakistan	3157	47	1.49%	211	2899	18
Afghanistan	349	7	2.00%	15	327	-
Sri Lanka	176	5	2.84%	33	138	5
Bangladesh	88	9	10.22%	33	46	1
Maldives	19	0	-	13	6	-
Nepal	9	0	-	1	8	-
Bhutan	5	0	-	0	5	-
Total	8091	185	-	634	7272	24

Leaders of the Member States of the South Asian Association for Regional Cooperation-SAARC (home of one fifth of global population) held a video conference on Sunday 15 March 2020 for closer cooperation to combat and contain the spread of coronavirus infection in the region.<sup>9</sup>

### NEPAL RESPONSE TO CONTAIN COVID 2019 INFECTION

The first confirmed case of coronavirus infection in Nepal was reported on January 5, 2020. The 31 year-man doing PhD in Wuhan returned from China on January 5, 2020. He felt sick and was aware of the coronavirus outbreak in China, so, he self-visited the Sukraraj Tropical and Infectious Disease Hospital (STIDH) in Kathmandu on January 13, 2020. He was isolated keeping his travel history in mind and provided supportive treatment along with broad-spectrum antibiotics. The throat swab was sent to the WHO Collaborating Center, Hong Kong. After clinical improvement, he was discharged on January 17, 2020. He was kept 4 days in isolation. On January 23, 2020 the hospital received test results; positive for COVID-19. He was informed with advice to remain under self-quarantine. Subsequent follow-up tests on January 29 and 31 was found Negative for COVID-19 and patient was declared cured.<sup>10,11</sup>

None of the people who had come in contact with the patient manifested any symptoms after three weeks and therefore presumed that patient had not transmitted the disease to anyone else in Nepal.<sup>12</sup>

### THE STEPS TAKEN TO CONTAIN COVID-19 OUTBREAK IN NEPAL ARE DISCUSSED UNDER THREE HEADINGS

#### STEP1. Steps taken before WHO declared COVID 2019, a global pandemic

##### January 2020

As per 28 January report of Ministry of Health and Population (MoHP) Government of Nepal, Government

instructed all main and satellite hospitals to identify a dedicated space and beds with isolation facilities for COVID-19 cases. The MoHP prepared documents for the investigation and containment of COVID-19 and thermal scanner installed at Tribhuvan International Airport (TIA).<sup>11</sup> Minister of Health and Population Bhanubhakta Dhakal said, "The disease has no boundaries. We will try our best to control its outbreak."<sup>13</sup>

The MoHP updated the capacity of National Public Health Laboratory (NPHL) for laboratory confirmatory diagnosis of COVID-19 from 27 January 2020, ensured availability of Personal Protective Equipment (PPE) at different places and developed and disseminated information education and communication (IEC) materials.<sup>11</sup> The capacity of main hospitals in Kathmandu regarding collection and safe transfer of laboratory samples to NPHL for laboratory confirmatory diagnosis was developed.<sup>11</sup>

High level technical team has been formed to monitor the situation across the hub and satellite hospitals network in Kathmandu valley.<sup>11</sup> Key National Response of Nepal, as of 29 January 2020 is shown in Table 2.

While on January 31 2020, three more hospitals, Patan Hospital, Nepal Police Hospital and Tribhuvan University Teaching Hospital (TUTH) identified to treat coronavirus patients besides STIDH.<sup>11,13</sup> Rasuwagadhi border with China was closed on January 28, 2020 as reported in national daily 'myRepublica'.<sup>14</sup> Similarly, the Indo-Nepal border was put on high alert due to corona virus according to 'The Indian Times' on 28 January 2020.<sup>15</sup> With the outbreak in China, the northern Tatopani border in Sindhupalchok was closed on Chinese side for 15 days since 31 January, and import and export of goods have completely halted since January 31, according to the Chief Ram Chandra Kafle at Tatopani Immigration Office, reports 'The Himalayan Times'.<sup>16</sup> The discussion and awareness on the epidemic became intensified as reported in national daily 'The Kathmandu Post' reporting 'two more coronavirus cases suspected but

government agencies are woefully prepared to combat its spread'.<sup>17</sup>

**Table 2. Key National Response of Nepal, as of 29 January 2020.<sup>11</sup>**

- 1 5 Hub Hospitals and 13 key Satellite Hospitals have reported a dedicated space with isolation facilities for 2019-nCoV.
- 2 Continued thermal scanning and 24/7 operation of health desk at Tribhuvan International Airport (TIA). No suspected cases have been found.
- 3 NPHL started services for laboratory confirmatory diagnosis of 2019-nCoV. No sample has been received.
- 4 Dedicated ambulance is positioned at TIA for safe transfer of 2019-nCoV cases to designated hospitals.
- 5 Personal Protective Equipment (PPE) is prepositioned at Patan Hospital (15), Sukra Raj Tropical and Infectious disease (5), TIA (5) and additional stock is maintained.
- 6 50 Standee, One Hundred Thousand Brochure is ready for IEC
- 7 MoHP is holding a high-level official meeting daily under the chairmanship of the secretary for close monitoring of the situation.
- 8 High level technical team has been formed to monitor the situation across the hub and satellite hospitals network in Kathmandu valley
- 9 Regular communication mechanism is established between Health Emergency Operation Center (HEOC), Provincial Health Emergency Operation Center (PHEOC) and Ministry of Social Development (MoSD) for containment of 2019-nCoV and is functional.
- 10 Out of Eight; 7 persons who had visited Sukra Raj Tropical and Infectious Disease Hospital were sent home after preliminary examination which revealed no sign and symptoms of 2019-nCoV clinically. One case is remained under observation

**February 2020**

In first week of February, Epidemiology and Disease Control Division (EDCD) of Department of Health Services (DoHS) Ministry of Health and Population (MoHP), Nepal, developed treatment protocol based on protocol developed by UN Health Agency. Authorities instructed to all private hospitals to strictly follow the guidelines in dealing coronavirus suspects.<sup>18</sup>

On its website, Department of Health Services MoHP posted 3-sets of information for COVID-19 on 'Timeline, Health Screening Process at Health Desk TIA, Repatriation and Quarantine Process of Nepalese Citizens'.<sup>19</sup> (Figure 1 A & B) The MoHP posted pamphlets flyer's both in English and Nepali about symptoms and preventive measures.<sup>20</sup>

A Standard Operating Procedure (SoP) - "Quarantine Procedure for Nepali Students repatriating from China, 2076" was drafted for isolation and health services and quarantine place was identified in Kharipati, Bhaktapur.<sup>20</sup> On 16 February, 175 Nepalese students, who had requested the Nepalese embassy in Beijing, were evacuated from Wuhan, Hubei province in China. They were monitored at the designated quarantine zone in Kharipati, Bhaktapur and sent to home after 14 days following the negative tests of COVID-19. The MoHP started addressing public concerns regarding COVID-19 via 3 telephone hotlines from 8:00 to 20:00 hrs and allocated 43 isolation beds at STIDH, Patan Hospital and Bir Hospital. Health Desks and Provincial Health Emergency Operations Centers started working in close coordination with the MoHP.

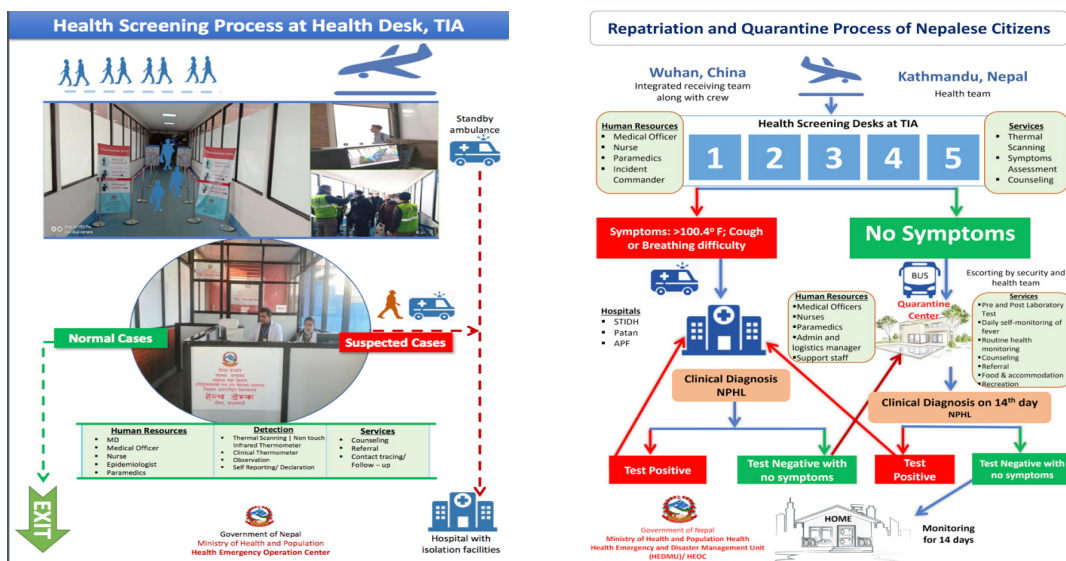


Figure 1. A. Health screening at airport in Kathmandu (TIA), B. Repatriation and Quarantine Process of Nepalese Citizens.<sup>19</sup>

### March 2020 (Before 12<sup>th</sup> March)

National Health Education, Information and Communication Centre (NHEICC) became more active in circulating health service awareness message regarding COVID-19.<sup>21</sup>

Private and non-government organizations (NGOs) were directed to postpone any international meetings planned to be scheduled in Nepal. Government suspended on Arrival Visa for travelers coming from COVID-19 highly affected countries (China, South Korea, Iran, Italy and Japan) from 10 March 2020, postponed all promotional activities related to the Visit Nepal 2020, instructed Nepalese citizens who are travelling from or through COVID-19 high-risk and affected countries to go under home quarantine for 14 days, planned to establish health desk at main checkpoints at bordering India, directed Nepalese citizens not to travel to highly affected countries by COVID-19, and international travelers to produce COVID-19 free certificate.<sup>22</sup>

### STEP 2. Steps taken after WHO declared COVID 2019, a global pandemic

Nepal speeded up its efforts at central level and provincial level to control COVID-19 after the WHO declared it a global pandemic.

#### Strengthening of health sector preparedness.<sup>23-25</sup>

Soon Provincial rapid response teams (PRRT) become proactive. Control of border strengthened at Nepal and India; the Government decided not to issue travel visas for third countries nationals entering the country via land routes through India. Free call center was established on March 13, 2020 by Nepal Telecom for getting information regarding COVID-19 between 6am-10pm. Arrangement for health checkup of both Nepalese and Foreigners landing at TIA was made and 14 days self-quarantine services were also made available. Health screening services were updated at TIA and domestic airports. "Algorithm to suspect COVID-19 infection based on the WHO Surveillance Case Definition" was developed for dealing COVID-19 suspects. Government advised all healthcare professionals and worker to use case definition appropriately. Guidelines regarding lab testing of samples of suspect of COVID-19 was developed and are being followed. Arrangement for management of critically ill patient of COVID-19 was made at various hospitals in Kathmandu valley and services continue. Government imposed travel ban from Europe, West Africa, West Asia, Gulf and Japan on March 20, 2020 as a precautionary measure to prevent the spread of

coronavirus- a partial lock down, a step proceeding towards complete lockdown. Next day after report of second confirmed case (March 24, 2020) Government of Nepal put entire country in lockdown for 8 days.

Subsequently Protocol for COVID-19 Screening at Point of Entry" developed and under implementation. Government also developed network of fever screening clinic and its protocol. Clinics are functional at most of the identified facilities. MoHP devised plan to trace peoples who arrived in Nepal from COVID-19 affected countries and keep them in quarantine at locally identified place or in home. Regular daily briefing about the situation to media by spoke persons of Ministry of Health initiated and continue.

### Reported cases

Second COVID-19 case reported after 8 weeks of first case and third on March 26, 2020. Fourth case was declared on 27 March, 2020 and fifth case on 28 March, 2020. Both were reported from outside of the Kathmandu Valley. Four more cases detected during first week of April. The total number of reported cases are nine; out of which only first reported case is recovered and others are in isolation. MoHP has distributed PPE to province.

### STEP 3. Lab Services regarding detection of COVID

National Public Health Laboratory (NPHL) Kathmandu is the only laboratory performing the test for COVID-19 till the end of March 2020. By April 6, 2020, 1697 sample tested, out of which 9 (0.53%) were positive. One can access lab testing algorithm, specimen collection method, sample transportation and submission, sample testing flow chart etc. on website of NPHL. NPHL uploads daily COVID-19 test results. Provincial Public Health Laboratories (PPHLs) started testing for COVID-19 from first week of April, 2020.

NPHL, DoHS, MoHP, Government of Nepal on its website has detail Information Regarding Novel Corona Virus such as Frequently Asked Questions (FAQ's), Lab testing algorithm, Specimen collection method, Name of contact person, Sample transportation and submission to NPHL, Sample testing flow chart, Trained personnel for sample collection. and transport, COVID-19 result daily update, Case definition, how to wear and remove PPE, Sample receiving protocol.<sup>26</sup>

Government of Nepal, National Health Education Information and Communication Centre, Ministry of Health and Population has made available the information on its website regarding surveillance, arrival restriction,

fever Clinics, PPE) in relation to COVID-19, Algorithm to suspect COVID-19 infection based on the WHO Surveillance, Case Definition (see Figure 3) Very Urgent Notice Regarding Arrival Restriction in Nepal (18 March, Wednesday, 23:45Hrs), Management and Protocol for ILI Clinics (COVID-19 Screening Fever Clinics), Protocol for COVID-19 Screening at Point of Entry for COVID-19 Case,

Guidelines for use of Personal Protective Equipment (PPE) in relation to COVID-19.<sup>27</sup>

Further information about 'All the documents, Audio by MoHP, and Audio by MoCIT-Ministry of Communication and Information Technology' are available on ministry website.<sup>28</sup>

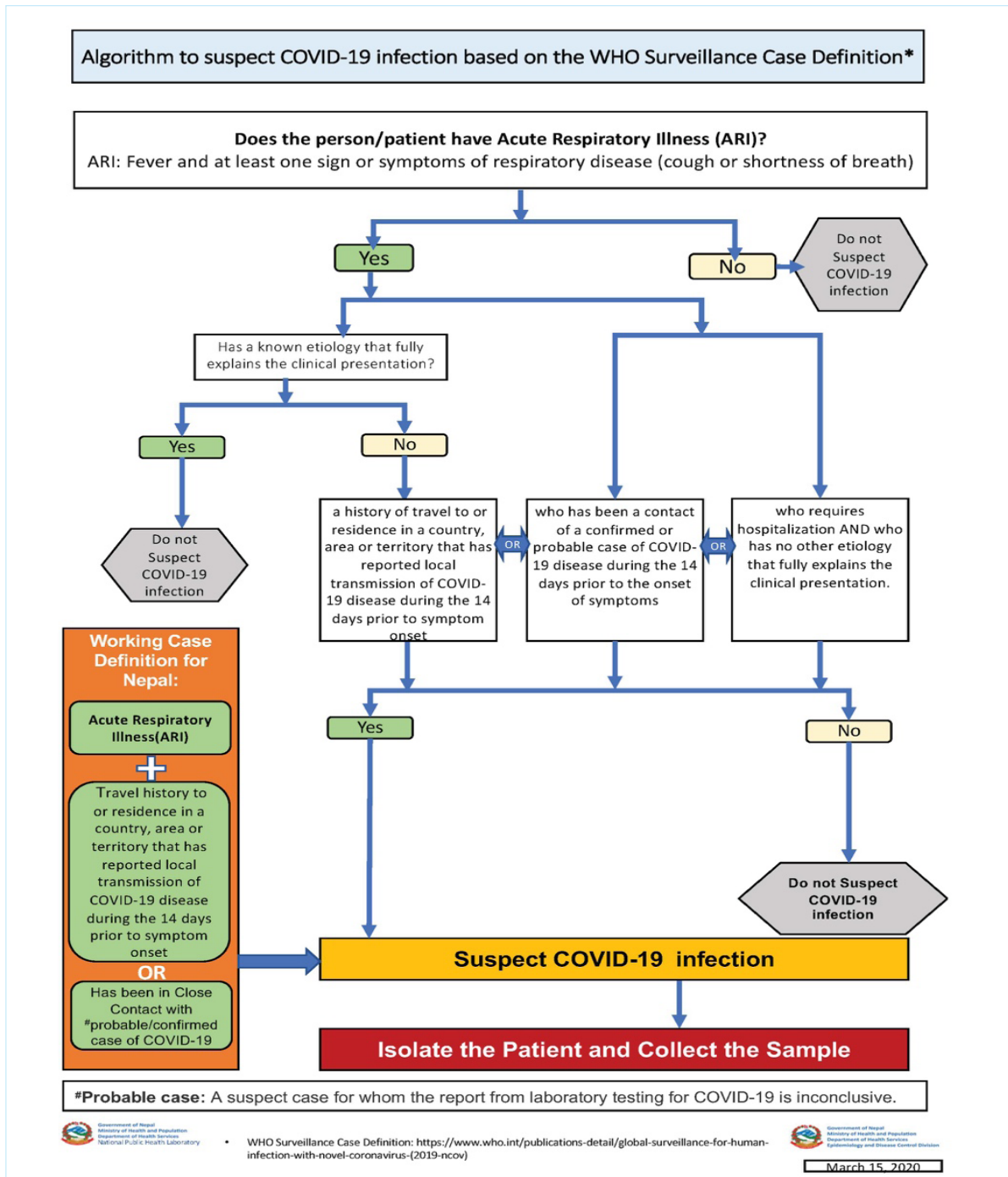


Figure 3. Algorithm to suspect COVID-19.<sup>27</sup>

## DISCUSSION

The first confirmed COVID-19 case in Nepal was reported in 2<sup>nd</sup> week of January 2020. This was imported case.<sup>10</sup> Till today 9 cases are reported, 8 are imported and one is contact of imported case.<sup>25</sup> The possible reason for less than 10 cases detected could be very less number of people tested (0.056 tests per thousand population). It is said that without widespread testing for COVID-19, it is difficult to know how the pandemic is spreading and how to respond it, hence there is need to increase testing.<sup>29</sup> Government has expanded laboratory network lately.<sup>26</sup>

Initial response to contain the COVID-19 infection was very much slow; like other countries Nepal might have thought that outbreak will not be of such unprecedented scale. But Government expedited its efforts in strengthening strategies and responses to deal with COVID-19 infection once WHO declared COVID-19, a global pandemic.<sup>21-22</sup> Government has consolidated its actions on non-pharmacological interventions such as promoting social distancing and personal hygiene habits, imposing lock down, enhancing and improving isolation and quarantine facilities.<sup>23-25</sup> Also COVID-19 care center has been identified in all provinces and renovated.

Most of the public have been adhering with non-pharmacological interventions. All stakeholders have been supporting to Government.

## CONCLUSIONS

Nepal has taken numerous steps including lockdown to contain COVID-19 and prevent its spread into community. Nepal has documented 9 confirmed cases of COVID-19 since the Wuhan outbreak. Nepal is under complete lockdown since March 24, 2020. Non-Pharmacological methods like social distancing, personal hygiene habits like hand washing, coughing into tissue or elbow and avoiding touching eyes, nose, and mouth are being followed and quarantine of contacts of infected cases are in practice. Country has to enhance testing and strengthen tracing, isolation and quarantine mechanism and care of COVID-19 patients as country is under risky zone because of comparably weak health network system and porous borders with India. The time will tell regarding further outbreak and how it will be tackled.

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