

Containing COVID-19 in the Himalayas: A Success Story from Sikkim

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Abstract

The World Health Organisation (WHO) has declared the outbreak of the novel coronavirus disease 2019 (COVID-19) a Public Health Emergency of International Concern under the International Health Regulations 2005. To date, the virus has infected more than 52,21,567 people, killing more than 3,35,203 in 215 countries and territories. About half of the world population is currently under lockdown to arrest the spread of this highly infectious disease. This unprecedented number of COVID-19 cases has triggered the alarm for public health to respond to emerging diseases. Against this backdrop, this paper is an attempt to shed light on the various measures taken by the state government in Sikkim Himalaya to contain the spread of the virus. In other words, this paper analyses the Sikkim's success in containing COVID-19 within its territory.

Keywords: COVID-19; clinical manifestation; transmission; epidemic; strategies; Sikkim

Background

The start of 2020 has been marked by global alarm over the sudden and explosive emergence of novel coronavirus outbreak. World Health Organization (WHO) initially named this coronavirus as the 2019-novel coronavirus (2019-nCoV) on 12 January 2020. WHO officially named the disease as coronavirus disease 2019 (COVID-19) and Coronavirus Study Group (CSG) of the International Committee proposed to name the new coronavirus as SARS-CoV-2. On 11 March 2020, WHO officially declared the COVID-19 pandemic as a Public Health Emergency of International Concern (PHEIC) on the basis of 'alarming levels of spread and severity and by the alarming levels of inaction' (WHO, 2020a). COVID-19 has presented an unprecedented challenge before the world. The initial outbreak was reported in a seafood wholesale wet market, the

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Huanan Seafood Wholesale Market in Wuhan, Hubei, China (Huang et al., 2019) The market was shut down on January 1, 2020, after the announcement of an epidemiologic alert by the local health authority. Within the month of January, thousands of people in China, including many provinces (such as Hubei, Zhejiang, Guangdong, Henan, Hunan, etc.) and cities (Beijing and Shanghai) were attacked by the rampant spreading of the disease. Furthermore, the disease travelled to other countries, such as Thailand, Japan, North Korea, Viet Nam, Germany, Italy, France, United States, Singapore and India. Now all countries of the world are affected by the spread of COVID-19. The first case reported in India was on January 30, 2020, when a student who returned from Wuhan, China was confirmed COVID-19 case. As of May 22, 2020, there have been about 52,21,567 confirmed cases of COVID-19 and about 3,35,203 reported deaths globally (WHO, 2020). About half of the world population is currently under lockdown to arrest the spread of this highly infectious disease.

COVID-2019: Chronological list of global outbreaks

Year	Date	Events
2019	November	Mysterious pneumonia in Wuhan, Hubei, China
	December 1	The first confirmed nCoV case in Wuhan (no Huanan seafood market exposure)
	December 10	The first confirmed nCoV case with Huanan seafood market exposure
2020	January 1	An epidemiological alert by local agency
	January 13	Huanan seafood market shut down
	January 15	The first nCoV case in Thailand (Wuhan history)
	January 30	Public health emergencies of international concern (PHEIC) alarm by WHO
	February 6	28,276 confirmed nCoV cases, 565 deaths, at least 25 countries involved
	February 19	The death toll from COVID-19 surpasses 2,000.
	February 20	Peng Yinhua, a 29-year-old respiratory doctor in Wuhan, dies from COVID-19.
	March 7	The number of COVID-19 cases <u>surpasses</u> 100,000.
	March 8	Over 100 countries report cases of COVID-19.
	March 9	WHO moves closer to declaring COVID-19 outbreak a pandemic.
	March 16	For the first time since the beginning of the outbreak, infections and deaths outside China <u>surpass</u> those within China.
	March 19	Cases of COVID-19 surpass 200,000 globally.
	March 22	Global cases of COVID-19 <u>surpass</u> 300,000.

	March 24	Cases of COVID-19 surpass 400,000.
	March 28	Cases of COVID-19 worldwide surpass 600,000.
	March 29	Global death toll from COVID-19 surpasses 30,000.
	April 2	Cases of COVID-19 surpass 1 million.
	April 6	According to WHO, almost 90 per cent of students globally are affected by school closures - over 1.5 billion children and young people.
	April 8	China lifts its lockdown on Wuhan, the city where the COVID-19 outbreak began.
	April 10	The number of COVID-19 deaths around the world surpasses 100,000.
	April 11	The United States records over 2000 deaths in one day - the highest death rate recorded for any country during the pandemic.
	April 15	The number of COVID-19 cases surpasses 2 million.
	April 19	The death toll in Europe from COVID-19 surpasses 100,000. The death rate in Europe, according to data compiled by Johns Hopkins University, is nearly 9%.
	April 21	The number of COVID-19 cases surpasses 2.5 million globally, and the number in the U.S. surpasses 800,000.
	April 24	2,710,264 total confirmed cases and 190,896 deaths.
	May 2	3,272,202 total confirmed cases and 230,104 deaths.
	May 22	5,221,567 total confirmed cases and 335,203 deaths

Sources: Ravelo & Jerving 2020; WHO 2020

Clinical Manifestations

Symptoms of COVID-19 usually begin with nonspecific syndromes, including fever, dry cough, and fatigue. Multiple systems may be involved, including respiratory (cough, short of breath, sore throat and chest pain), gastrointestinal (diarrhoea, nausea, and vomiting) and neurologic (headache or confusion). Studies by WHO and others found that the common clinical manifestations included fever (88.7 percent), short breath (31-55 percent), cough (67.8 percent), sore throat (13.9 percent) and headache (13.6 percent). In addition, a part of patients manifested gastrointestinal symptoms, with diarrhoea (3.8 percent) and vomiting (5 percent). Older people and people with chronic medical conditions, such as diabetes and heart diseases, appear to be more at risk of developing severe symptoms. People with COVID-19 generally develop signs and symptoms, including mild respiratory symptoms and fever, on an average of 5-6 days after infection (mean incubation period 5-6 days, range 1-14 days).

Transmission

COVID-19 is an infectious disease caused by the coronavirus. As far as transmission of COVID-19 is concerned, there are three different types of transmission: (i) symptomatic, (ii) pre-symptomatic and asymptomatic (WHO, 2019b). Symptomatic transmission refers to transmission from a person while they are experiencing symptoms. Data from published epidemiology and virologic studies provide evidence that COVID-19 is primarily transmitted from symptomatic people to others who are in close contact through respiratory droplets, by direct contact with infected persons, or by contact with contaminated objects and surfaces (Li et al., 2020; Liu et al., 2020; WHO, 2020c). Pre-symptomatic transmission is defined as the transmission of the virus from an infected person (source patient) to a secondary patient before the source patient developed symptoms. This type of transmission occurs through the generation of respiratory droplets or possibly through indirect transmission. Therefore transmission from a pre-symptomatic case can occur before symptom onset. Asymptomatic transmission refers to the transmission of the virus from a person, who does not develop symptoms.

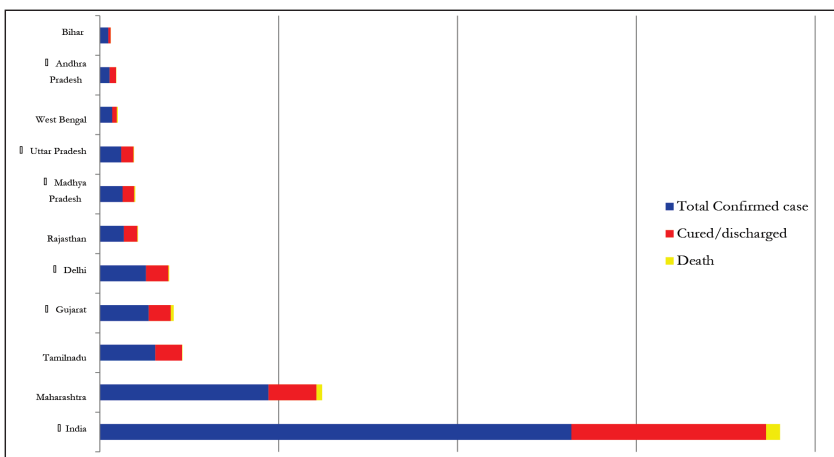
Strategies to Combat COVID-19

Sikkim, an erstwhile Himalayan kingdom, became the twenty-second state of Indian Republic in 1975. It is situated in the western part of the Eastern Himalayas and because of its location, the state has political and strategic importance out of proportion to its size. The state has been hemmed by three international boundaries and a state of West Bengal. In the north and northeast, it is bounded by vast stretches of Tibetan plateau of China, on the east by the Chumbi Valley of Tibet and Bhutan and Kalimpong district of West Bengal, Nepal on the west and the south by the Darjeeling district of West Bengal, India. Sikkim has a total of 350 km international border, 220 km with China, 33 km with Bhutan and 97 km with Nepal. It has a total area of 7096 sq. km, measuring approximately 112 km from north to south and 64 km from east to west. The state has at present a population of 6,10,577 persons with a density of 86 persons per sq. km.

As of May 22, 2020, there is no positive case of COVID-19 in this tiny Himalayan state of India. The COVID-19 virus is a new pathogen that is highly contagious, can spread quickly, and must be considered capable of causing enormous health, economic and societal impacts in any setting. Europe and now the USA is the epicentre of the COVID-19 pandemic. Case counts and deaths are soaring in Italy, France, Spain, Germany and the USA. As of May 22, 2020, a total of 52,21,567 confirmed cases with 3,35,203 deaths globally were documented by WHO involving more than 215 countries and territories. In India, the first case was reported on January 30, 2020, and now there are 1,31,868

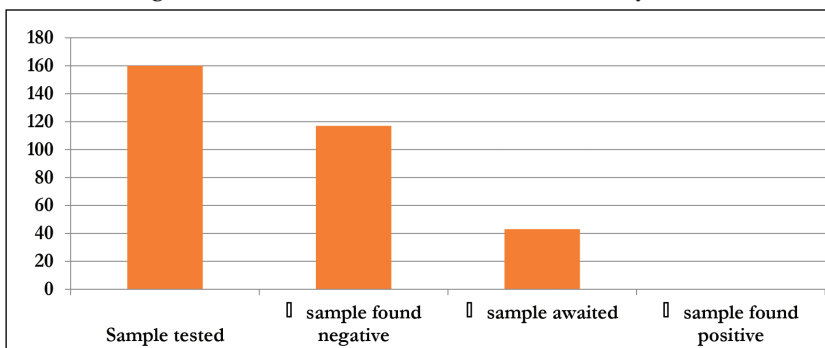
confirmed cases with 3,867 deaths (Figure 1). The statistics show that the country of 1,312.2 million appears to have greatly slowed its epidemic due to the countrywide lockdown announced on 24 March 2020 for 21 days which has now been extended till May 31, 2020. Amid these dire trends, Sikkim, located in the northeastern region of India has emerged as a sign of hope and a model to emulate, as there are zero positive cases of COVID-19 despite the state being surrounded by three international borders including China. As on 2 May 2020, a total of 160 samples were tested in Sikkim and 117 are found to be negative and 43 test reports are awaited (Figure 2).

Figure 1: State-wise breakdown of confirmed cases of COVID-19 (as on May 22, 2020)



Source: MoHFW, GoI 2020

Figure 2: Sikkim: Status of COVID-19 (as on 2 May 2020)



Source: Department of Health & Family Welfare, GoS, 2020

There is no vaccine available to immunise people against COVID-19. As vaccines and specific medications are not yet available for COVID-19, other public health (non-pharmaceutical) and social measures play a vital role in reducing the number of infections and saving lives. To respond to COVID-19, like many other countries, Sikkim is using a combination of containment and mitigation activities. The response strategies include varying levels of contact tracing and self-isolation or quarantine; promotion of public health measures, including handwashing, respiratory etiquette, and social distancing; preparation of health systems for a surge of severely ill patients who require isolation, oxygen, and mechanical ventilation; strengthening health facility infection prevention and control; and postponement or cancellation of large-scale public gatherings. These are the only measures that are currently proven to minimise transmission chains in humans. The Government of Sikkim under the leadership of Chief Minister Shri P.S. Tamang has taken several public health and social measures for combating the spread of COVID-19 at the state or community level. As a result, there is a zero positive case of COVID-19 in Sikkim till date. Sikkim, despite shares a long border and has traded with China through Nathula Pass, appears to have a good hold on the spread of the disease. Thus, Sikkim government, personally the Chief Minister P.S. Tamang, directed and deployed a prevention and control measures rapidly from the early stage to current situations of the epidemic. A combination of extensive efforts includes isolating suspected people and tracing and quarantining their contacts. To further prevent the spread from overseas and other parts of the country, the Sikkim government has been imposed a series of rigorous measures and some of them are hereunder.

- Hotels and tourism accommodation establishments are places where guests stay temporarily in close cohabitation and where there is a high degree of interaction among guests and workers, which requires specific attention in the context of COVID-19. Keeping this in view, the state government acted swiftly and has suspended the entry of all foreign and domestic tourists and migrant labourers into Sikkim state despite the direction from the Union Minister to allow non-infected tourists to visit Sikkim. All hotels and restaurants across the state were closed.
- The state of Sikkim has been hemmed by three international boundaries and a state of West Bengal. It is therefore important to seal all borders to prevent the spread of the virus. Moreover, the arrival location of the index patient was a prime place to cause a widespread outbreak. The state has, therefore, sealed all international borders with China, Bhutan and Nepal and two out of four border check posts with West Bengal even before the announcement of nationwide lockdown.

- All educational institutions across the state have been closed as one of the measures to contain the outbreak. There are more than 1550 schools, 20 colleges and eight universities in Sikkim.
- In an attempt to prevent dispersal of COVID-19, all transport was prohibited in and out of the state.
- Public meetings, conferences, festival celebration and large crowds activities have been cancelled.
- Entertainment venues, casinos, cinema halls, parks, gym, swimming pool, etc. have been closed.
- Suspected cases have been isolated and health checks carried out strictly at all places of Sikkim. Strict regulation has been issued for 14 days mandatory quarantines for anyone arriving in Sikkim from outside of the state. Any individual showing symptoms was quickly moved to an isolation ward for further testing, which could be completed at North Bengal Medical College, Siliguri, West Bengal. They identified cases of suspected person early – fortunately, the state had a limited number – and they got a list of all of the contacts, and they put those people under rigorous surveillance and in quarantine so that they would not transmit the infection to others. More than 13 quarantine centre and one designated hospitals were established across the state as measures to contain the virus.
- All travel prohibited in and out of state and information widely disseminated.
- Civil society organisations have been mobilised to support prevention and response activities. The community has accepted the prevention and control measures and has participated in the management of self-isolation and enhancement of public compliance.
- Chief Minister has announced statewide lockdown for one week (March 24-31, 2020) on the morning of March 24, 2020, which was even before the announcement of countrywide lockdown by the Prime Minister of India on the night of March 24, 2020.
- All public gatherings banned. Social and physical distancing measures that aim to slow the spread of disease by stopping chains of transmission of COVID-19 have been strictly followed and maintained. These measures secure physical distance between people (of at least 1 metre) and reduce contact with contaminated surfaces and infected person.
- The Health Department announces the epidemic situation every day and holds daily press conferences to respond to emerging issues.

Conclusion

As a stable and peaceful state, with well organised administrative and security services, Sikkim has been able to make decisions quickly and enact them promptly. The government acted swiftly to banned foreign and domestic tourists, shut schools and colleges and quarantine new arrivals. By focusing on measures for the safety of Sikkimese people that are within its control, the state has won praise from both the international community and national government. Behind its success so far has been the most comprehensive and well-organised thermal screening programme, combined with extensive efforts to isolate suspected people and trace and quarantine their contacts for the duration of the incubation period. Sikkim has screened more than 1,08,400 vehicles, and 6,05,000 passengers in different check posts of the state. Sikkim's uncompromising and rigorous use of non-pharmaceutical measures to contain the spread of the COVID-19 in multiple settings provides vital lessons for the national response. An unusual and unprecedented speed of decision-making by the Chief Minister, operational thoroughness by public health systems and engagement of civil society and media helps to make the successful implementation of all measures in the state. Behind this success story lies capable, qualified and competent public leaders and institutions that pursued their mission with vigour. The state government under the leadership of Chief Minister P.S. Tamang has able to undertake such a massive effort in a timely manner. This is a spectacular success story that shows to the country COVID-19 can be contained, but we must be clear that we have only won a battle. The war will only end when India is declared free of COVID-19. The key takeaways are, therefore, commitment, coordination, track and monitor. The Sikkimese experience offers a critically important lesson to other states in the country affected by the epidemic as well as to other countries of the world.

The state, however, needs to take following preventive measures to combat the spread of COVID-19 especially after the relaxation of lockdown. All these preventive measures listed below have a significant effect in arresting the spread of the pandemic and contribute to creating a pandemic-free state even after the lifting of nationwide lockdown.

- Sealing of international borders with China, Bhutan and Nepal should be continued till October 2020.
- According to the Government of India, West Bengal has the highest number of COVID-19 hotspots zone with 10 districts under Red Zone (including Kalimpong, Darjeeling and Jalpaiguri districts), the sealing of borders with West Bengal and restrictions of inter-state movements of vehicles should therefore be continued for

another one month. Odisha Government has sealed its border with Bengal since 40 percent of COVID-positive cases in Odisha have travel history to Bengal.

- Ban on the entry of foreign and domestic tourists and migrant labourers should continue for another four months.
- Mandatory 14-day institutional quarantine (no home quarantine) with active surveillance and testing of all the students and teachers who are studying and working in various schools, colleges and universities of Sikkim at their arrival.
- Mandatory 14-day institutional quarantine (no home quarantine) with active surveillance and testing of all the students and persons who are stranded outside Sikkim at their arrival.
- To prevent transmission, all quarantine offenders are subject to fines or mandatory placement according to relevant laws and regulations. The government in consultation with NIC or telecom operators should start GPS tracking of the location of those who are undergoing quarantine or isolation.
- State administration has to develop standard protocols for receiving and sending all stranded persons to make Sikkim Covid free.
- The administration must direct all individuals to do their first testing and thermal screening who stay outside Sikkim during the time of lockdown. Persons showing any type of symptoms of COVID-19 should be treated at the hospital of that state. The separate arrangement has to be made for their treatment in that state rather than bringing them back to Sikkim. Only asymptomatic persons should be allowed to travel Sikkim.
- The administration should make a district-wise proper arrangement for the quarantine of people and identify the sufficient number of quarantine centre at different places of Sikkim preferably at a remote location. All persons should be quarantine only in institutional quarantine centre identified by the administration. Payment based quarantine centre would lead to classism, meaning differential treatment based on social class or perceived social class.
- The odd-even formula should be introduced to minimise the movement of vehicles for at least one month after the lifting of lockdown.
- Social distancing, personal hygiene, wearing a facemask in the general public should be made mandatory.
- Expedite the process of setting up COVID-19 testing laboratory one at STNM hospital, Gangtok and another at District Namchi Hospital, South Sikkim. These hospitals are required to set up special wards or areas to isolate and treat patients individually in these wards/areas to prevent nosocomial infections. In addition to a testing lab, the government should start COVID-19 Rapid Testing Mobile Clinic.

- In consultation with the Ministry of External Affairs, the state should call off this year's Kailash Mansarovar Yatra through Nathula Pass. The external affairs ministry has been organising the Kailash Mansarovar Yatra through Nathula every year since 2015.

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