

Responding second wave of COVID-19: Experience in resource limited setting of Eastern Nepal

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ABSTRACT

Along with the surge of second wave, the recent global pandemic COVID-19 is increasingly alarming. Although the initial increase of cases was gradual, a recent drastic surge in the number of cases reflects the speed of transmission from person to person. Because of the uncontrollable increase in COVID-19 cases, a prompt and effective response to an apparently unknown overwhelming pandemic is very challenging and dubious. Dolakha, situated in eastern part of Nepal, has struggled to manage COVID-19 care with coordination, cooperation and significant response with limited resources. In this study, we have shared our experience at resource limited setting with minimum resources regarding preparedness, responses and challenges in the management of COVID positive cases.

Keywords: Challenge, COVID-19, Eastern Nepal, preparedness, response

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INTRODUCTION

In early January 2020, first case of COVID-19 was detected in China¹. Since then disease gradually spread worldwide and was finally declared pandemic by WHO in March 2020¹. Similar to rest of the world, health care system of Nepal was also facing herculean task in managing the cases of newly discovered disease. First case of COVID-19 was detected in January 23, 2020² and till June 2021, there are more than one hundred thousand active cases and more than 7000 deaths.³

In Dolakha, there were around 1800 cases in 2020 with the first stage of transmission, however there are already 2000 plus active cases in the last week of June 2021.³ Second wave of COVID-19 shows rapid transmission, moderate to severely affected individuals and significant numbers of young deaths.

COVID-19 Preparedness and Response

There was formation of District COVID Crisis Management Committee (DCCMC) led by Chief District Officer (CDO) to function as coordination and risk management during any disaster, epidemic or pandemic situation. DCCMC comprises members to decide for overall district level activities. Dolakha has population density of 85/square kilometer. The major preparedness activities were to set up quarantine (200 beds) and isolation beds (133 beds) at all local levels, form Rapid Response Team (RRT) at every hospital, establish health check-points at the district border, install Polymerase Chain Reaction (PCR) lab in Charikot Hospital and increase capacity of PCR testing in the district, allocate some funds for COVID-19 dedicated staff at the hospital level, establish COVID-19 relief fund and get support from private hospital to combat COVID-19. Quarantine centers provide 14 days of stay to prevent transmission of disease and isolation centers provide admissions, oxygen therapy and supportive care, proper counseling, and referral.

The major responses towards COVID-19 was quite comprehensive from DCCMC. Major activities were promotion of awareness campaign of COVID-19 transmission and management, establish isolation centers at hospitals, start of contract tracing units at all levels of municipalities and coordination led by District Health office (DHO), organize vaccination campaigns for health care workers, security personnel and elderly population, make availability of COVID-19 antigen kits, establish infrastructure set up for isolation centers, make availability of resources including Personal protective Equipment (PPE) to health workers,

manage oxygen cylinders for oxygen therapy, manage human resources for COVID-19 care at hospital level, test PCR and increase capacity for testing, prepare infrastructure and resources for high dependency level care with oxygen plant establishment, motivate health care workers with COVID incentives from central level, receive funds and equipment for COVID care from federal and provincial government as well as some international organizations and some individual supports and manage referral system of critical patients in Kathmandu.

Bagmati Province has a One School: One Nurse program for the secondary school as a part of school health program. Recently, these health work-force are being used for the COVID Dedicated Charikot Hospital as decision made by DCCMC, for the isolation ward which is a very good practice that can be applied in other district for the proper utilization of human resources in this pandemic. Bhimeshwor municipality initiated the establishment of RT-PCR lab and procurement of oxygen plant at Charikot Hospital.

Challenges

Dolakha has taken many steps to combat COVID-19 at district level. However, there has been delays in disseminating antigen kits, delays in installment of PCR lab, there was difficulties in establishing functional isolation centers with adequate trained human resources to manage COVID cases at all municipality hospitals. With rapid increase in numbers of COVID-19 positive cases, due to lack of trained staff and inadequate oxygen supply at many health facilities, referral of COVID positive cases was made to Charikot Hospital (CH), which was a only functioning facility to treat COVID cases initially. It was almost not possible to get vacant ICU (Intensive Care Unit) beds in Kathmandu and there was notable deaths due to lack of those high level intensive care at the district. In another side, there was equal increase in surge of non-COVID diseases including Non Communicable Disease (NCDs), Maternal and Child Health (MCH) issues, trauma and accident care and other infectious diseases.

Due to the scarcity of resources of Case Investigation and Contact Tracing (CICT) in local level, the contact tracing was being hampered i.e. close contact with COVID affected person rather than the sample being collected. When vaccine was first introduced, general people as well as frontline workers/ security personnel had fear regarding the vaccine due to some vaccines related deaths in other countries⁴. Despite a

general willingness to coordinate at all levels, district could not utilize full support of private health facilities in responding COVID-19. There was notable deaths of young ones and people started to have fear, depression and some other mental health issues and some positive cases had issues of social exclusion, stigma, discrimination and gender based violence. There were 9 (0.45%) deaths among 2000 positive cases till June 30th, 2021.

Way Forward

Currently, there is a large gap in terms of municipality level hospital care for moderate to severe cases of COVID-19. They must focus on availability of trained and highly motivated health personnel to manage critical patients, provide adequate necessary PPEs including face shield and gowns, mobilize private hospitals mainly Dolakha hospital managed by Dhulikhel hospital to serve patients with non-COVID issues, prepare Charikot Hospital (a large referral hospital of the district) with ICU set up and expand infrastructure with adequate trained human resources, make availability of 24 hours COVID dedicated ambulances with monitoring support system, mobilize social and political cadres to conduct screening and trace contacts, prepare and improve quarantine facility with protocols, increase awareness of COVID-19 through TV programs, radio and newspapers, develop "disease surveillance software" in collaboration with other districts exploring possibility of care, increase investment in interdisciplinary social research on infectious disease, and sensitize policy makers to review COVID outbreak from health perspective to prepare other infectious disease outbreak. As the

vaccine is the only resort for COVID-19, there should be multiple political and stakeholder level coordination to the central government. Disaster education⁵ including critical care of COVID-19 cases will be the best option of capacity building of health care workers all around the country in lock-down period by virtual means.

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REFERENCES

1. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020;395(10223):497-506. [DOI](#)
2. Panthee B, Dhungana S, Panthee N, Paudel A, Gyawali S, Panthee S. COVID-19: the current situation in Nepal. *New Microbes New Infect*. 2020;37:100737. [DOI](#)
3. Ministry of Health and Population, Nepal. Covid-19 cases map representation. Ministry of Health and Population, Government of Nepal [Internet]. Recent Updates; 1 Jun 2021. [Web link](#)
4. Torjesen I. Covid-19: Pfizer-BioNTech vaccine is "likely" responsible for deaths of some elderly patients, Norwegian review finds. *BMJ* 2021;373:n1372. [DOI](#)
5. Shrestha A, Bajracharya S, Phuyal N, Shrestha B, Maharjan K. Way forward from the experiences of disaster preparedness and response at Patan Hospital during 2013-2020: Nepal. *J General Pract Emerg Med Nepal*. 2020;7(10):50-4. [Full Text](#)