

Viewpoint:**Masking of Possible Dengue Epidemic Due to COVID-19 Pandemic in Nepal***Abhigan Babu Shrestha¹, Manjil Aryal¹, Sajina Shrestha²***Abstract:**

COVID-19 had its first outbreak in Wuhan city, China. With its escalating cases, WHO declared it as a pandemic on 11th of March, 2020. Nepal faced the same scenario as other countries. Being a landlocked country, India facing its possible third wave has created a greater concern for Nepal. Along with COVID-19 cases, dengue cases have also been spotted. Nepal is a dengue endemic country with the worst endemic faced in 2019. COVID-19 and dengue share similar clinical and diagnostic features. As of now, all focus is given to control the pandemic, with minimal attention to dengue. This monsoon season, dengue cases are anticipated to increase so, proper attention must be driven towards it. Preparations must be taken to tackle the endemic. Vector surveillance programs and mass awareness should be done, focusing on previous endemic zones. Places lacking rapid diagnostic tests must be supplied with it as soon as possible in order to prevent the untimely diagnosis of dengue or even co-infection which could be more lethal cocktail.

Keywords: COVID-19, Dengue, masking infection, Nepal

*International Journal of Human and Health Sciences Vol. 06 No. 02 April'22 Page : 227-230
DOI: <http://dx.doi.org/10.31344/ijhhs.v6i2.452>*

Wuhan city of China observed the first outbreak of pneumonia of unknown etiology in December 2019, which was later named Coronavirus disease 2019 (COVID-19) by the World Health Organization (WHO). The causative agent was a new strain of virus namely novel severe acute respiratory syndrome coronavirus 2 (SARS Cov-2)^{1,2}. It was soon declared as a global pandemic by WHO on 11th March 2020³. As of now, the situation is dire with recent numbers of worldwide infections and deaths mounting to 207,784,507 and 4,370,424 respectively⁴. As for Nepal, the first case appeared on 13th Jan 2020 and with COVID-19 reports 739,907 infections and 10,396 deaths as of 18th Aug 2021 as shown in Fig. 1 extracted from COVID-19 dashboard, MOHP, Nepal^{5,6}. To add up to the chaos, new variants are evolving to create a possible third wave in many countries including Nepal and open borders with countries like India make situations more vulnerable. The Ministry of Health and Population (MOHP) Nepal has declared the delta variant as a variant of concern⁶.

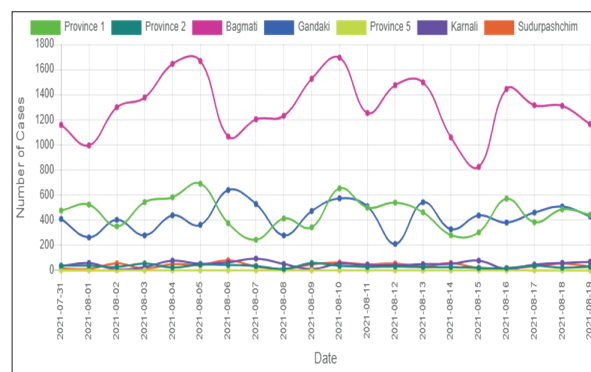


Fig. 1. COVID-19 data, province comparison graph; 2021-07-31 to 2021-08-20 (Source: MOHP, Nepal)

On the other hand, Dengue is a disease caused by an arbovirus i.e., dengue virus (DENV) of Flaviviridae family and transferred by the bite of female mosquitoes mainly of species *Aedes aegypti* and, to a lesser extent, *Aedes albopictus*, which are seen to thrive in monsoon season in

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tropical and subtropical climates⁷. There are four dengue virus serotypes (DENV 1, 2, 3 and 4), and the disease itself presents with wide range of clinical manifestations ranging from simple flu-like illness to development of potentially life-threatening complications called severe dengue or Dengue Hemorrhagic Fever (DHF)^{7,8}. There is an estimate of 390 million recorded cases of Dengue across 125 countries⁹. In context of Nepal, the latest updates show 14,662 recorded cases with 6 deaths following quick surge in monsoon season in 2019; of which 1,246 cases in Province 1, 268 cases in Province 2, 7,151 cases in Bagmati Province, 3,807 cases in Gandaki province, 1,977 cases in Province 5, 73 cases in Karnali Province and 140 in Sudurpaschim Province¹⁰, making 2019 the largest endemic of dengue in Nepal so far. There were 93 and 57 cases recorded between 13th June and 16th August, in 2020 and 2021 respectively¹¹.

Now in Nepal, every focus, resource, manpower, and finance are engaged for controlling the COVID-19 pandemic, the so-far dormant dengue epidemic is much dilapidated, that potentiates to rise anytime soon to create havoc on the already crumbled health system. There is data to show the dengue epidemic is already more frequent from 2014 onwards compared to 2003-2013¹². Furthermore, extensive country-wide lockdown and fear of COVID-19 infection has led people with poor housing confined near or within breeding grounds of vectors for longer durations than before¹³. Recent natural disasters of flood, landslides and heavy rainfall have acted as a catalyst to spread both COVID-19 and dengue among disaster-affected people.

Also, dengue and COVID-19 both have shown many clinical and diagnostic similarities in the early phase of infections¹⁴. Plasma leakage, thrombocytopenia, and coagulopathy are recorded in both diseases¹⁵. Few credible studies regarding co-infections show severe disease progression and fatal outcomes¹⁶. Thus, probability of co-infections, health system failures, underreporting of cases, ineffective surveillance, and absence of required interventions to keep infections under-control could lead to two health hazards simultaneously¹⁷. The Ministry of Health and Population of Nepal

seems to have undermined the risks imposed by dengue in terrains of the Terai region. Detailed data are lacking from 2020- 2021 and hospitals are already overstretched beyond limits due to COVID-19 patients.

Thus, Trends of dengue and corona need to be assessed carefully in Nepal, especially in monsoon season (Fig. 2). More work needs to be done than just weekly reporting of cases by the Early Warning and Reporting System (EWARS). Our preparedness, awareness programs and microlevel working with health posts and community people are essential to limit the dengue epidemic this year. As per recent data, In Nepal, only 12% of a study group had good knowledge regarding dengue, while in another similar study people complained of confusion due to conflicting public health awareness messages regarding COVID-19^{18,19}. With most of the manpower dedicated to controlling the COVID-19 pandemic, more frequent data collections, storing ample vector control equipment like insecticides, housing with anti-mosquito netting, rapid diagnostic test (RDT) kits, improving laboratories, hospital settings, and extensive public awareness and community involvement are required to tackle both problems effectively²⁰.

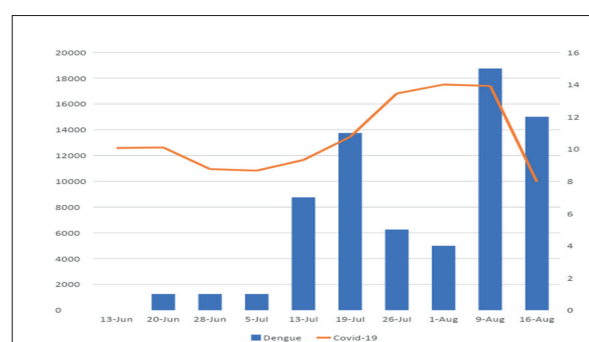


Fig. 2. COVID-19 and dengue trends; peak monsoon season 2021-06-13 to 2021-08-16 (2 months) (Source: EDCD, MOHP, Nepal and WHO).

Taking into accounts the morbidity, mortality and economic weightage Dengue carries in Nepal¹¹, and the conspicuous case rise in between the COVID-19 pandemic, it is undeniable that it is high time that we must take a step to control the pandemic without undermining the potential risks

due to dengue. The spread of dengue has minimally been under control especially in the Terai belt, which shows a need to establish an effectual vector surveillance program and make awareness to the general public regarding the approach to control the growth and transmission of dengue and COVID-19. With a deadly cocktail of COVID-19 and dengue coinfection, untimely diagnosis has shown to increase the morbidity and mortality¹⁶. In order to prevent this delay in diagnosis, well equipped laboratories with facilities for RT-PCR and rapid diagnostic kit should be aided in every district²¹. With this novel virus every now and then new findings are made. Also, there is no definitive treatment for coronavirus as well as for dengue. Thus, the government must update

national guidelines of dengue, take rapid control measures at possible epicenter of dengue endemic zone by more frequent data collections to tackle possible dengue-endemic amid fighting this global pandemic.

Acknowledgement: The authors would like to thank Pashupati Pokharel, Junu Rana Magar and Unnat Hamal Sapkota for proof-reading.

Conflict of interest: None declared.

Funding statement: No funding.

Author Contribution: All the authors equally contributed in data collection, literature review, analysis, manuscript writing, revision and final approval of the manuscript.

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