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**Journal of Society of Anesthesiologists of Nepal**



## ViewPoint

# Intensive care units in the context of COVID-19 in Nepal: current status and need of the hour

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### Abstract

COVID-19 pandemic has created havoc all over the world. Even the most developed countries are facing a shortage of intensive care unit beds more than ever, and despite their best efforts, an increasing number of people are losing lives mainly due to COVID-19 induced acute respiratory distress syndrome. Nepal, with its poor healthcare infrastructure, will certainly suffer the loss of its citizens because of increased need of already overwhelmed intensive care unit beds. More concerning is the limited number of available trained healthcare workers required to run a Level III intensive care unit which will not be adequate to deal with the surge of critically ill patients. This article aims to explore the possible ways to build our intensive care unit capacity to cope with this pandemic that can be useful for advanced planning to cope with the probable surge of critically ill patients with COVID-19.

**Keywords:** COVID-19, intensive care unit, surge capacity.

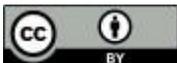
### Article History

Received 03rd April 2020

Accepted 07th April 2020

Published 10th April 2020

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**How to cite this article:** Paneru HR. Intensive care units in the context of COVID-19 in Nepal: current status and need of the hour. Journal of Society of Anesthesiologists of Nepal (JSAN) 2020;7(1):e291.

Nepal has faced a very slow development of critical care medicine since the establishment of the first intensive care unit (ICU) in the country in 1973 at Bir Hospital.<sup>1</sup> And now, when the world is facing threat to humanity with an increasing number of deaths due to COVID 19 pandemic, the discussion about the need for ICU beds has surfaced and increasingly realized. COVID 19 is constantly in the headlines of every newspaper and media persons, and doctors are pointing out the need for critical care for around 5 to 14 per cent of the patients with severe respiratory symptoms.<sup>2</sup> Public concerns regarding limited ICU beds have heightened because of the news in the leading national dailies which read like – “Nepal’s hospitals have no ICUs to treat coronavirus patients.”<sup>3</sup>

In our society, ICU is generally perceived as a place where patients are advised to get admitted when they are dying or are at a very high risk of death. Admission to ICU creates a lot of physical and mental stress and anxiety, both to the patient and his or her family. Therefore, the ICU environment can trigger feelings such as doubt, helplessness, hopelessness, and inability to take action when faced with unexpected decisions. With this sort of rooted belief and increasingly highlighted need of ICU beds, there has been a big concern of the public, healthcare workers as well as the government regarding our ICU capacity. Unfortunately, because of lack of data, we do not have a clear idea about how many such sick patients can be treated with existing facilities.

Not every hospital in the country is equipped with ICU facility contrary to the guidelines of the government endorsed in 2070 BS which states the following (for hospitals with a bed capacity of 50 or more)<sup>4</sup>: 1. of the total hospital beds, at least 5 per cent should be the ICU beds, 2. there should be one ventilator for two ICU beds, 3. nurse to patient ratio should be 1:1, and 4. for the patients with severe infectious disease, there should be a provision of treatment in separate isolation bed.

Contrary to the guidelines, most of the government hospitals have not met these criteria. Even the largest university hospital, Tribhuvan University Teaching hospital has less than 5 per cent critical care beds with nurse staffing at a ratio of 1 nurse per 2 or 3 beds. Moreover, we do not have the statistics of the current status of ICUs across the country. Observing the lack of data regarding the number of ICU beds, ventilators, critical care nurses and intensivists in the country, Nepalese society of critical care medicine (NSCCM) conducted a telephone survey in Kathmandu Valley including all the government and private hospitals with a capacity of more than 50 beds. The survey revealed that there are roughly a total of 480 ICU beds with around 260 ventilators. Of the total ICU beds, the government-owned hospitals have only 150 beds, the rest being in the private sector run hospitals. Majority of these ICU beds are either level I or level II and very few of the hospitals provide level III care. There are around 800 experienced or trained critical care nurses. Only a few private hospitals have ICUs with intensivist in-charge of the unit and in-house coverage round the clock; intensivist coverage in the government hospitals is a rarity. Most of the hospitals do not have proper isolation beds but a few hospitals in the private sector have private room design good enough for contact isolation. (The data was collected by NSCCM from different hospitals in Kathmandu via telephonic conversation with ICU incharge or sub-incharge nurses in the hospitals in a span of one week from 24th March 2020 to 30th March 2020). There are ICUs in major cities outside Kathmandu Valley as well but the situation is even worse in terms of infrastructure, human resource and the expertise.

Most of the ICUs are run in an open model concept with primary care physician or surgeon taking care of all aspects of patient care with anesthesiologist back up for airway and mechanical ventilator management.

The government devised guidelines are silent about various aspects of design, policies and processes of ICU care. As of now, the government of Nepal has not recognized critical care medicine as a separate speciality which is truly essential for proper development of the system, delivery of care and training of appropriate human resources. As a result of this most of the ICUs do not have standard processes of critical care in place and have very limited resources to provide level III ICU care.

The big challenge for us, with such an infrastructure, is to manage patients with COVID19 induced acute respiratory distress syndrome, the most common cause of acute respiratory failure needing endotracheal intubation and mechanical ventilation. Initial reports from China suggest that approximately 5 per cent of patients with proven COVID19 have severe disease requiring intensive care.<sup>2</sup> Recovery from such a severe disease takes three to six weeks which means our existing ICU infrastructure will soon be saturated within days.

The major need of the hour to fight COVID-19 is to upgrade critical care service with existing resources as far as possible with realistic approaches. In my opinion, the following points need to be discussed urgently and planned properly before we face the surge of critically ill patients:

1. Constructing new ICUs is a very challenging and tough task in the face of the foreseen calamity in a country like ours with very limited resources. A feasible alternative would be to upgrade the existing facilities like postoperative care beds to ICU beds. A significant number of postoperative beds can be freed by holding elective major surgical procedures.
2. Another option that we need to discuss on time is to utilize operating rooms to manage critically ill patients using anaesthesia machines as ventilators if we fall short of ICU ventilators. Similarly, Post-Anesthesia Care Unit can also be utilized.
3. Managing COVID-19 induced ARDS is challenging without the availability of intensivists. Given the lack of intensivists, we need to involve anesthesiologists and internists along with the resident anesthesiologist and resident internists with short term training specific to the management of COVID-19 induced critical illness including ARDS.
4. We need to identify nurses (specifically nurses working in the postanesthesia care unit and postoperative ward) and other paramedical staff and provide them with focused short-term training to take care of critically ill patients.
5. Personal protective equipment for health care workers, which are already in short supply, need to be arranged immediately. This is of special importance as we have very limited skilled manpower including intensivists and critical care nurses.
6. Disposables required for caring critically ill patients like ventilator circuits, viral filters, gloves, closed suction, video-laryngoscopes etc are equally important and need to be arranged on time.

In conclusion, COVID-19 pandemic has led to a global health crisis, particularly to handle critically ill patients. For us, the need of hour to fight this seemingly inevitable crisis is to expand our capacity to manage critically ill patients in the existing government and private-run hospital settings rather than building new ICUs. We can expand our capacity by utilizing out of ICU facilities like postoperative ward, post-anaesthesia care unit, and operating rooms. Shortage of intensivists and critical care nurses can be addressed to some extent by creating teams with short-term trainings to anaesthesiologists, and internists. Providing personal protective equipment and disposables for ICU should be a priority to protect the limited skilled manpower.

**Conflict of interests** Dr Hem Raj Paneru has filled the ICMJE conflict of interest form and declares that he has nothing to disclose.

**Acknowledgement** Dr Paneru is thankful to Mr Bishal Acharya, and Mr Samrat Acharya and Nepalese Society of Critical Care Medicine for providing him with ICU survey data.

**Sources of funding** None

**Peer review Exempted. An editorial review was conducted. This article contains data from personal communications. In the current context of COVID-19, the data has not been verified during the editorial review.**

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