



# Assessment of Health-related Country Preparedness and Readiness of Nepal for Responding to COVID-19 Pandemic

## Preparedness and Readiness of Government of Nepal Designated COVID Hospitals

### Fact sheet

A nation-wide study was conducted to assess the preparedness and readiness of Government of Nepal (GoN) designated COVID hospitals to respond to COVID-19 pandemic. A cross-sectional study was conducted among 30 COVID hospitals via face to face and telephonic interviews with focal persons. Among them, telephonic interviews were carried out with focal persons of few unreachable hospitals. A total of 30 COVID hospitals were included in the study, among which Level 1, Level 2 and Level 3 hospitals were 15 (50%), 12 (40%) and 3 (10%) respectively. The data was collected during the time period of one month (26 April 2020 to 27 May 2020). All the designated COVID hospitals were included in the study and the response rate was 100%.

This fact sheet summarizes the main indicators of designated hospitals related to COVID-19 preparedness and readiness. It will support the GoN/Ministry of Health and Population (MoHP) to assess the current status of the hospitals, find the gaps and align the practices and resources for better preparedness and readiness to respond against COVID-19.

This study gathered data on general information of the hospitals including 12 domains as described below.

#### Key Points

##### 1. Health care facility preparedness and planning

- 25 (83.3%) of 30 designated hospitals were existing functional hospitals and among them 4 (16%) had shifted the non-COVID patients to alternate hospitals.
- All the hospitals coordinated with the government and had COVID management core team (96.7%); and COVID-19 Preparedness response plan (93.3%), while only 19 (60.3%) had an Infection Prevention Committee (IPC).
- All designated hospitals had the provision of hand washing (soap water/ alcohol-based hand rub) at the hospital entrance.
- The provision of Infra-red thermometer was available at the entrance of 93.3% of the hospitals.

##### 2. Infrastructure

- All the hospitals had adequate space between the beds (at least 1 meter).
- Provision of 24 hours electricity and water supply were available in all the hospitals.
- There were a total of 1,926 number of beds allocated for COVID patients.
- 23 (92%), 22 (88%) and 19 (76%) COVID clinics of the respective hospitals had waiting/holding areas, separate examination areas and triage systems respectively.

##### 3. Clinical services

- Only 7 (23.3%) hospitals had designated emergency services for COVID patients.
- 20 hospitals (66.7%) had Intensive Care Unit (ICU) facilities with a total of 235 ICU beds. Among them, very few, 4 (13.3%) hospitals had provision of negative pressure ICU. 7 (23.3%) hospitals had High Dependency Unit (HDU)/ Step down with a total number of 95 functional beds.

##### Critical equipment in ICU

- Slightly more than half 17 (56.7%) of the hospitals had functional ICU ventilators, and 18 BiPAP machines were available in 10 (33.3%) hospitals. There were a total of 98 functional ICU ventilators. 19 (63%) of the hospitals had a defibrillator and only 8 (26.7%) hospitals had the ABG machine.
- None of the hospitals had availability of Extra- Corporeal Membrane Oxygenator (ECMO).
- A total of 10 Neonatal Intensive Care Unit (NICU) beds and 21 Pediatric Intensive Care Unit (PICU) beds were available in 3 (10%) and 1 (3.3%) hospitals respectively.
- 11 (36.7%) hospitals had operation theatres (OT) among which there were 30 OT rooms with 29 functional OT ventilators. Only 10 (33.3%) hospitals had Ante-room attached to the OT facility for PPE donning and doffing.

##### Laboratory services

- Out of 29 hospitals who had facilities of special blood test, only 10% conducted D-dimer test, whereas Lactate Dehydrogenase level was conducted by 63.3%, Quantitative C-reactive protein by 53.3%, Troponin by 76.7% and Ferritin by 33.3% respectively.

- Most of the hospitals conducted tropical disease profile tests like Scrub Typhus (50%), Dengue (66.7%), Leptospirosis (23.3%), Malaria (76.7%), Kala-azar (66.7%), Brucellosis (16.7%), Typhoid (90%), and Tuberculosis (76.7%).

#### COVID Investigation provision and services

- More than a quarter (30%) of the COVID hospitals did not have the provision of investigation in the same hospital and 13.3% did not have separate designated areas for sample collection.
- 17 (56.7%) hospitals had the provision of RDT services whereas, only 10 (33.3%) hospitals had the provision of RT-PCR services.
- There were 70 trained human resources to conduct RT-PCR in 19 (63.3%) hospitals.

#### Isolation Facilities

- 25 (83.3%) hospitals had the provision of isolation facilities with total beds of 729 for the suspected cases until the test results were available. Among them, 88% had ante-room attached for PPE donning and doffing.
- 25 (83.3%) hospitals had a provision of admitting confirmed cases with a total number of 836 beds. Among them, 70% had an ante-room attached for PPE donning and doffing.

#### Personal Protective Equipment (PPE)

- Only 12 (40%) of the designated hospitals had categorized PPE sets according to MoHP and Nepal Medical Council (NMC) guidelines.
- There were altogether 9,280 N95 masks; 3,796 Goggles or Visor and 3,805 Water resistant OR standard disposable gowns.

#### 4. Support services

- More than a half (53.3%) of the COVID hospitals had provision of Central Pipeline Oxygen Supply (CPOS). Similarly, in the COVID clinic, less than half (46.7%) were facilitated with CPOS. Altogether, 503 beds were covered with CPOS in hospitals.
- 73.3% of the hospitals had mechanized laundry facilities.
- 36.7% of the hospitals had blood banks or storage units.
- Ambulance services were available in 23 (76.7%) hospitals with a total number of 41 ambulances.

#### Diagnostic services

- 76.7% and 73.3% of the hospitals had portable X-ray and portable Ultrasonography (USG) respectively.
- Very few hospitals 11(36.7%) had provision of CT scan facilities.

#### 5. Human resources

- 83.3%, 76.7%, 30%, 16.75% and 20% of the hospitals had General Practitioner/Emergency Medicine, Anesthesiologists, Pulmonologists/ Respiratory physicians, Infectious disease specialists and critical care specialists respectively.
- Almost half (46.7%) and 63.3% of the hospitals had trained Nursing staff for isolation wards and intensive care respectively.

#### Capacity building (Training/ Orientation)

- Majority 24 (80%) of the COVID hospitals had provided training on COVID-19 testing and sample handling; and use of PPE.
- Only 13 (43.3%) hospitals had given orientation about handling the dead body to their health care workers.

#### 6. Infection, Prevention and Control (IPC)

- Almost all the hospitals 28 (93.3%) segregated and transported waste as per Health care waste management guidelines 2014 published by MoHP.
- Majority of the hospitals used Hypochlorite solution 28 (93.3%) as disinfection modality for PPE followed by autoclave 25 (83.3%) and UV sterilization 3 (10%).

#### 7. Medicine and Consumables

- Majority 29 (96.7%) of the hospitals had Essential emergency medicines and 28 (93.3%) had recommended drugs for COVID-19.
- Hydroxychloroquine, Chloroquine and Azithromycin were available in almost all the hospitals. However, none of the hospitals had Ramdesivir, Tocilizumab (IL-6 blocker) or provision of convalescent plasma.

#### 8. Referral

- More than two third (70%) of the facilities had provision of referral to higher level COVID hospitals.

## 9. Discharge and Follow up

- Most of the COVID hospitals (90%) had the provision of ambulance service for the patients at the time of discharge.
- 93.3% hospitals had the provision of contact and follow up of the discharged patients along with counseling provision for home isolation.

## 10. Safety provisions for staffs

- 80% and 93.3% of the hospitals had the provision of COVID-19 testing and quarantine provision for their staff respectively.

## 11. Handling of dead body

- Very few (20%) COVID hospitals had body bags for dead bodies available in their hospitals.
- The total number of body bags were 109.

## 12. Presence of printed copies of Guidelines and Directives published or endorsed by Ministry of Health and Populations

- All the guidelines and directives published/endorsed by MoHP during the study period had been archived by more than 50% of the hospitals.

Indicators	Yes N (%)	No N (%)	Quantity
<b>1.Health care facility preparedness and planning</b>			
Is the facility an existing functional hospital?	25 (83.3)	5 (16.7)	
Among the existing functional hospital, provision of patient shifting to alternate hospitals (n=25)	4 (16.0)	21 (84.0)	
Provision of Coordination with government authority	30 (100)	0 (0)	
COVID-19 management core team	29 (96.7)	1 (3.3)	
Hospital COVID-19 Preparedness response plan	28 (93.3)	2 (6.7)	
Provision of Infra-red thermometer available at the hospital entrance	28 (93.3)	2 (6.7)	
Hospital IPC committee	19 (63.3)	11 (36.7)	
Provision of hand washing, (soap water/ alcohol hand rub) at the hospital entrance	30 (100)	0 (0)	
<b>2.Infrastructure</b>			
Adequate space between the beds (at least 1metre)	30 (100)		
24 hours electric supply	30 (100)		
24 hours water supply	30 (100)		
Total number of beds for COVID patients			1926
Waiting area/ holding area of COVID Clinic (n=25)	23 (92)	2 (8)	
Examination area of COVID Clinic (n=25)	22 (88)	3 (12)	
Triage system of COVID Clinic (n=25)	19 (76)	6 (24)	
<b>3.Clinical Services</b>			
Designated Emergency	7 (23.3)	23 (76.7)	
Intensive Care Unit (ICU)	20 (66.7)	10 (33.3)	
Number of functional beds in ICU			235
Provision for negative pressure ICU	4 (13.3)	26 (86.7)	
High Dependency Unit/ Step down	7 (23.3)	23 (76.7)	
Number of functional beds in HDU			95

<b>Critical equipment in ICU</b>			
Functional ICU Ventilator	17 (56.7)	13 (43.3)	98
Defibrillators	19 (63.3)	11 (36.7)	38
BiPAP machine	10 (33.3)	20 (66.7)	18
ABG machine	8 (26.7)	22 (73.3)	11
Extra- Corporeal Membrane Oxygenator (ECMO)	0 (0)	30 (100)	
Provision of NICU	3 (10)	27 (90)	10
Provision of PICU	1 (3.3)	29 (96.7)	21
Provision of Operation Theatre (OT)	11 (36.7)	19 (63.3)	
Number of OT rooms			30
Number of OT ventilators			29
Ante-room attached for PPE donning and doffing	10 (33.3)	20 (66.7)	
<b>Laboratory services</b>			
D-dimer test	3 (10)	27 (90)	
Lactate Dehydrogenase Level	19 (63.3)	11 (36.7)	
Quantitative C-reactive protein	16 (53.3)	14 (46.7)	
Troponin	23 (76.7)	7 (23.3)	
Ferritin	10 (33.3)	20 (66.7)	
<b>Tropical Disease Profile Test</b>			
Scrub Typhus	15 (50)	15 (50)	
Dengue	20 (66.7)	10 (33.3)	
Leptospirosis	7 (23.3)	23 (76.7)	
Malaria	23 (76.7)	7 (23.3)	
Kala-azar	20 (66.7)	10 (33.3)	
Brucellosis	5 (16.7)	25 (83.3)	
Typhoid	27 (90)	3 (10)	
Tuberculosis	23 (76.7)	7 (23.3)	
<b>COVID Investigation Provision and Services</b>			
Provision of investigation in same hospital	21 (70)	9 (30)	
Separate designated area for sample collection	26(86.7)	4 (13.3)	
RDT service	17 (56.7)	13 (43.3)	
RT-PCR service	10 (33.3)	20 (66.7)	
Trained human resource to conduct RT-PCR	19 (63.3.)	11 (36.7)	70
<b>Isolation Facilities</b>			
Provision of Isolation for suspected case till the result is available (n=30)	25 (83.3)	5 (16.7)	
Ante-room attached for PPE donning and doffing ( suspected cases) (n=25)	22 (88)	3 (12)	
Total number of beds in isolation for suspected case			729
Provision of admitting confirmed COVID patient	25 (83.3)	5 (16.7)	
Ante-room attached for PPE donning and doffing ( confirmed cases) (n=25)	21 (70)	4 (30)	
Total number of beds for confirmed case			836

### Personal Protective Equipment (PPE)

Categorization of PPE sets according to MoHP and NMC guidelines	12 (40)	18 (60)	
N95 mask			9,280
Goggles or Visor			3,796
Gloves (loose/surgical gloves)			174,950
Water resistant OR standard disposable gowns			3,805
Cap: Regular disposable			28,520
Surgical mask			123,031
Gloves (any types of non-surgical)			220,350
Gowns			8,425
Eye protection			1,460

### 4.Support Services

Facility of Central Pipeline Oxygen Supply (CPOS) in COVID Hospital	16 (53.3)	14 (46.7)	
Facility of Central Pipeline Oxygen Supply (CPOS) in COVID Clinic	4 (13.3)	21 (86.7)	
No. of beds covered with CPOS			503
Mechanized Laundry facility	22 (73.3)	8 (26.7)	
Blood bank / Storage Unit	11 (36.7)	19 (63.3)	
Ambulance services	23 (76.7)	7 (23.3)	
Number of Ambulance			41

### Diagnostics services

Portable X-ray	23 (76.7)	7 (23.3)	28
Portable USG	22 (73.3)	8 (26.7)	23

### 5.Human resources

General Medicine/ Emergency Medicine	25 (83.3)	5 (16.7)	138
Anesthesiologist	23 (76.7)	7 (23.3)	71
Pulmonologist/ Respiratory physician	9 (30)	21 (70)	17
Infectious Disease specialist	5 (16.7)	25 (83.3)	9
Critical Care specialist	6 (20)	24 (80)	38
Trained Nursing staff for isolation ward	14 (46.7)	16 (53.3)	193
Trained Nursing staff for intensive care	19 (63.3)	11 (36.7)	180

### Capacity building (Training/ Orientation)

COVID-19 testing and sample handling	24 (80)	6 (20)	
Handling of dead body	13 (43.3)	17 (56.7)	

### 6.Infection, prevention and Control (IPC)

Practice of Segregation and transportation of Waste as per Health care waste management guidelines 2014	28 (93.3)	2 (6.7)	
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### Provision of disinfecting modality for PPE

Hypochlorite solution	28 (93.3)	2 (6.7)	
UV sterilization	3 (10)	27 (90)	
Autoclave	25 (83.3)	5 (16.7)	

7.Medicine and Consumables			
Availability of Essential & Emergency Medicines	29 (96.7)	1 (3.3)	
Availability of Recommended Drugs for COVID-19	28 (93.3)	2 (6.7)	
8.Referral			
Facilities of referring to higher level COVID hospitals	21 (70)	9 (30)	
9.Discharge and Follow up			
Provision of Ambulance service	27 (90)	3 (10)	
Provision for Contact and Follow up	28 (93.3)	2 (6.7)	
Counseling Provision for home isolation	28 (93.3)	2 (6.7)	
10.Safety provisions for staffs			
COVID-19 testing provision	24 (80)	6 (20)	
Quarantine provision	28 (93.3)	2 (6.7)	
11.Handling of dead body			
Availability of body bags	6 (20)	24 (80)	109

**Data presented in this fact sheet relate only to selected indicators**

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**Fact sheet prepared on 5 June 2020**

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