



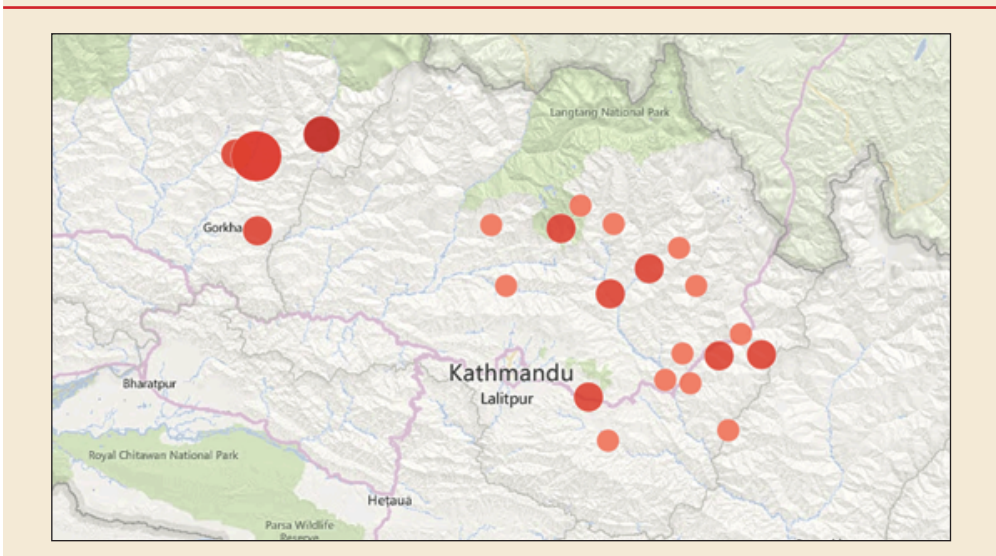
## Rapid Hospital Needs Assessment Report – **Mega-earthquake in Nepal**

## Introduction

At 11:56 AM on 25 April 2015, a 7.8 magnitude earthquake, with epicenter located in Gorkha district in the western part of Kathmandu Valley, impacted the central districts in Nepal. Continued aftershocks, one of which reached a magnitude of 6.7 on 26 April (figure 1), were felt until 2 May, mainly in the northeastern part of Kathmandu Valley.

As of 3 May, the Government of Nepal confirmed a total of 7240 earthquake related deaths and 14 122 injuries.

Figure 1: Earthquake and aftershocks (red spots) locations during 25 April – 2 May 2015.



On 28 April, the Nepal Ministry of Health and Population (MOHP), with WHO's support, deployed 12 teams to conduct a rapid needs assessment of the main hospitals in each of the 12 most affected districts, to allow prioritization of staffing and immediate provision of supplies. In general, there is one district hospital per district, usually having between 15 and 35 beds. District hospitals located in Kathmandu can have a higher number of beds. The teams, which aimed to assess all district hospitals and other main hospitals including private hospitals, were tasked with collection of data to address the following questions:

- ◆ How functional are the main hospitals?
- ◆ How overwhelmed have they been between the earthquake and the time of the visit?
- ◆ What are the immediate needs?

## Methodology:

The data collection instrument was developed jointly by WHO and the MOHP. It included questions based on simple indicators for triaging hospitals' needs, divided into four categories: infrastructural damages; status of water and power supplies;

volume-of- patients trends in in-patient (IPD) and out-patient departments (OPD) in functional facilities; and, needs regarding essential medicines/equipment/medical supplies/human resources (Annex 1).

Twelve assessment teams were formed consisting of government staff and WHO's Surveillance Medical Officers (SMOs), whose roles include amongst other things, coordinating vaccination campaigns, investigating and responding to infectious diseases outbreaks. These teams were subsequently trained in the use of the data collection instrument.

Data was then collected between 29 April and 3 May 2015. In order to provide timely information for decision making, the data collected over the first two days on 21 hospitals in 11 of the 12 most affected areas was analyzed and a preliminary assessment report released on 1 May – six days after the occurrence of the main earthquake.

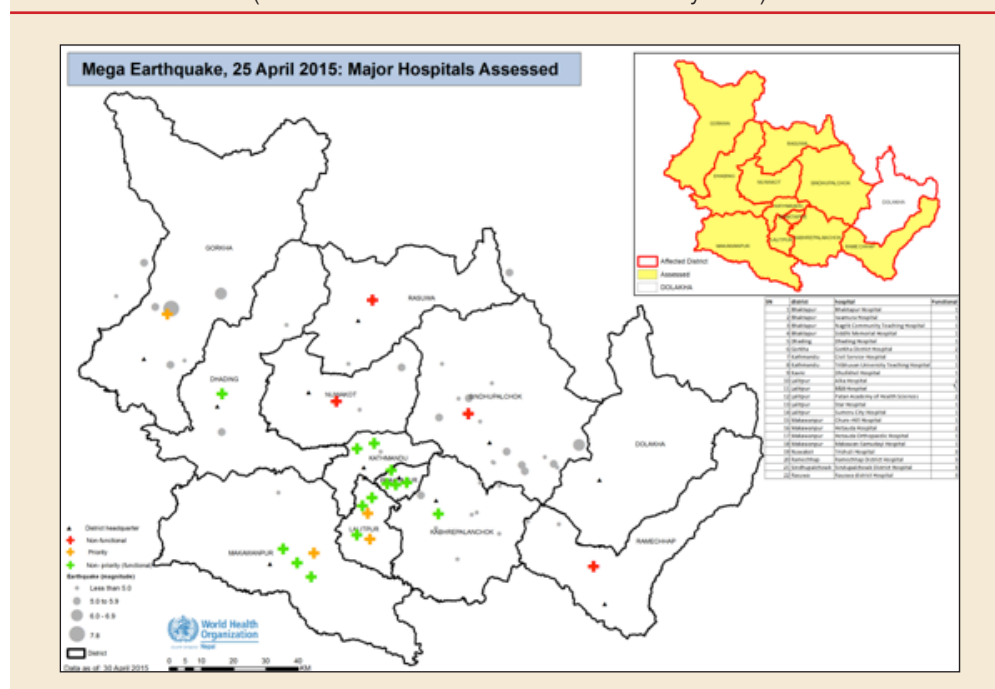
Once all assessments were completed on 3 May, a detailed analysis of the data was undertaken, the results of which are presented in this report.

## Results

Thirty four hospitals (18 government and 16 private) were visited and assessed (Figure 2); excluding Rasuwa district hospital. Of the 18 government hospitals, eleven were district hospitals (15 – 75 beds) and seven were larger hospitals (either teaching or central hospitals – >100 beds).

Of the 16 private hospitals assessed: ten were in Kathmandu Valley (Kathmandu, Lalitpur, Baktapur), four in Dolakha and two in Makawanpur.

Figure 2: Hospitals assessed on 11 affected districts  
(Rasuwa district could not be reached by road)



## 1. Pre- earthquake characteristics of assessed hospitals

Before the earthquake, 33 of the 34 hospitals had surgical capacity; 18 had maternity wards; all had direct water supply and all but one (Ramechhap district hospital) had electricity.

## 2. Post- earthquake characteristics of assessed hospitals

### (a) Non-functional hospitals

Four district hospitals, Ramachhap, Trisuli , Chautara, and Rasuwa, were found to be non-functional as a result of the earthquake, having sustained damage to their infrastructure and/or loss of electricity and water supply (table 1). They are located in the northern and eastern parts of Kathmandu Valley and were amongst the first 21 to be assessed between 29 – 30 April. One of the four hospitals, Rasuwa, was inaccessible by road and therefore could not be assessed by the team. The report of it being totally damaged was received from the District Health Office.

Notably, although Chautara district hospital in Sindhupalchowk district was totally damaged, the medical team sustained medical care delivery, including surgeries, in a temporary building – and even increased bed capacity.

Table 1: Non-functional hospitals identified during 29-30 April 2015

Visited hospitals	Districts	Initial capacity	Remarks
Ramechhap district hospital	Ramechhap	Beds # 15 Surgery capacity - Yes Maternity - Yes	No water; no electricity; no food; no surgery; no maternity service capacity
Trisuli district hospital	Nuwakot	Beds # - Not reported Surgery capacity - Yes Maternity- Yes	Totally damaged
Chautara district hospital	Sindhupalchowk	Beds # 35 Surgery capacity - No Maternity - Yes	No water; no electricity; no food; no maternity service capacity Building totally damaged – <b>replaced by temporary shelter</b>
Rasuwa district hospital	Rasuwa		Totally damaged as reported by District Health Office; inaccessible because of damaged roads

## (b) Functional hospitals

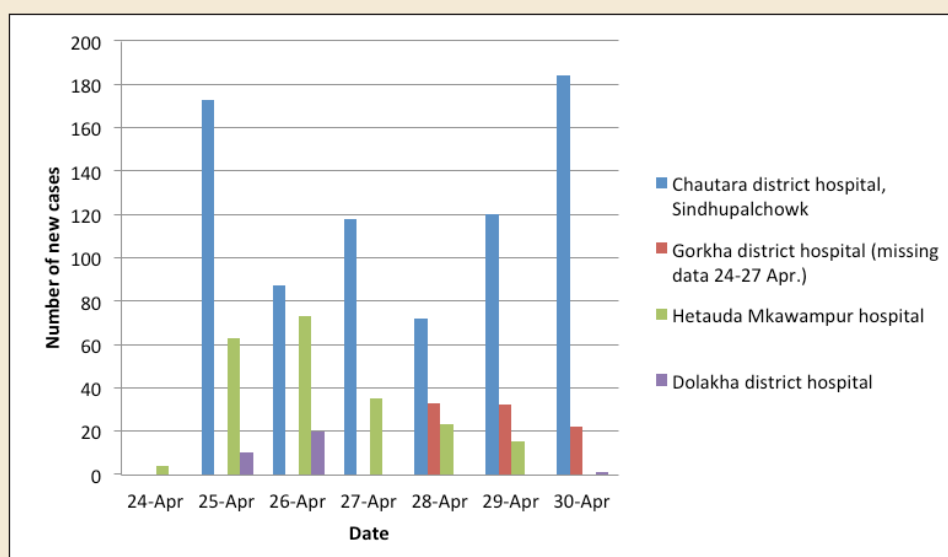
### *District hospitals*

Seven of the 11 district hospitals surveyed were able to sustain medical care, with three of these even increasing bed capacity between 50%-70% over pre-earthquake levels. The average number of beds following the earthquake was 41 per hospital (range: 15 – 85).

Of these seven functional hospitals, six suffered partial damage to the infrastructure, but maintained electricity and water supply. For instance, Dhading district hospital, whose infrastructure was partially damaged, managed to install and use a power generator.

Only four district hospitals were able to provide information related to the volume of patients in IPD including trauma cases between 24 April and 30 April (Figure 3). All but one of these hospitals showed a decrease in number of trauma-related IPD patients (Gorkha district hospital) since the peak on 25-26 April.

Figure 3: Number of new trauma patients hospitalized daily since 24 April, 2015 in 4 district hospitals, Nepal



All seven hospitals were in need of medical and non-medical supplies, including essential medicines, surgery kits, IV fluids, antibiotics and suturing materials, and tents and mattresses; some needed food for in-patients; but none requested additional staff.

### *Large governmental hospitals*

The seven large hospitals – all located in Kathmandu Valley – were functional. Their bed volume before the earthquake was on average 330 per hospital, ranging from a low of 100 to a high of 578. Following the earthquake, two increased their number

of beds to face the surge in in-patients (Tribhuvan University Teaching Hospital and Dhulikhel Teaching Hospital, which had 35% and 125% surge respectively). Five large hospitals had their OPD packed with patients at the time of the visit.

All seven hospitals were in need of medical and non-medical supplies, and tents and mattresses; some needed food for in-patients; but none requested additional staff.

### *Private hospitals*

The average number of beds per hospital in the 16 ASSESSED PRIVATE HOSPITALS WAS 57, ranging from 15 in districts farther from Kathmandu to 225 in Kathmandu areas. None increased their bed capacity following the earthquake.

Notwithstanding that two reported partial damages to the infrastructure, all 16 private hospitals were functional and reported little impact on volume of activities in in-patients department. However, two experienced high demand in the outpatient department and emergency room.

Ten of these hospitals needed essential medicines, medical supplies, but none needed additional staff.

## **Key findings**

- ◆ District hospitals were found to be the most vulnerable, particularly in districts east of Kathmandu Valley and Gorkha district, where the aftershocks occurred frequently and in high magnitude (Figure 2). It is therefore critical that contingencies are implemented in the short to medium term to ensure continued health care delivery capacity in areas served by these facilities. These assessment findings triggered the immediate deployment of four foreign medical teams (Canadian Red Cross, Norwegian Red Cross, MDM Spain and MSF Spain) and national medical teams to provide level-2 medical care in the areas, where the four non-functional district hospitals were located.
- ◆ Of the functional hospitals, five are considered in urgent need, as they continue to struggle with large volumes of activities, particularly in the OPD, and deliver services in partially damaged infrastructure with limited materials (including body bags, tents, and mattresses), medical supplies and essential medicines.
- ◆ The limited volumes of in-patients that were observed during the assessment are probably explained by consults or hospitalizations that are not free of cost.
- ◆ Of the four hospitals that were able to provide data on volume of activities, all but one showed a decrease in the peak numbers of trauma-related IPD patients (Sindhupalchok district hospital) observed on 25–26 April. Although this decreasing trend may suggest that we have passed the peak of the emergency, anecdotal reports indicate that persons from many of the peripheral districts sought care directly in main hospitals of the Kathmandu Valley. Additionally, many vulnerable populations in remote areas are likely to have limited access

to healthcare facilities. It is likely that the increased medical care capacity that will be provided by foreign and deployed national medical teams will increase demands for care, particularly among the most vulnerable communities.

## Conclusions

There were limitations in the availability of information necessary to capture the general trends in the bed occupancy rates and volume of patients overtime – before and several days after the earthquake – including the number of in-patients, out-patients and polytrauma cases, as well as the origin of the patients.

Nevertheless, this rapid assessment has provided quick information to the MOHP on the health facilities that need immediate support, thereby informing the short- to medium-term response of national and international healthcare providers, including where to move health teams and supplies in the country.

A second phase of assessments is being conducted by the District Health Offices (DHOs) to provide in-depth analysis of the damages to health posts across districts. Further mapping of needs provided by Foreign Medical Teams (FMTs) will help to coordinate efforts.

Notably, on 2 May, the MOHP increased the number of most affected districts from 12 to 14, with the addition of Sindhuli and Okhaldhunga districts (east of Kathmandu valley). Results are pending regarding the status and needs of the two district hospitals in these locations.

Health related needs in damaged villages is another concern, and many Foreign Medical Teams are presently moving into a phase that takes them deeper into districts.