

Strengthening the Hub and Satellite Hospital Network: Sharing Learnings to Plan Forward

Conference on 12- 13 June 2022
Reported on 8 July 2022



Government of Nepal
Ministry of Health and Population

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Foreword

Nepal is one of the disaster-prone countries in the world as it ranks 11th position as the most risk prone country in the world in terms of earthquake and 30th position in terms of flood and landslide. In addition to existing natural hazards, due to increasing developmental activities, non-natural disaster like environment pollution, deforestation, road traffic accidents, industrial accidents are on the rise as well. There are also risks from various infectious hazards, envenomation, intentional and accidental poisoning and communicable disease such as recent cholera outbreaks, dengue outbreaks and ongoing COVID-19 pandemic. All these hazards results average of more than 500 disastrous incidents every year, which has resulted more than 45,000 deaths in last 45 years. Besides, it has injured more than 75,000 and about 30,00,000 have been affected.

Government of 'Nepal has been implementing various programs to mitigate, prepare, respond to and recover from any of such events. Ministry of Health and Population has put effort for efficient and effective response to any disaster and public health events by strengthening health care delivery service. From previous experiences and learnings, MoHP has identified need of strengthening communication and coordination between hospitals, especially during disasters and public health 'events, for efficient and effective case management.

Taking these things into consideration, a concept of hub and satellite hospitals was introduced in 2014. Since then, these hub and satellite hospital networks have collaborated to tackle a mega earthquake of 2015 and more efficiently in COVID-19 pandemic. At present, 25 hospitals across 7 provinces are categorized as hub hospitals with responsibility to coordinate with over 9000 satellite hospitals throughout the country. Proper coordination and communication between hub and satellite hospital networks in the past has shown its efficiency in management of resource distribution and sharing of clinical ideas. The networks have also aided in coordinated patients' transfers and referrals.

National conference on hub and satellite hospital network was recently conducted to further strengthen the hub and satellite hospital networks, share the experience of its success, and extend this concept effectively across all seven provinces. I would like to thank all who has put their effort to make this a successful event. I am hopeful this conference has shown a way forward to strengthen hub and satellite hospital network to prepare and respond to any disaster and public health emergencies.

Dr. Roshan Pokhrel Secretary

Ministry of Health and Population



Foreword

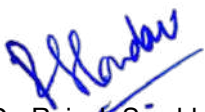
The World Health Organization, Country Office for Nepal is pleased to present the report on the First National Conference on Hub and Satellite Hospitals Network 2022, in collaboration with the Ministry of Health and Population (MoHP), Government of Nepal, and with financial support from USAID. Establishing a hub and satellite hospitals network covering the country is one of the many steps taken by the Government of Nepal for strengthening emergency preparedness and response in accordance with the International Health Regulations (2005).

Since developing the concept of hub and satellite hospitals network in 2014, the MoHP has invested resources and dedicated efforts to strengthen and operationalize this network. Health authorities from Federal and Provincial levels including from all hub hospitals discussed the issues, challenges and find the way forward as declaration to improve the hub and satellite hospitals network throughout the country. This covers all phases of disasters preparedness, mitigation, response and recovery.

As part of risk reduction initiatives of MoHP based on Kathmandu Valley earthquake scenario, WHO in coordination with health sector partners planned and implemented health sector emergency preparedness interventions focusing Six Hub hospitals within Kathmandu valley with support from EU Civil Protection and Humanitarian Aid (ECHO). These initiatives proved immensely helpful for responding to the 2015 earthquake, particularly in Communication, coordination and deployment of resources for response. Focused interventions implemented in the Kathmandu Valley hub hospitals from risk assessment, capacity building program including development of hospital disaster preparedness and response plan, organization of drill/simulation exercise to test the plan and update the plan. Based on the learnings from Kathmandu valley hub hospitals, MoHP decided to rollout the hub preparedness initiatives outside the Kathmandu valley to strengthen the hub hospitals network throughout the country.

The declaration signed at the conference by the hub and satellite hospitals network is a milestone and will facilitate maximizing use of available resources and, for prioritizing emergency preparedness interventions at hub hospitals and within hub hospital networks. This includes developing/updating of hospital disaster preparedness response plan; regular updating of inventories, organizing of regular coordination meetings of the hub and satellite hospitals along with the involvement of Provincial/Health Emergency Operation Centers, and increasing the frequency of capacity-building programs for hospital staff on disaster management. Other tasks include enhancing the telemedicine and emergency referral services in the Hub and satellite hospitals network; creating permanent structures of PHEOCs with adequate human resources to improve the coordination between hub hospitals and the local level for emergency preparedness and disaster response.

We acknowledge the invaluable contributions of the senior health authorities from hub hospitals, provinces, and federal ministry in formulating the declaration to improve the hub and satellite hospitals network in Nepal. As the health cluster lead globally and co-lead in Nepal, WHO commits to work in coordination with health cluster partners to implement the activities under the leadership of the MoHP.



Dr. Rajesh Sambhajirao Pandav
WHO Representative to Nepal
17 February 2023



Government of Nepal
Ministry of Health and Population



Foreword

The concept of hub and satellite hospital network was designed to improve communication and coordination between hospitals. It has emerged as one of the successful models of public-private partnership led by the Ministry of Health and Population (MoHP). It has facilitated strategic and structured sharing of available resources and capacities during response to disasters and public health emergencies.

I would like to express my sincere appreciation for the contribution of different stakeholders in implementing this preparedness and continued coordination throughout the health sector. The two-days event of National Conference on Hub and Satellite Hospitals Network with support from World Health Organization (WHO), Country Office for Nepal, and USAID saw the participation of Hon. Minister, Secretaries, Chief Specialists, Director Generals, Joint Secretaries, Directors and Chiefs of different divisions and centers of federal Ministry of Health and Population. There was participation from Ministry of provinces and Provincial Health Directors of all seven provinces, and representatives from the Ministry of Home Affairs and National Disaster Risk Reduction and Management Authority, National Emergency Operation Center, coordinators of Hub Hospitals, and chiefs and representatives of national and provincial Health Emergency Operation Centers (HEOCs).

I would like to thank my colleagues at Ministry of Health and Population and Health Emergency Operation Center, Dr Pavan Kumar Sah, Dr Navaraj Joshi, Prakash Chandra Ghimire, Ram Daresh Pandit, and Deepa Oli Chand for their continuous support in all the programs conducted in coordination of HEOC. I appreciate the enthusiasm shown by the team from WHO, Dr Rajesh Sambhajirao Pandav, Dr Allison Gocotano, Dr Subash Neupane, Dr Gaurav Devkota, Prahlad Dahal, Bimal Singh Bist, Sanjib Gautam, Tribhuvan Bhatta, Manish Dhungana, Barsha Thapa and Ganesh Singh Dhimi and their tireless effort in making this conference a huge success.

I hope that the conference will enhance coordination among the hub and satellite hospitals in the country. This event has not only highlighted the importance of coordination among hospitals but also reiterated the importance of this network as an essential component of emergency preparedness and response. Similarly, frequent update meetings along with drills should be emphasised more in the upcoming days. Lastly, I hope that all the hub and satellite hospitals network will commit themselves to the 11 points declaration and work together to strengthen Nepal's disaster and public health emergency preparedness and response readiness.

Thank you.

Dr Samir Kumar Adhikari
Chief, Health Emergency and Disaster Management Unit/
Health Emergency Operation Center



Foreword

Nepal has taken a proactive approach in strengthening the hub and satellite hospitals network as a multi-hazard measure for the national health sector's disaster and public health emergencies preparedness and response readiness. Over the years, this network has emerged as one of the successful models of public-private partnership for coordination of life-saving service delivery during times of crisis led by the Ministry of Health and Population (MoHP).

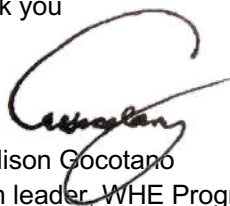
I am privileged to witness this well-set hospital coordination network being utilized effectively for COVID-19 response, and truly grateful for the initiative taken by the MoHP in strengthening it, where a pivotal step was the successful conduction of the first ever conference on hub and satellite hospital network. This conference has been a pioneer event to bring all the frontliners from hub hospitals responding to COVID-19 continuously for more than two years and has been critical to reduce morbidity and mortality during times of disaster and public health emergencies. The conference provided platforms to share experiences and learn from all the stakeholders, and identify gaps, challenges, and way forward. The 11- point declaration, an official document supporting the coordination and communication among hub and satellite hospitals, Health Emergency Operation Centres, and MoHP, has been a significant conference output, highlighting the next steps to advance collective readiness in the health sector.

This report documents all the activities (presentations, exercises, discussions, and declaration) from the two-day conference. I am confident that this report will motivate all the hub and satellite hospital network to continuously work on the 11-point declaration, and act as an important reference during planning and decision-making for priority actions.

I thank all the personnel, from the initial notetakers to the final approvers, involved in developing the report. I express my sincere gratitude to WHO, Country Office for Nepal, and WHO Representative to Nepal, for their guidance and support, and the WHO Health Emergencies (WHE) Programme Team, in WHO, Country Office for Nepal, for their continued hard work and dedication towards making this conference a huge success, and for finalizing this essential report.

WHO, Country Office for Nepal, and WHE Team, are always committed to support the MoHP's leadership in delivering the goals and objectives of health sector preparedness and response to disasters and public health emergencies.

Thank you



Dr Allison Gocotano
Team leader, WHE Programme
WHO, Country Office for Nepal
17 February 2023

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Declaration



नेपाल सरकार
स्वास्थ्य तथा जनसंख्या मन्त्रालय

"हब तथा स्याटेलाइट अस्पताल संजाल मर्मित स्वास्थ्य आपतकालको तयारीकोमा सुधार"

हब तथा स्याटेलाइट अस्पताल संजालको राष्ट्रिय सम्मेलन, २०२२

२९-३० जेठ २०७९ काठमाडौं, नेपाल

घोषणा-पत्र

हामी, हब तथा स्याटेलाइट अस्पताल संजालहरूको राष्ट्रिय सम्मेलनका सहभागीहरू, निम्न बुँदाहरूमा सहमत छौं र पालना गर्ने प्रतिवद्ध भई घोषणा गर्दछौं:-

१. अस्पतालको विपद् पूर्वतयारी र प्रतिकार्यको योजनालाई नियमित अद्यावधिक गर्ने र अस्पतालले आफ्ना सबै कर्मचारीहरूलाई वार्षिक रूपमा सम्बन्धित अस्पतालले सोको अभिमुखीकरण गर्ने,
२. हब तथा स्याटेलाइट अस्पतालका श्रोत साधनहरू (औषधी, औजार, उपकरण, जनशक्ति) नियमित रूपमा अद्यावधिक गर्ने,
३. हब अस्पतालले आफ्नो वार्षिक कार्ययोजनामा राखी नियमित रूपमा (कम्तीमा वर्षको तीन पटक) हब तथा स्याटेलाइट अस्पतालहरूबीच स्वास्थ्य आपतकालीन कार्यसंचालन केन्द्रको उपस्थितिमा समन्वय बैठक सञ्चालन गर्ने,
४. नियमित रूपमा (कम्तीमा वर्षको तीन पटक) Emergency Medical Deployment Team (EMDT) को अद्यावधिक गर्ने र EMDT परिचालन गर्नुपरेमा स्वास्थ्य आपतकालीन कार्यसंचालन केन्द्रसंगको समन्वयमा गर्ने,
५. नियमित रूपमा स्वास्थ्य आपतकाल पूर्वतयारी र प्रतिकार्यको लागि क्षमता अभिवृद्धि गर्ने तथा दुई वर्षको एक पटक हरेक हबले आपतकालीन व्यवस्थापनको अभ्यास गरी प्रतिवेदन पेश गर्ने,
६. विपद् र जनस्वास्थ्य आपतकाल प्रतिकार्यका लागि आवश्यक औषधि र आपूर्तिहरूको न्यूनतम मौज्जात सुनिश्चित गर्दै आपूर्ति व्यवस्थापन प्रणालीमा सुधार गर्ने,
७. अस्पतालको सुरक्षा सूचांक (HSI) अनुरूप विपद्को पूर्व-तयारी तथा प्रतिकार्यका लागि कार्य गर्ने,
८. अस्पतालहरूले आपतकाल पूर्वतयारी तथा प्रतिकार्य सम्बन्धि क्रियाकलापहरूको कार्ययोजना बनाई आवधिक अनुगमन तथा मूल्याङ्कन गर्ने । विपद्को प्रतिकार्यबाट प्राप्त अनुभवका आधारमा अस्पतालको विपद् पूर्व तयारी तथा प्रतिकार्य योजनालाई परिमार्जन गर्ने तथा नियमित प्रतिवेदन स्वास्थ्य आपतकालीन कार्यसंचालन केन्द्रमा पेश गर्ने,
९. स्वास्थ्य आपतकालीन कार्यसंचालन केन्द्रहरू र सबै हब अस्पतालहरू बीच कम्तीमा वर्षको दुई पटक समन्वय बैठक संचालन गर्ने,
१०. टेलीमेडीसिन तथा आकस्मिक रिफेरल सेवालालाई हब तथा स्याटेलाइट अस्पतालमा सुचारु गरि, उचित व्यवस्थापन तथा विस्तार गर्दै लाने,
११. प्रादेशिक स्वास्थ्य आपतकालीन कार्यसंचालन केन्द्रहरूको स्थाई संरचना/ दरबन्दी बनाई हब अस्पताल तथा सम्बन्धित स्थानीय तहसंगको समन्वयमा विपद् र जनस्वास्थ्य आपतकाल प्रतिकार्यलाई व्यवस्थित गर्दै लाने

हब तथा स्याटेलाइट अस्पताल संजालको राष्ट्रिय सम्मेलन, २०२२ | २९-३० जेठ २०७९; काठमाडौं, नेपाल


डॉ. राजेन्द्र पौखरेल
सचिव

Keynote Speakers

Message from Hon. Minister Birodh Khatiwada, MoHP

This event has been organized at the right time, and I am glad that multiple stakeholders are actively taking part to make it a success. Their participation is crucial given the role that each stakeholder has to play during any emergency response.

Nepal is extremely vulnerable to natural as well as anthropogenic disasters. Events such as the 2015 earthquake and the COVID-19 pandemic have led to thousands of cases of morbidity, mortality, and long-term disability. Considering this scenario, the Constitution of Nepal 2015 has assured all Nepali citizens the right to access to emergency health services.

And while we have been able to provide emergency health services, there is room to make it more effective and efficient. A step towards this could be to strengthen hospital networks and prepare to respond to natural calamities and emergencies—by addressing emergency situations, limiting injuries, providing vital medical assistance, and saving lives.

To strengthen the hospital network, the links between hub and satellite hospitals need to be begin from the community or local level. We need to learn from the adverse impacts of health emergencies in our system and build and plan our future responses better. In relation to our experiences and existing conditions, the health system should be strengthened, and services should be made available during health emergencies.

In 2072 BS, the Ministry of Health and Population (MoHP) prepared and conceptualized the emergency management system and informed all hub hospitals in the network. Then, the Hub and Satellite Hospital Network was developed as a public-private and community-based model. After the 2015 earthquake, the hub hospitals in Kathmandu were oriented about emergency medical care, which led to effective service delivery. It is necessary to create an enabling environment for the Hub and Satellite Hospital Network so that it benefits all people. We need to take action and improve from the moment of emergency; we need to transform and change directives into action from the beginning.

We hope that this two-day conference will help facilitate the creation and development of responsive and effective emergency plans to reduce mortality. The MoHP aims to make informed decisions by taking into account all concerns and hopes to pave a path towards the right direction for hub and satellite hospitals in the network—we are committed to making the network resilient in the face of disasters and emergencies.

Message from Dr. Shyam Sundar Yadav, Chief Specialist, MoHP

Disasters cannot be controlled but they can be mitigated. In this regard, Japan's Hyogo Framework for Action HFA (2005) for disaster reduction, emphasizes on mitigation and reduction, and provides related technical and financial support. This framework is essential for a disaster-vulnerable country like Nepal.

In 2004, Johns Hopkins University's Emergency Medicine Professor, Dr. Kelen, developed a framework that included the 'four Ss': space, stuff, system, and staff. This can be linked to disasters and the Hub and Satellite Hospital Network. In Nepal's context, the Ministry of Home Affairs started the concept of health emergency measures in 2010. In 2014, it was officially implemented as the Health Emergency Operation Centre. Now, all hospitals in Nepal need to be strengthened with two crucial components: communication and coordination.

The 2015 earthquake taught us an invaluable lesson—that Nepal's health system requires better coordination. Since then, continuous efforts for coordination have brought visible improvements, especially during the COVID-19 pandemic. There is still scope for more improvement. The main objective of this conference is to understand the current situation of the country's hub and satellite hospitals, and help us comprehend the framework and the required amendments. It is an information exchange platform for future emergency preparedness, and seeks to tap into the full potential of the Hub and Satellite Hospital Network.

Welcome Speech by Dr. Sangeeta Kaushal Mishra, Chief Specialist, MoHP

(I would like to extend a warm welcome to the chairperson for today's programme, the, Secretary of the MoHP; chief guest, Hon. Minister of the MoHP; chief specialists of the MoHP; Director General of the Department of Health Services (DoHS); secretaries of all seven provinces; division chiefs of the MoHP; representatives from the Ministry of Home Affairs - Disaster Risk Reduction and Management Authority; Chief of WHO Nepal Country Office; chiefs and representatives from hub hospitals; chiefs and officials from different divisions under the MoHP and DoHS; team leads and officials from WHO Nepal Country Office; and everybody present.)

Globally, Nepal is the one of the most disaster-prone countries. It constantly faces natural disasters, along with epidemics and disease outbreaks. But with proper coordination and optimum utilization of resources, it is possible to carry out an effective health response during crisis and emergency situations. Towards this end, the MoHP has been doing its best to effectively manage the prevention, control, and treatment of various epidemics, health crises, and disasters, including the current COVID-19 pandemic. Various innovative activities have been carried out for public health empowerment and to strengthen our health response. There have been coordinated implementation of activities, including the promotion of the National Health Emergency Operation Centre (HEOC), strengthening of the Provincial Health Emergency Operation Centres (PHEOCs), formulation of an action plan for the Health Emergency Operation Centre (HEOC) and Emergency Medical Deployment Team (EMDT), management of pre-hospital care and ambulance services, and vaccination programmes for the prevention and management of COVID-19.

For effective health response and management, the MoHP has been actively coordinating with different health clusters partners during and after the 2015 earthquake, and in other disasters like floods and landslides and the current COVID-19 pandemic. Other activities too have been carried out, such as the development and implementation of various guidelines, coordination with provincial and local level health officials, coordination between the HEOCs, monitoring, and management. Additionally, the HEOC has been actively involved in the systematic use of the Incident Command System (ICS) for health preparedness and response to epidemics and disasters through coordination with many stakeholders. The HEOC also collaborates on public health issues with different agencies, such as the National Disaster Risk Reduction and Management Authority or the National Emergency Operation Centre.

Now, let me bring into focus the topic of this conference: hub and satellite hospitals. These labels for the hospitals were necessary to respond to emergency situations, manage resources, and brief responsibilities. Thus far, this has ensured proper coordination and collaboration between hospitals; necessary help and coordination in identification, formation, and orientation of EMDTs; procurement of emergency health equipment and emergency response mechanisms; and monitoring, evaluation, and reporting of emergency situations.

Hence, this conference has been organized to address the need to strengthen and incorporate this idea and initiative nationwide in a coordinated manner. We are gathered here today to discuss and express our experiences, opinions, and realities in a systematic way, and to declare a direction for future plans as it is important to improve the provision of hub and satellite hospitals, strengthen the health security system, reduce risk, and increase effectiveness in response during disasters and emergencies. On behalf of the MoHP, I express my sincere gratitude to everyone present. The continuous service provided by hub and satellite hospitals during the COVID-19 pandemic is praiseworthy. The MoHP has understood the importance of collaboration and services provided by and between hub and satellite hospitals to reduce the illness and mortality rate.

This conference has been arranged to exchange learnings and challenges, and reinforce collaboration between the HEOC, PHEOCs, provincial officials, and hub and satellite hospitals. The main objectives of today's programme are:

- To refresh and provide orientation on the hub and satellite hospital collaboration mechanism
- To increase coordination between hospital coordinators, strengthen coordination mechanisms between hub and satellite hospitals, systematize coordination between PHEOCs, and establish guidelines to strengthen pre-hospital and in-hospital care
- To review the standards that label hub and satellite hospitals, and to develop action plans for hub and satellite hospitals

I would like to thank WHO for helping organize this national conference. On behalf of the MoHP, I would also like to thank the hub and satellite hospitals, all health workers of the hospitals, the secretaries and directors who provided support, and all other concerned stakeholders and different organizations for their collaborative roles.

Message from Dr Rajesh Sambhajirao Pandav, WR, WHO

Decades ago, British Prime Minister, Winston Churchill, famously said, “Never let a good crisis go to waste.” This was also repeated by WHO Director General, Tedros Adhanom Ghebreyesus, referring to the importance of lessons learned during the pandemic. In a disaster-prone country like ours, unpredictable natural disasters, disease outbreaks, and other acute public health risks severely impact people’s lives. This can be mitigated through a robust readiness, preparedness, and response plan. We need to keep in mind these crucial factors when tackling and responding to future health emergencies.

The establishment of the Hub and Satellite Hospital Network is one of many steps taken by the Government of Nepal for strengthening emergency preparedness and response, as per the International Health Regulations 2005. It was first activated during the earthquake of 2015 and played a key role in strengthening communication and coordination between hub and satellite hospitals and the MoHP during emergencies. The network is one of the best examples of public-private partnership led by the ministry. The 25 hub hospitals, along with more than 9000 health facilities, are critical components of the emergency response system, which is tasked with managing mass casualties during emergencies.

The nature of emergencies is ever changing, so the hospitals in the network need to be well prepared, adequately facilitated, and properly familiarized with their respective roles. A few crucial pre-planning activities are: developing the hospital preparedness plan, mapping of resources, building staff capacity, forming emergency deployment teams, developing partnerships, strengthening coordination among HEOCs, and conducting regular exercises, among others. The absence of these activities could lead to delayed hospital response, which ultimately means delays in responding to victims, leading to increases in morbidity and mortality.

The COVID-19 pandemic has exposed many fragilities within the Hub and Satellite Hospital Network. For instance, there was a lack of coordination within the network and the provinces. The facilities were not prepared to respond to an emergency of such a magnitude, and preparedness was not standard across the board. Some important areas for improvement are coordination between the hub and satellite hospitals and the federal and provincial HEOCs, as well as among other provincial authorities, for response support.

WHO has been continuously standing behind the Hub and Satellite Hospital Network since its inception so as to strengthen its preparedness and readiness capacity. To this end, we have supported the development of mass casualty management strategies and trauma management protocols. We have also assisted in seismic assessment, simulation exercises, trauma management training, and the creation of emergency medical logistic warehouses.

The hub and satellite hospitals have two major challenges: the absence of dedicated human resources and a shortage of finance. This has impacted the coordination of the Hub and Satellite Hospital Network, leading to frequent changes in the hub focal point, and a lack of orientation in some hospitals about the coordination mechanism and operation of the network. In regard to the resource and capacity to deal with emergencies, there is no uniformity across the board. We need to address these problems by identifying dedicated focal points in each hospital network. There needs to be regular orientation for hub members. To clarify the functions of the network, it is necessary for the MoHP to develop official directives or guidelines, with clear descriptions of their respective roles and responsibilities. After this event, we hope to see increased commitment from the Hub and Satellite Hospital Network. This conference offers a platform for inter-provincial experience sharing, which, ultimately, helps save lives. And lastly, I would like to thank USAID for funding this programme.

Acronyms

| | |
|---------------|--|
| <i>APHIN</i> | Association of Private Health Institution of Nepal |
| <i>BLS</i> | Basic Life Support |
| <i>BPKHIS</i> | BP Koirala Institute of Health Sciences |
| <i>CADRE</i> | Community Action Disaster Response |
| <i>CCU</i> | Critical Care Unit |
| <i>CDO</i> | Chief District Officer |
| <i>CICT</i> | Case Investigation and Contract Tracing |
| <i>CRRT</i> | Continuous Renal Replacement Therapy |
| <i>CSD</i> | Curative Service Division |
| <i>CSR</i> | Corporate Social Responsibility |
| <i>CSSR</i> | Collapsed Structure Search and Rescue |
| <i>DEOC</i> | District Emergency Operation Centre |
| <i>DHEOC</i> | District Health Emergency Operation Centre |
| <i>DHIS</i> | District Health Information Software |
| <i>DHO</i> | District Health Office |
| <i>DPRP</i> | Disaster Preparedness and Response Plan |
| <i>EDCD</i> | Epidemiology and Disease Control Division |
| <i>EHR</i> | Electronic Health Record |
| <i>EMD</i> | Emergent Medical Data |
| <i>EMDT</i> | Emergency Medical Deployment Team |
| <i>EMT</i> | Emergency Medical Technicians |
| <i>EMVO</i> | European Medicines Verification Organization |
| <i>FCHV</i> | Female Community Health Volunteer |
| <i>FMT</i> | Foreign Medical Team |
| <i>GIS</i> | Geographic Information System |
| <i>GMC</i> | Gandaki Medical College |
| <i>GNS</i> | Gajendra Narayan Singh (Hospital) |
| <i>GoN</i> | Government of Nepal |
| <i>GPRS</i> | General Packet Radio Services |
| <i>GPS</i> | Global Positioning System |
| <i>HCD</i> | Health Care Delivery |

| | |
|---------------|---|
| <i>HEDMU</i> | Health Emergency and Disaster Management Unit |
| <i>HEOC</i> | Health Emergency Operation Centre |
| <i>HICS</i> | Hospital Incident Command System |
| <i>HMIS</i> | Health Management Information System |
| <i>HOPE</i> | Hospital Preparedness for Emergencies |
| <i>HR</i> | Human Resource |
| <i>HSI</i> | Hospital Safety Index (HSI plus) |
| <i>ICS</i> | Incident Command System |
| <i>ICU</i> | Intensive Care Unit |
| <i>IHR</i> | International Health Regulations |
| <i>INGO</i> | International Non- Governmental Organizations |
| <i>IOM</i> | Institute of Medicine |
| <i>IPC</i> | Infection Prevention and Control |
| <i>IV</i> | Intravenous |
| <i>KAHS</i> | Karnali Academy of Health Sciences |
| <i>KPH</i> | Karnali Province Hospital |
| <i>LEOC</i> | Local Emergency Operation Centre |
| <i>LGO</i> | Local Government Operationalization |
| <i>MCM</i> | Medical Counter Measures |
| <i>MDGP</i> | MD in General Practice |
| <i>MFR</i> | Medical First Responders |
| <i>MoHA</i> | Ministry of Home Affairs |
| <i>MoHP</i> | Ministry of Health and Population |
| <i>MoIA</i> | Ministry of Internal Affairs |
| <i>MoIAL</i> | Ministry of Internal Affairs and Law |
| <i>MoSD</i> | Ministry of Social Development |
| <i>NAMS</i> | National Academy of Medical Sciences |
| <i>NAN</i> | Nursing Association Nepal |
| <i>NDRM</i> | National Disaster Risk Reduction and Management |
| <i>NDRR</i> | National Disaster Risk Reduction |
| <i>NDRRMA</i> | National Disaster Risk Reduction and Management Authority |
| <i>NEOC</i> | National Emergency Operation Centre |
| <i>NGO</i> | Non-Governmental Organization |
| <i>NHTC</i> | National Health Training Centre |

| | |
|-----------------|--|
| <i>NPC</i> | National Planning Commission |
| <i>NPHL</i> | National Public Health Laboratory |
| <i>NSSD</i> | Nursing and Social Security Division |
| <i>PAHS</i> | Patan Academy of Health Sciences |
| <i>PEER</i> | Program for Enhancement of Emergency Response |
| <i>PHD</i> | Provincial Health Directorate |
| <i>PHEOC</i> | Provincial Health Emergency Operation Centre |
| <i>PHLMC</i> | Province Health Logistic Management Centre |
| <i>PPE</i> | Personal Protective Equipment |
| <i>PPP</i> | Public Private Partnership |
| <i>PTC</i> | Primary Trauma Care |
| <i>RRT</i> | Rapid Response Team |
| <i>RTA</i> | Road Traffic Accidents |
| <i>SOP</i> | Standard Operating Procedures |
| <i>START</i> | Simple Triage and Rapid Treatment |
| <i>TOR</i> | Terms of reference |
| <i>TTx</i> | Table Top Exercise |
| <i>TUTH</i> | Tribhuvan University Teaching Hospital |
| <i>TUTH-IOM</i> | Tribhuvan University Teaching Hospital-Institute of Medicine |
| <i>UNFP</i> | United Nations Population Fund |
| <i>UNICEF</i> | United Nations Children's Fund |
| <i>UNISDR</i> | United Nations Office for Disaster Risk Reduction |
| <i>USAID</i> | United States Agency for International Development |
| <i>VIP</i> | Very Important Person |
| <i>WASH</i> | Water, Sanitation and Hygiene |
| <i>WFP</i> | World Food Programme |
| <i>WHE</i> | WHO Health Emergencies Programme |
| <i>WHO</i> | World Health Organization |

Introduction

In recent years, natural disasters, disease outbreaks, and other public health threats have become increasingly common in Nepal. This has led to the urgent need for health-related emergency planning, response readiness, and disaster management. The frequency of these hazards and dangers also emphasizes the critical importance of robust preparedness, readiness, and response to mitigate the effects of such calamities.

Owing to its location in the Himalayas—and its unique topography—Nepal has always been particularly prone to natural disasters. The country is at the constant mercy of a range of geophysical and hydro-meteorological events, such as earthquakes, floods, landslides, lightning, glacial outburst floods, and avalanches. Human-induced disasters, like road and air accidents and fires, also illustrate the country's vulnerability to emergencies. Moreover, pandemics such as COVID-19 continue to threaten health and lives, along with the country's economy.

Official data provides more clarity on the matter. Nepal ranks fourth and eleventh worldwide in terms of its vulnerability to climate change and earthquakes, respectively. More than 80% of its population is at risk of natural hazards.¹ Estimates show that between April 2010 and May 2018, there were 12,375 disaster-related deaths, and economic losses amounted to over NRS 28 billion. Similarly, over 8790 casualties and 22,300 injuries were reported in the 2015 earthquake.² The lives of eight million people, nearly one-third of the population, were affected by the disaster.³ The total value of the damages and losses caused by the earthquake was estimated to be USD seven billion.⁴ Also, according to figures released by the Government of Nepal (GoN), the floods of 2019 significantly affected the food security of an estimated 212,000 people, of which 101,600 were deemed to be most in need of assistance.⁵ The government's disaster risk reduction portal (between 1 January 2000 to 27 June 2022) reported a total of 860 deaths from floods and 1398 due

¹ (Nepal Disaster Risk Reduction Portal, 2017)

² (Government of Nepal National Planning Commission, 2015)

³ (Shrestha & Pathranarakul, 2018)

⁴ (Rijal, 2016)

⁵ (Reliefweb, 2019)

to landslides.⁶ The COVID-19 pandemic too has greatly impacted Nepal's healthcare system. From 3 January 2020 to 15 June 2022, there were 979,297 confirmed cases of COVID-19 with 11,952 deaths.⁷

Disaster governance in Nepal is regulated by several acts, plans, and policies: the Constitution of Nepal 2015, Disaster Risk Reduction and Management (DRRM) Act (2017), Public Health Service Act (2075) and Regulation (2077), Local Government Operationalization (LGO) Act (2017), National Disaster Risk Reduction and Management Authority (NDRRMA) and National DRRM Policy 2075 and Disaster Risk Reduction National Strategic Action Plan 2018-2030. The strategies adopted by these policy instruments have translated into action, such as the establishment of the Health Emergency Operation Centre (HEOC), which was initiated in 2012, in accordance with the International Health Regulations (2005) to strengthen communication and coordination for effective public health response. The formation of Provincial Health Emergency Operation Centres (PHEOCs) since 2017 in all seven provinces is also a major milestone.

Furthermore, Nepal has also established telemedicine centres at national and provincial levels, along with the Hub and Satellite Hospital Network. It has also formed Emergency Medical Deployment Teams (EMDTs), which is an important step to strengthen emergency preparedness and response.

Before federalization, the division of hospital and district health offices were capacitated for health-related emergency preparedness and response while envisioning both hospital- and district-level health contingency plans. After the move to federalization, the focus for health sector preparedness shifted to hospitals, with a reduced role of district health offices. Accordingly, 25 specific hub hospitals and over 250 satellite hospital networks were designated across Nepal to strategically structure the distribution of available resources and capacities. The hub hospitals—previously zonal, sub-regional, regional, and central hospitals—co-ordinate with satellite/ associate hospitals to manage mass casualties from emergencies.

The Hub and Satellite Hospital Network was established in 2014.⁸ The HEOC and PHEOCs coordinate with the Hub and Satellite Hospital Network and other health/non-health sector partners for disaster preparedness and response readiness. The HEOC functions as the secretariat of the MoHP Incident Command System (ICS) during public health emergencies. Hub and satellite hospitals have specific roles during the pre-disaster, disaster, and post-disaster phases. Their roles and operations are particularly useful at the provincial and district levels during disaster events that may threaten the health security of the country.

The Hub and Satellite Hospital Network concept is considered one of the best public-private partnership (PPP) models by the MoHP. Since strong partnership, coordination, and communication is necessary between hospitals during emergencies, the Hub and Satellite Hospital Network plays an important role as a one-door communication system for efficient response. It also facilitates access to financial resources from the Prime Minister Disaster Response Fund through the Ministry of Home Affairs (MoHA), in addition to developing consolidated plans and preparedness for rapid response. During disasters, the network can help manage the referral system and also form rapid response teams for timely deployment. It mitigates the mapping of emergency and disaster situations, and coordinates and communicates accordingly to utilize

⁶ (Government of Nepal, 2000/01/01 - 2022-06/27)

⁷ (MoHP, 2022)

⁸ (MoHP and WHO, 2021) See timeline in Page. 14.

existing resources in the best possible manner. The network can further help in capacity building and awareness in hospitals and maximize in-country resources for response, saving more lives.

It was in this context that the two-day ‘National Conference on Hub and Satellite Hospital Network, 2022’ was organized. Its purpose was to orient and refresh hub coordinators on the hub and satellite hospital coordination mechanism, enhance coordination among hub hospital coordinators, and strengthen coordination mechanisms among hub and satellite hospitals. In addition, the workshop reviewed and updated the selection criteria for hub and satellite hospitals while developing the action plan for hub networks (declaration).

Table 1: Role of Hub Hospitals

| Pre-disaster | During disaster | Post-disaster |
|---|---|--|
| <ul style="list-style-type: none"> • Establish coordination and communication with the HEOC • Establish network with satellite hospitals and GoN health offices (directorates, offices, etc) • Pre-assess hospitals (structural, non-structural, functional, referral network, etc.) • Perform resource mapping of satellite hospitals and update the HEOC <ul style="list-style-type: none"> ○ Health personnel and human resources ○ Logistics ○ Surge capacity • Facilitate training and orientation to satellite hospitals • Form EMDTs at all individual hospitals within the hub hospital zone • Establish and orient early deployment mechanisms • Plan for field hospitals • Develop consolidated disaster response plans with satellite hospitals | <ul style="list-style-type: none"> • Plan immediate response and preparedness • Communicate with HEOC/PHEOCs, satellite hospitals • Activate HICS • Follow standard operating procedures (SOPs), guidelines, and planning templates • Mobilize teams | <ul style="list-style-type: none"> • Update the HEOC with situation reports • Communicate and coordinate with satellite hospitals • Provide situation (damage) reports of satellite hospitals • Issue health response as per the preparedness plan • Manage and exchange resources between sub-hub and satellite hospitals • Request HEOC for additional support (human resources, logistics, finance) and facilitation as needed • Deploy EMDTs as needed • Establish field hospitals as per need |

Source: Health Emergency Operation Centre Network of Nepal: The Voyage and the Vista. Page 18

Table 2: Role of Satellite Hospitals

| Pre-disaster | During Disaster | Post-disaster |
|---|--|---|
| <ul style="list-style-type: none"> • Establish coordination and communication with hub hospitals • Establish network (contact person) with hub hospitals and other government health offices • Pre-assess individual hospitals (structural, non-structural, functional, human resources, etc.) • Plan for field hospitals • Provide HR roster updates to hub hospitals • Establish and orient emergency deployment mechanism within the hospital • Develop consolidated disaster response plans with hub hospitals | <ul style="list-style-type: none"> • Plan immediate response and preparedness • Communicate with hub hospitals • Activate HICS • Follow SOPs, guidelines, and planning templates • Mobilize teams | <ul style="list-style-type: none"> • Establish communication with hub hospitals • Update hub hospitals with situation reports • Report hospital assessments • Issue health response and emergency care as per the preparedness plan • Exchange resources between hub and satellite hospitals • Request additional support and facilitation with hub hospitals as needed |

Source: *Health Emergency Operation Centre Network of Nepal: The Voyage and the Vista. Page. 18*

Brief Overview

by Dr. Samir Kumar Adhikari

(Chief, HEDMU/HEOC, MoHP)

Nepal is one of the most climate- and disaster-vulnerable countries—the fourth most susceptible when it comes to climate change, twentieth in terms of anthropogenic disasters, and eleventh with regard to earthquakes. For this reason, we need to be aware and ready for all types of disasters. The effects of a disaster are multidimensional, as they impact finance, health, and socio-economic conditions.

The Constitution of Nepal has fixed guidelines and directives for emergency response and management, disaster prevention, and disaster risk reduction. The Disaster Risk Reduction and Management (NDRM) Act was formed in accordance with the constitution under the National Disaster Risk Reduction (NDRR) Authority, while COVID-19 response work was based on the Infectious Disease Act 2020. There are also guiding documents like the Disaster Risk Reduction National Strategic Action Plan (2018-2030).

During emergencies, hospitals are not the sole important component. The emergency response cycle starts with emergency response planning, training, and exercise for responders. Then, an effective response framework is devised. When an emergency occurs, the incident is mitigated and stabilized. Firms, organizations, and citizens are facilitated for recovery. When operations return to normal, the process starts from the beginning—with planning and training for the next emergency. The MoHP has also stressed on strengthening pre-hospital care during emergencies. There have been several arrangements—in the past and in the present—regarding hospital preparedness and readiness plans for emergency situations. During this conference as well, focus will be given to the emergency response aspects of various levels: community, pre-hospital, hospital, and post-hospital.

Tertiary or referral hospitals are assigned as the hub hospitals that can be provincial hospitals, academia, or federal hospitals. Satellite hospitals are made up of other community as well as private hospitals. There are no hierarchies. Its purpose is to ease communication and coordination between the MoHP, hub hospitals, and other stakeholders during crises. The Hub and Satellite Hospital Network is an example of a

successful PPP model. It has helped various hospitals collaborate, share, and exchange resources, such as beds and personnel, among others. The network helps in maximizing in-country resources during crisis situations. When the health system is overwhelmed and there is a surge in patients, the network can deploy resources in a timely and effective way. It can also help channelize financial resources across the country. In addition, it provides support in developing consolidated plans and preparedness. For instance, managing medicines or arranging EMDTs during emergencies. The Hub and Satellite Hospital Network has also facilitated the formation of early deployment and rapid response teams (RRTs).

Due to the Hub and Satellite Hospital Network, health services can easily be provided during any disaster or health emergency within the country. Currently, there are 25 hub hospitals in the network, six within Kathmandu Valley. On an average, there are about three hospitals in each province.

When there is an emergency, resources within the Hub and Satellite Hospital Network needs to be mobilized. There are certain checklists that need to be followed. Specific plans and policies are needed for the disaster preparedness, emergency coordination and command system. Plans are also needed for mass casualties and infectious diseases. Regarding preparedness, frequent update meetings are needed for resource mapping with the HEOC and the Hub and Satellite Hospital Network. Regular drills, simulation exercises, and training also needs to be conducted and we have conducted drills at some of the network. Additionally, we need to stockpile emergency medical supplies in relation to the place or province. We also have been working with the hospital focal points and EMDTs.

In terms of response, the hospital incident command system (HICS) has to be activated immediately following an emergency. There also needs to be coordination with the national and subnational line ministries and partners, and plans, policies, and SOPs needs to guide the operation of HEOCs with an aim to minimize the damages from the emergency. Hub hospitals have specific pre-disaster, disaster, and post-disaster roles. In the pre-disaster phase, the aforementioned points are crucial. During the disaster, the hospitals should follow SOPs, guidelines, and planning templates to immediately launch and mobilize response teams. In addition, constant communication should be maintained with HEOC/PHEOCs and satellite hospitals. In the post-disaster stage, everything should be reported to the hub hospitals to further assess the situation and plan for upcoming emergencies.

The satellite hospitals should assign focal persons, map the resources, and coordinate and communicate with hub hospitals on a regular basis. The network also has EMDTs—an asset during any health emergency or disaster. Each hospital currently has at least two EMDTs, which regularly receive virtual training. The MoHP has identified two types of EMDTs: one for mass casualty and another for infectious hazards (COVID-19). A standardized guideline for rapid response teams and EMDTs are currently being formulated.

10 hub hospitals have warehouses with prepositioned medical equipment for emergencies. These warehouses are in three provinces only and requires further discussion.

Hospitals require seven components for disaster preparedness: command, HR safety, triage preparation, staging for service delivery, communication with partners, treatment protocols, and outbreak management (RRTs and EMDTs). Additionally, as per our previous learnings, we have moved forward with telemedicine services with regards to COVID-19.

Satellite hospitals are linked with each other, and they all run under hub hospitals. Hub hospitals report to their respective HEOC, which has a crucial role in all three phases of the disaster cycle. The main role of

the HEOC is to map resources, coordinate, and manage information for all hospitals in the network. The chief objective of the HEOC is effective service delivery, coordination, facilitation, training, logistics management, and guidance for the network.

The HEOC alone does not perform all of this work. There are designated divisions and centres for specific tasks. When an incident occurs, the Local Emergency Operations Centres (LEOCs) are activated and on the basis of information collected by them, the district level emergency operation centre is notified. Then, the patients are taken to satellite or hub hospitals. If they are brought to the satellite hospital, they further coordinate with the hub hospitals. Then, the hub hospitals coordinate with HEOC directly or through PHEOC who then coordinate with the central partners like the NDRRMA and the National Emergency Operations Centre (NEOC).

Status of the Hub and Satellite Hospital Network

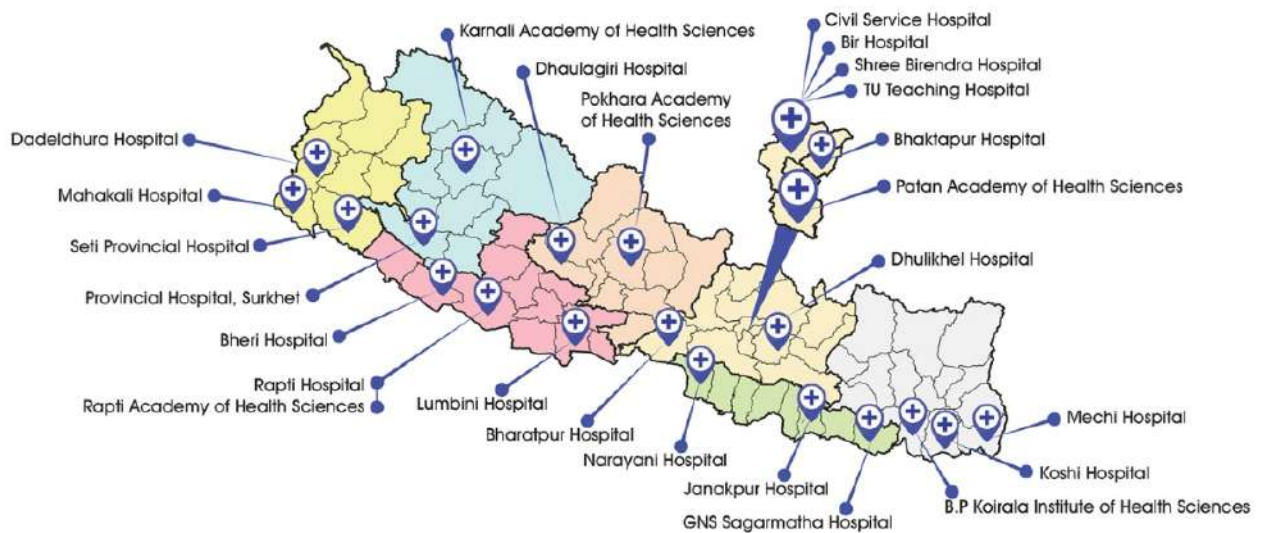


Figure 1: Map of Nepal with province-wise hub hospital index (requires revision, 3 hub hospitals must be in Madhesh Province, 8 in Bagmati Province, 2 in Karnali Province, and 3 in Sudurpaschim Province)

1. Province 1

The PHEOC is the command centre for Province 1 during public health emergencies or disasters. It works with the HEOC and PEOC. Its major activities include orientation and sensitization of the Hub and Satellite Hospital Network, and monitoring and assessment of satellite hospitals. It also acts as a command centre during emergency situations while contributing to the preparedness and readiness planning of disasters and epidemic outbreaks. The PHEOC manages the RRT, CRRT, and EMT, and is also responsible for information collection.

Province 1 has three hub hospitals: B.P Koirala Institute of Health Sciences (BPKIHS), Mechi Hospital, and Koshi Hospital. The province also has 36 satellite hospitals. The criteria for the selection of the satellite hospitals were as follows:

1. Location: Preferably in the periphery of hub hospitals
2. Minimum capacity: 15 beds (including government, district, and local hospitals); 50 in private hospitals
3. Adequate open space to set up camps
4. Earthquake-resistant building structure
5. 24/7 emergency service
6. Human resources:
 - a) Availability of consultants, MDGP, orthopaedic surgeon
 - b) Those with specialized services

1.1 Experiences of the network

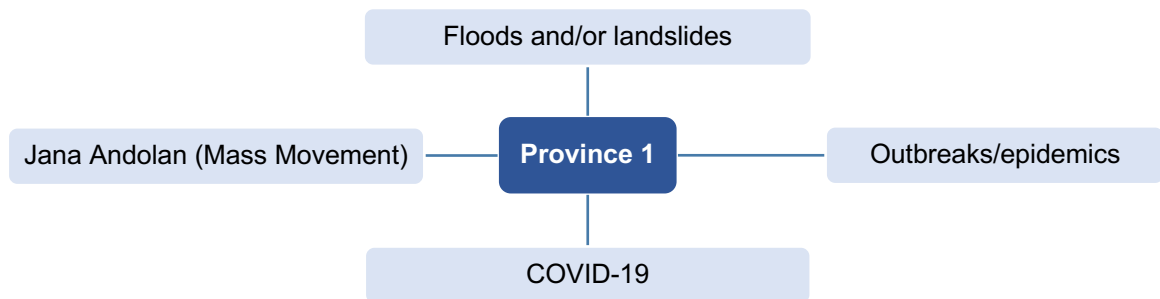


Figure 2: Experiences of hub-satellite network in Province 1

The experiences of the province during emergencies and disasters are mentioned in detail below:

1.1.1 **Floods and/or landslides**

When there was red alert in the Koshi river, we worked on preparedness and readiness. In coordination with Inaruwa Hospital, BPKIHS, DHEOC (DEOC or DHO???), CDOs and other stakeholders of Sunsari district, a disaster preparedness plan was formulated where each stakeholder was assigned their own roles.

1.1.2 Outbreaks/epidemics

During the H5N1 bird flu outbreak in Morang and Sunsari, diarrhoea outbreak in Ilam, and chicken pox outbreak in Bhojpur, we worked with a committee that included satellite hospitals, provincial health department, and veterinary hospitals, under the leadership of the CDO. We identified migratory birds as the main source of bird flu, while the lack of proper drinking water sources was the identified cause for diarrhoea. We also carried out awareness programmes on the proper use of PPE for health workers, alongside reporting and recording of information.

Furthermore, province-, district-, and local-level stakeholders received an orientation on the H5N1 outbreak from the EDCD, NPHL and WHO.

1.1.3 Dengue and COVID-19

The dengue outbreak and COVID-19 pandemic were managed through health human resource pooling. Telemedicine services were also active at BPKIHS during the first and second waves of COVID-19. Additionally, during the pandemic, isolation and quarantine centres were operated under the cooperation of Madan Bhandari Hospital, BPKIHS, and Purbanchal University. At Dhankuta Hospital, regular health service delivery was ensured through resource pooling. We also activated the Case Investigation and Contact Tracing and COVID-19 critical clinical management during that period.

We also established an isolation ward with 14 beds at Koshi Hospital during the first wave of COVID-19, and free ICU services were provided in an ICU ward with 70 beds. Various jingles were played during OPD service hours in order to spread awareness. The hospital also established an oxygen plant. In order to strengthen our health human resources, workers were oriented on testing, reporting, and recording. Alongside, Mechi Hospital also established an ICU ward and an isolation ward for COVID-19.

1.1.4 Jana Andolan (Mass Movement)

Mechi Hospital managed around 150 injured activists during the time of the Jana Andolan, with support from Red Cross and available doctors, paramedics, and nursing staff.

1.2 Activities besides health emergencies and disasters

Although we have allocated hub hospitals, there has been no assessment on their knowledge about the PHEOC/HEOC and satellite hospitals. In this regard, we conducted an interaction programme, the agenda for which was as follows:

- Orientation and sensitization of hub hospitals
- Disaster readiness and preparedness at hub hospitals
- Incident command system formation and activation

We completed a networking programme with the HEOC, NEOC, MOH, PHD, PHEOC, DEOCs, and hub hospitals, along with the Ministry of Internal Affairs and Law. It was centred on the necessity of recording and reporting during times of disaster. Another meeting was held with the HEOC chief and his team to appoint a disaster focal person in the satellite hospitals. We also conducted a provincial-level workshop on the National Ambulance Guidelines with the notion that all pre-hospital, hospital, post-hospital, and community levels require ambulances. An orientation

workshop was organized on the proper use of the NEOC’s BiPAD portal, which is used for health emergency information. Furthermore, the Armed Police Force (APF) in Itahari successfully conducted a disaster management training with representatives from the MoIAL, Nepal Red Cross Society, Nepal Police, Nepal Army, PHEOC, and Ministry of Social Development.

1.3 Good practices

Table 3: Good practices of Province 1

- Required HR was allocated to provide effective healthcare services with proper communication and coordination within the network.

1.4 Challenges and ways forward

Table 4: Challenges and ways forward

| Challenges | Ways forward |
|---|--|
| There was a lack of proper documentation and terms of reference (TOR) in the designated hub and satellite hospitals. | We hope to form a committee with the respective roles and responsibilities so that it will be easier for us to communicate and coordinate. |
| With no documented job responsibilities, channelizing support (deploying HR, making medicines and equipment available) was a challenge because of the lack of clarity on the personnel or department in charge of handling logistics. | Establishing a suitable channel for communication will facilitate effective coordination and implementation of programmes. |
| Triaging was difficult without proper knowledge on the use of relevant plans for specific epidemic outbreaks. | There is a need for disaster-specific hospital plans for all types of disasters and epidemics. |
| Information was being sent from multiple channels, which made it difficult for health workers to work effectively. | Capacity-building programmes for pre-hospital and hospital levels is needed. Hospital capacity assessment and resource mapping are also essential. |
| - | It is necessary to maintain buffer stocks for use during emergencies. |
| - | Drill or simulation exercises are a must for comprehensive contribution during disasters and emergencies. |
| - | It would be better if all three levels had a non-duplicative (???) yearly. |

Presented by Sangita Rai, focal person, PHEOC, Province 1

2. Madhesh Province

Madhesh Province has faced several disasters, such as disease outbreaks, earthquakes, floods, fires, droughts, and thunderstorms. Recently, we also experienced a tornado.

The Hub and Satellite Hospital Network in Madhesh Province consists of three hub hospitals: Gajendra Narayan Singh (GNS) Hospital, Janakpur Hospital, and Narayani Hospital.

2.1 Experiences of the network

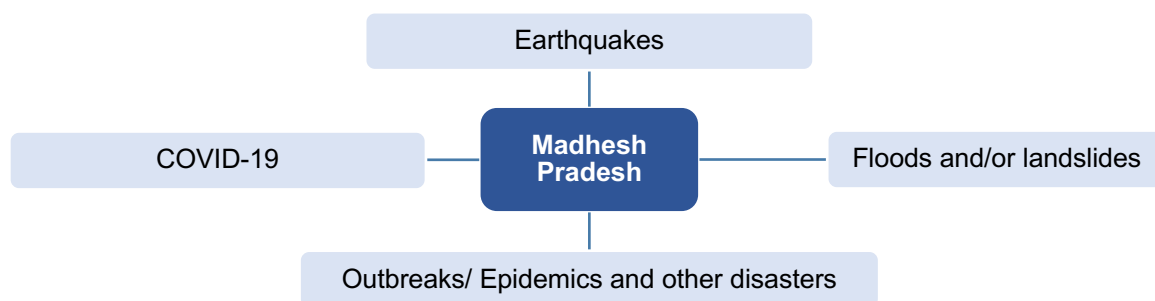


Figure 3: Experiences of the hub-satellite network in Madhesh Province

The experiences of the province during emergencies and disasters are mentioned in detail below:

2.1.1 Earthquakes

During the 2015 Nepal earthquake, Madhesh Province faced only minimal damages to infrastructure and human health. A few cases of psychological disorders—such as anxiety, with symptoms like fearfulness, palpitation, and disturbed sleep—were admitted to the emergency. Furthermore, psychosocial counselling service was also made available. People requiring additional psychiatric or other medical care were referred to hub hospitals.

2.1.2 Floods and/or landslides

Flooding causes immense damage to this province, especially due to the presence of the Koshi and Bagmati rivers. During the Koshi river embankment flooding, doctors and paramedic teams were deployed to the site, in collaboration with DHO and Red Cross. They provided treatment on-site and referrals to hub hospitals were made if needed.

2.1.3 Outbreaks/epidemics and other disasters

The province has experienced several disasters: tornado at Bara district, fire at Siraha, as well as road traffic accidents and alcohol poisoning. The tornado incident led to 28 deaths, and 536 were injured.

During the cholera outbreak last year, we immediately deployed the provincial team. Then, cases were admitted to the Police Hospital and GNS Hospital. Of the six cases admitted to GNS Hospital,

two were identified as Vibrio Cholera. We followed public health measures and, fortunately, the outbreak did not have a big impact. There was also an influenza outbreak in Saptari. Our provincial laboratory has been continuously investigating such outbreaks.

2.1.4 COVID-19

During the pandemic, Narayani Hospital took the initial step by admitting four COVID-19 patients. As cases increased, the hospitals were in constant communication about their experiences regarding treatment and resource supply. They worked in collaboration and, overall, networking was good. The pandemic taught us that we can work collectively during emergencies and showed us the importance of collaboration between hub and satellite hospitals. The PHEOC played a leading role in the daily reporting of cases.

2.2 Activities besides health emergencies and disasters

The hub hospitals should provide feedback about referral cases to the satellite hospitals on patient status and treatment procedures. Regarding conferences, we conducted meetings with all three hub hospitals and concluded that such gatherings need to take place every quarter of the year. We have also been active in preparedness activities, such as budgeting and stockpiling. However, frequent monitoring and evaluation of hub and satellite hospitals are needed to identify the strengths and weaknesses of the network.

2.3 Good practices

Table 5: Good practices of Madhesh Province

- The COVID-19 experience has encouraged all hospitals to make sure that ambulances and dead-body vans are readily available.
- There has been an improvement in the inter-hospital referral mechanism, along with the formation and activation of the incident command system in the hospitals.
- EMDTs have been formed in each hospital.

2.4 Challenges and ways forward

Table 6: Challenges and ways forward of Madhesh Province

| Challenges | Ways forward |
|---|--|
| The sanctioned position of staff has not been reviewed for many years. This is one of the province's foremost challenges. | The sanctioned position must be permanent and the health professionals assigned in the position must be trained. |
| Due to budget issues, there have been very few coordination programmes in hub-satellite hospitals and very limited trainings. | The issue with human resources can be resolved by hiring adequate manpower with proper training. |

| | |
|--|---|
| The existing infrastructure in the province does not meet demands. This is not about building new hospitals. Our services have been extended and more specialist services have been requested but we do not have the necessary units to respond to these changes. There is more room for improvement in quality service. | The infrastructure at the hub hospitals should be upgraded to meet the demand and flow of patients. The inclusion of more private hospitals and medical colleges in the hub-satellite network can be a way forward towards providing more quality services in the province. |
| The complicated linkage mechanism between the hub and satellite hospitals is posing challenges for referral and feedback | The telemedicine and simulation programmes should be given more priority. |
| The lack of motivation among health workers is causing hindrances in providing quality service. | There should be appropriate budget allocation for quarterly review meetings. |
| - | The appreciative inquiry approach could be adopted to build motivation and willpower in the health workers. |
| - | The 'One health worker, one health institution' programme should be strictly implemented. |

Presented by Dr. Mukti Narayan Sah, Chief, Health Service Division, Ministry of Social Development, Madhesh Province

3. Bagmati Province

Bagmati Province has eight hub hospitals. Six are within Kathmandu Valley (Bir Hospital, Shree Birendra Hospital, TU Teaching Hospital, Civil Hospital, Patan Hospital, Bhaktapur Hospital) and two are located outside (Dhulikhel Hospital and Bharatpur Hospital). The province also has 47 satellite hospitals, which are all privately owned, and have capacities of more than 50 beds.

3.1. Experiences of the network

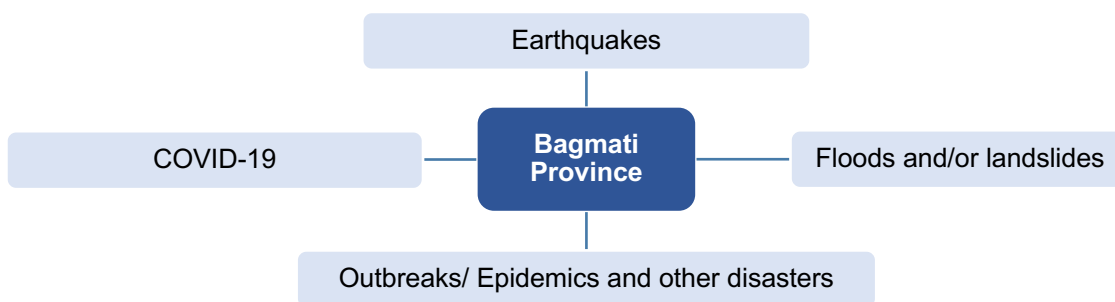


Figure 4: Experiences of the hub-satellite hospital network in Bagmati Province

The experiences of the province during emergencies and disasters are mentioned in detail below:

3.1.1 Earthquakes

National medical teams were deployed during the 2015 earthquake. In 2018, we conducted a Valley-wide multi-sectorial simulation exercise in which five hub and five satellite hospitals were involved.

Furthermore, an emergency response simulation was carried out which covered all hub hospitals within Kathmandu Valley. Along with this, we organized a coordination and orientation meeting with hub hospitals. In addition, we held the first national conference on pre-hospital care for emergencies in Nepal, and a tent simulation exercise was conducted for the effective use of emergency medical logistic stockpiles.

After the earthquake, the hub-satellite network participated in the following activities:

- National Conference on Post-hospital care for emergencies in Nepal
- Hands-on training and workshop on Hospital Safety Assessment using WHO Hospital Safety Index, DUDBC (Department of Urban Development and Building Construction) Structured Safety Assessment and other tools
- Learning Resource Package Development for Health Emergencies and Disaster Management in Nepal
- Demonstration cum hands-on training and Workshop on use of Hospital Safety Index plus (HSI+) mobile and web application

WHO supported the hub hospitals in the stockpiling of emergency medical logistics.

3.1.2 Floods and/or landslides

The hub hospitals coordinate with satellite hospitals for emergency management (for instance, the management of flood and landslide victims). However, coordination between the hub and satellite hospitals for disaster preparedness was affected by COVID-19. The province practices capacity building exercises (simulation, mock drills, TTx) for the management of flood/landslide victims. Timely search and rescue, proper triaging, standard pre-hospital care, and systematic referrals have been found to be important factors in saving lives during floods and landslides.

3.1.3 Outbreaks/epidemics and other disasters

The hub-satellite hospital coordination has improved, but there is still room for growth. Poor triaging and pre-hospital treatment have contributed to an increasing number of hospital mortality, according to the Valley-based hub hospitals that manage casualties from road traffic accidents (RTAs) and disasters. As a result, the main need is an improved pre-hospital care and a standard referral system. Due to its strategic geo-location, Dhulikhel Hospital is well-positioned to meet the demands of its satellite hospitals and respond quickly to catastrophes and RTAs.

3.1.4 COVID-19

Despite having a poor referral protocol, the hub-satellite referral during COVID-19 was remarkable and helped save many lives. EMDTs were formed and trained despite the pandemic, and EMDT bags were provided to each hub hospital.

Hub hospitals like TUTH receive a large number of daily caseloads. But with low emergency bed capacity and poor referral networks with satellite hospitals, the emergency management outcome has been affected. Gaps can be seen in coordination among hub hospitals and between hub and satellite hospitals, but COVID-19 has improved the coordination to some extent.

3.2. Activities besides health emergencies and disasters

Coordination between the networks is essential even outside disasters or outbreaks. Though there are regular meetings among the EMT of hub hospitals, this has not been the case between the hub and satellite network. The hub hospitals of the Valley have also been regularly conducting mock drills and simulation exercises.

3.3. Good practices

Table 7: Good Practices of Bagmati Province

- The hub hospitals have a remarkable number of specialized human resources that can be mobilized during disasters and emergencies. Timely simulation exercises enable health workers to always be prepared for disasters and emergencies; this helps reduce deaths during major disasters.
- Some hub hospitals have emergency and charity funds for disaster response; these were utilized during disasters and emergencies.
- The PHEOC has already been set up and we are initiating the establishment of dispatch centres.
- Currently, we have 598 functional ambulances, out of which 228 have GPS.
- The physical infrastructure for four ambulance dispatch centres (in Kathmandu, Dhulikhel, Dhading, and Hetauda) have already been built. Training and orientation programmes for district ambulance management committees, ambulance owners, drivers, and health workers are ongoing.

3.4. Challenges and ways forward

Table 8: Challenges and ways forward of Bagmati Province

| Challenges | Ways forward |
|---|---|
| There is a need for proper documents to guide the Hub and Satellite Hospital Network. | We are working towards updating the hospital disaster/emergency preparedness and response plan with the help of the HSI+ application. |

| | |
|---|--|
| Our efforts have been affected due to the lack of hospital and network specific plans, and the absence of a proper ICS with defined roles of members. | It is imperative to organize capacity building exercises for the health workers of the network. |
| The absence of a robust, real-time, and integrated information system during COVID-19 has affected hospital preparedness for response. | There is a need to increase the frequency of meetings between the hub-satellite network to improve coordination and communication. |
| - | As mentioned earlier, we have made efforts to strengthen pre-hospital care by establishing dispatch centres. |
| - | Frequent drills and simulation exercises and trainings on preparedness and response readiness should be organized. |
| - | There is a need for standard and uniform referral mechanisms between the hub-satellite network and also among hub hospitals. |
| - | The hub hospitals outside Kathmandu Valley should ensure they have a stockpile of emergency medical supplies. |

Presented by Ima Narayan Shrestha, Secretary, Ministry of Social Development, Bagmati Province

4. Gandaki Province

Gandaki Province has two hub hospitals—Dhaulagiri Zonal Hospital and Pokhara Academy of Health Sciences—and 27 satellite hospitals. The satellite hospitals were selected on the basis of the following criteria:

1. Location: Preferably on the periphery of hub hospitals
2. Minimum capacity: 15 beds (including government, district, army, police and APF)
3. Adequate open space to set up camps
4. Earthquake-resistant building structure
5. 24/7 emergency service
6. Human resources:
 - A. Availability of consultants, MDGP, orthopaedic surgeon, etc
 - B. Departments that are unavailable in hub hospitals

(Government hospitals are considered satellite hospitals even if they do not have the requirements mentioned in criteria 1 and 6)

4.1. Experiences of the network

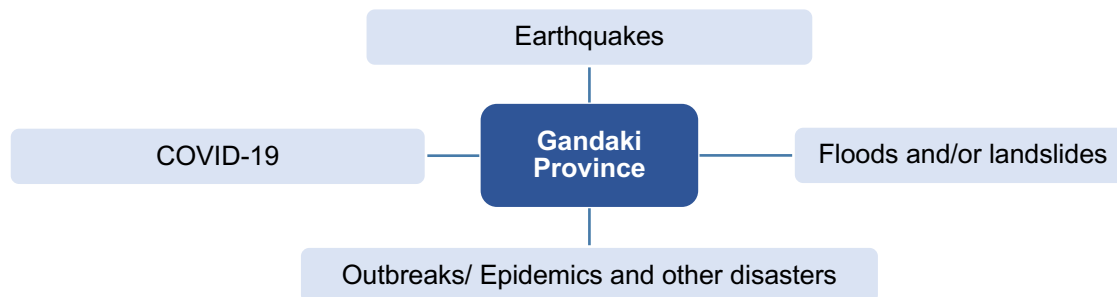


Figure 5: Experiences of the hub-satellite hospital network in Gandaki Province

The experiences of the province during emergencies and disasters are mentioned in detail below:

4.1.1 Earthquakes

During the 2015 earthquake, Pokhara Academy of Health Sciences already had a disaster plan in place, so it was easily implemented into action; the mobilization of health workers was smooth and prompt as well. The institution did not have to refer its patients to other hospitals and all cases were adequately treated. However, due to a lack of proper networking, there were many referral cases with no prior information from the districts. This led to a shortage in the medical stockpile. Both hub hospitals deployed their health resources to the affected sites: Gorkha and Lamjung.

4.1.2 Floods and/or landslides

During the flood in Manang and landslide in Myagdi, the hub hospitals provided medicine and food supplies. Similarly, during the Badigad flood in Baglung, the district hospital and Burtibang PHC deployed their health resources.

4.1.3 Outbreaks/epidemics and other disasters

Our information system is regularly updated with health-related issues and we are constantly analysing the data that comes through the HEOC. Pokhara Academy of Health Sciences and other medical colleges have been actively involved in mass casualty management of road traffic accidents. We have also been using helicopters to air lift high-risk pregnant mothers.

During the dengue outbreak in Pokhara, the communication and coordination between hub and satellite hospitals was very effectively seen in case reporting, management, and risk communication. Likewise, during the influenza-like outbreak in Gorkha, the hub hospitals deployed their medical personnel. The district hospitals provided support during the scrub typhus and measles outbreaks in Gorkha. Furthermore, PAHS supported in managing cases during the mushroom poisoning in Kaski.

4.1.4 COVID-19

During the COVID-19 pandemic, Pokhara Academy of Health Sciences and the Infectious and Communicable Disease Hospital were the hospitals handling more than 4500 cases. The HEOC played the role of a communication bridge for the referral of patients. However, the inadequacy of human resources was still prevalent, and this caused the disruption of essential services.

Formal coordination with satellite hospitals and the PHEOC was minimal. Direct referrals without prior information resulted in poor patient management. Adding to matters, the hospitals did not share sufficient information on the available facilities for referral.

4.2. Activities besides health emergencies and disasters

The emergency referral mechanism was supported and coordinated through the PHEOC, and focal persons were allocated for hub and satellite hospitals.

Pokhara Academy of Health Sciences conducted a meeting with its satellite hospitals to discuss the formulation of a critical care training package for the health workers of 11 district hospitals. In addition to this, another meeting was held to share the experiences of the hospitals and the issues they faced.

A hub-satellite and HEOC/PHEOC network interaction programme for coordination, preparedness, and response was conducted in Dhaulagiri Hospital. Also, the hub and satellite hospitals were involved in two major simulation activities:

- Nepal Pacific Resilience Disaster Response Exercise and Exchange (organized by Nepal Army)
- Disaster Management Training (organized by MoIA)

4.3. Good practices

Table 9: Good practices of Gandaki Province

- The Hub and Satellite Hospital Network collaborated well to allocate human resources for orientations and trainings and develop guidelines and protocols.
- Medical personnel were assigned to respond to a 1092 hotline named 'Hello Doctor'.
- Ambulance dispatch centres were established.

4.4. Challenges and ways forward

Table 10: Challenges and ways forward of Gandaki Province

| Challenges | Ways forward |
|--|---|
| There were issues in coordination for the provision of services between private and government hospitals | Funds should be increased for hub-satellite activities. More emphasis should be given to drills and table-top activities. |
| The allocation of roles and responsibilities in the hub and satellite hospitals are unclear, which is causing confusion in coordination. | The disaster plan for hospitals should be timely updated, buffer medicines should |

| | |
|--|---|
| | also be in place, and EMDT and RRT should be readily available. |
| Hub hospitals do not have designated personnel to coordinate with satellite hospitals. | If the telemedicine service is utilized more efficiently in the hub-satellite network, the quality of information will be improved and hospitals with low human resources will be able to seek help from other hospitals. |
| The network will be strengthened if hub hospitals have a separate budget to conduct coordination activities with satellite hospitals every three months. | |

Presented by Dr. Shreeram Tiwari, Secretary, MoHP, Gandaki Province

5. Lumbini Province

In establishing the Hub and Satellite Hospital Network, the main focus has been on the five areas of disaster management: mitigation, preposition, preparedness, response, recovery and rehabilitation through coordination and communication. The GoN has formed nine clusters to work in disaster management. Among them, the PHEOC of Lumbini Province has been functioning as the technical expert, coordinator, and facilitator of the Health, Nutrition and WASH cluster. During the COVID-19 pandemic, this PHEOC performed remarkably in relocating, mobilizing, and managing both external and provincial resources for proper disaster response.

Lumbini Province has four hub hospitals: Lumbini Provincial Hospital, Rapti Provincial Hospital, Rapti Academy of Health Sciences, and Bheri Hospital.

5.1. Experiences of the network

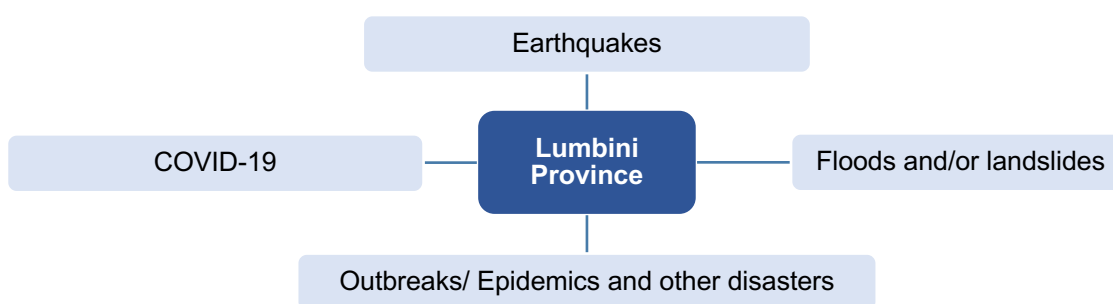


Figure 6: Experiences of the hub-satellite hospital network in Lumbini Province

The experiences of the province during emergencies and disasters are mentioned in detail below:

5.1.1 Earthquakes

Lumbini Province has not recorded major earthquakes. Despite this, we have been practicing preparedness activities like simulation exercises and medical repositioning in hub hospitals.

5.1.2 Floods and/or landslides

We have coordinated with local levels for health facility status updates. We were also involved in the surveillance of possible outbreaks in affected areas. In addition to this, we have prepared the Monsoon Preparedness and Response Plan 2079, where we have mentioned 33 workplans that fall under the area of health, along with the working protocol.

5.1.3 Endemic diseases and cholera outbreak

A dengue outbreak took place in 2019. Lumbini Provincial Hospital treated the patients, and those that were serious were referred to Kathmandu for further treatment. Snake bites are another prominent emergency. In such cases, our hospitals have saved numerous lives with the help of advanced life support and critical care life support.

During the cholera outbreak in 2021, the PHEOC took the lead in its response and management. The provincial team was mobilized with WHO and lab personnel. During the outbreak, the incident site was Krishnanagar municipality, Kapilvastu. While majority of the patients were treated in a local hospital named Shivraj Hospital, some of them were referred to district hospital -Taulihawa hospital or Lumbini Provincial Hospital. The hub hospital –Lumbini Provincial hospital provided logistics and human resources support to the local hospital. All three levels of government played a significant role in the cholera outbreak management and recovery. In order to prevent such outbreaks in the future, we have launched an oral cholera vaccination campaign, which completed its second round by vaccinating 62% of the total population.

5.1.4 COVID-19

Lumbini Province performed extraordinarily in the management of the COVID-19 pandemic. We set up four separate hospitals as COVID-19 dedicated hospitals by further managing human resources, logistics, and consumables. This ensured the continuity of essential services provided by the hospitals. Public-private partnership was at its finest during the management of the pandemic as we took the approach of reciprocity.

One of the good practices during the pandemic was that we generated 583 sanctioned positions in the 4 COVID dedicated hospitals.

5.2. Activities besides health emergencies and disasters

We hold regular meetings with the incident command committee of all provincial and federal hospitals. The PHEOC has been diligently carrying out preparedness activities by relocating resources and providing stockpiles. It has also been effectively carrying out “infodemic” management by checking facts and verifying rumours. There is also a COVID-19 monitoring committee that conducts periodic monitoring in the hub and COVID-19 hospitals.

5.3. Good practices

Table 11: Good Practices of Lumbini Province

- The Lumbini Hospital referral system app was developed with the aim to connect hospitals within the province.
- A COVID-19 management steering committee was also formed.
- The coordination between the hospitals during referral played a significant part in the treatment of COVID-19 cases.
- With the lead of the PHEOC, we developed a COVID-19 preparedness and response plan where we included a “worst case scenario” analysis.
- We have been conducting coordination meetings with APHIN, NAN, and other stakeholders. We conducted virtual meetings on the resource mobilization of the hub-satellite network, along with cluster meetings for the activation of the hub-satellite mechanism.
- The PHEOC was involved in regular media monitoring, briefing and reporting during COVID-19. A sign language translator was also included in the media briefing with an aim to reach all.

5.4. Challenges and ways forward

Table 12: Challenges and ways forward of Lumbini Province

| Challenges | Ways forward |
|--|---|
| The main requirement is the strengthening of the PHEOC itself with permanent structure and TOR. Unless this is ensured, the hub-satellite hospital networking is not possible. | The network needs more advocacy to increase awareness among a larger proportion of health workers. |
| The most lingering challenge is the lack of understanding about the function of the hub-satellite hospital network. Such confusions are prominent among health workers. | We should encourage the practice of conducting regular meetings among the hub-satellite hospitals and also between the hub hospitals and the PHEOC. |
| The referral system should be strategically maintained. | There is a need for HOPE training in most hub and satellite hospitals. |
| The province has very few A and B grade ambulances, due to which we have been unable to reduce the number of untimely deaths. | The network needs period resource mapping, along with disaster preparedness plans in each health facility. |
| There should be a separate financial resource for the operation of the network. | - |

Presented by Dr. Pushpa Raj Poudel, Focal person, PHEOC, Lumbini Province

6. Karnali Province

Karnali Province has 11 satellite hospitals and two hub hospitals: Province Hospital Surkhet and Karnali Academy of Health Sciences (KAHS). Five district hospitals fall under the catchment area of Province Hospital Surkhet. In the case of KAHS, Dolpa and Humla are within its network although they do not fall under its catchment area. Public health emergencies in these two districts are either managed locally or referred to Nepalgunj or Surkhet.

6.1. Experiences of the network

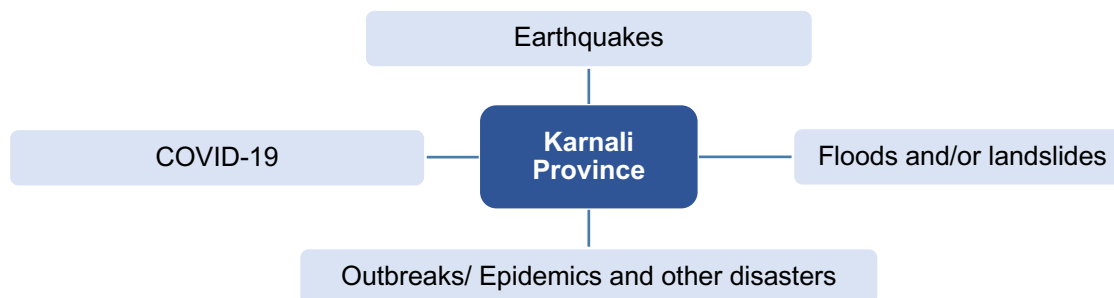


Figure 7: Experiences of the hub-satellite hospital network in Karnali Province

The experiences of the province during emergencies and disasters are mentioned in detail below:

6.1.1 Earthquakes

During the 2015 earthquake, Karnali Province faced minimal damage to healthcare facilities. Any damage was managed locally, without the need for major activities.

6.1.2 Floods and/or landslides

Karnali Province is at high risk of floods. One of the biggest incidents took place two years ago in 2020, in Kalikot and Jajarkot. During this emergency, incident information about the magnitude of the affected population was relayed to the hub hospitals. Locally manageable cases were handled by satellite hospitals, and very few cases were referred with prior information. Alongside, health camps were organized in the affected areas.

6.1.3 Outbreaks/epidemics and other disasters

Other disasters include road traffic accidents and cholera outbreaks. During these situations, less severe cases are managed by satellite hospitals and critical cases are referred to hub hospitals. There is also a practice of deploying specialist doctors to satellite hospitals as per need during disasters.

During the cholera outbreak in 2018, the health directorate and provincial hospitals deployed teams of health workers. Referral was made to hub hospitals, and health camps were organized in the affected area.

6.1.4 COVID-19

During the pandemic, Province Hospital Surkhet had major caseloads as satellite hospitals referred all COVID-19 cases to the hub hospital. But later, with proper communication, we established that only severe cases would be referred to the hub hospital, while low to mild symptom cases would be managed by the satellite hospitals themselves. In addition to this, there was an exchange of logistics, such as test kits and other necessary equipment. Laboratory personnel were also deployed on a need-basis. We even provided telemedicine services to satellite hospitals.

A prominent activity during the pandemic was transforming the entire facility of West Rukum's district hospital into a COVID-19 dedicated hospital while utilizing private hospitals for its regular services.

6.2. Activities besides health emergencies and disasters

We have set up a mechanism for emergency referrals that take place on a need-basis; it is functional between hub and satellite hospitals. With regard to meetings, although they are held as per need, we have not yet been able to organize a proper meeting. Simulation exercises involving both hub and satellite hospitals are also yet to be carried out.

6.3. Good practices

Table 13: Good Practices of Karnali Province

- The cooperation between the hospitals in allocating human resources for technical support is one of the best practices within the network.
- Twenty-five strategic locations, where teams along with doctors were deployed, were selected based on the risk of COVID-19 and geographical accessibility.
- During the second wave, the provincial government allocated an adequate budget (including for ambulances and air-lifting) for COVID-19.

6.4. Challenges and ways forward

Table 14: Challenges and ways forward of Karnali Province

| Challenges | Ways forward |
|--|--|
| Only one-third of the human resources have permanent positions. While this has caused hindrances in providing routine services, the problem is exacerbated during public health emergencies. | An SOP is needed for the smooth functioning of the hub-satellite network. Along with this, there is a need for a consolidated disaster response plan for hub hospitals to work with satellite hospitals. |

| | |
|---|---|
| There is a lack of proper documentation of cases that are being referred to hub hospitals from satellite hospitals. | An EMDT deployment plan that includes all the different medical service specialists should be developed. |
| Satellite hospitals have difficulty retaining patients who prefer to go to hub hospitals even without referral. | There is a need to strengthen the capacity of hub hospitals to set up and operationalize temporary field hospitals. |
| It had been difficult to provide quality service due to the lack of channelizing of support for human resources, medicine, and medical equipment. | Adequate funds should be allocated for hub and satellite hospitals to carry out coordination activities and simulation exercises. |
| - | Hub hospitals should facilitate training and orientation to the human resources of satellite hospitals. |
| - | There is a crucial need to form EMDTs and identify reserve (surge capacity) EMDTs. |
| - | The EMDT and other health workers should be given regular training and orientation, simulation exercises, and disaster drills. |

Presented by Dr. Rabin Khadka, Director, Health Directorate, Karnali Province

7. Sudurpaschim Province

Sudurpaschim Province is a disaster-prone area. Landslides, floods, and forest fires occur annually.

This province has three hub hospitals: Seti Provincial Hospital, Mahakali Provincial Hospital, and Dadeldhura Hospital. Seti district has the largest population, but it lacks the required infrastructure and human resources. Therefore, this issue should be addressed as a priority in order to properly manage health emergencies and disasters.

7.1. Experiences of the network

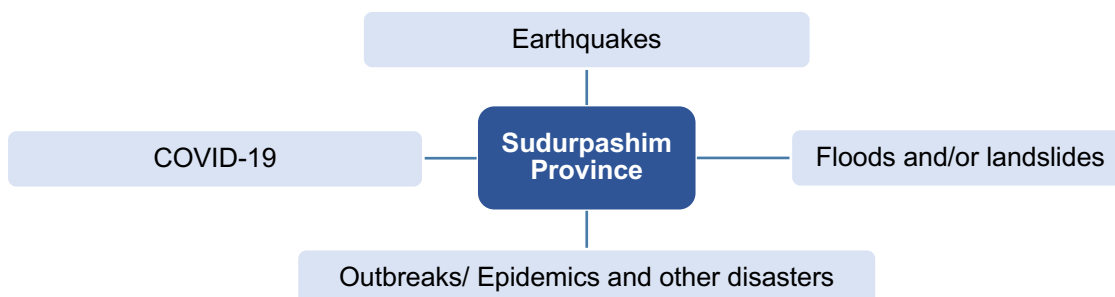


Figure 8: Experiences of the hub-satellite hospital network in Sudurpaschim Province

The experiences of the province during emergencies and disasters are mentioned in detail below:

7.1.1 Earthquakes

Although the 2015 earthquake did not majorly affect the province, we have been emphasizing on disaster preparedness.

7.1.2 Floods and/or landslides

This is a recurring disaster. While the Hub and Satellite Hospital Network has done some work, there is a lot of room for improvement.

7.1.3 Outbreaks/epidemics and other disasters

The Hub and Satellite Hospital Network has been active in other disasters as well, but, once again, a lot is needed in our performance. Another issue is the fact that all other disasters tend to be handled similarly to floods and landslides.

7.1.4 COVID-19

We were unprepared even for the most basic of requirements, such as masks and PPEs. More severe cases were referred to hub hospitals. There was an oxygen crisis during the second wave but we were able to manage it through the hub hospital supply chain.

7.2. Activities besides health emergencies and disasters

Coordination meetings are held frequently between hub and satellite hospitals, and emergency referrals are made from satellite to hub hospitals on a regular and need basis.

Besides this, the hospitals are engaged in preparedness activities, such as developing preparedness plans, managing logistics and human resources, and capacity building. But, so far, simulation exercises have been held only once in the province.

7.3. Good practices

Table 15: Good Practices of Sudurpaschim Province

- There was good coordination between the hub-satellite network during the pandemic.
- The hub hospitals properly managed the oxygen supply chain.
- The hub hospitals were able to perform a large number of COVID-19 tests.

7.4. Challenges and ways forward

Table 16: Challenges and ways forward of Sudurpaschim Province

| Challenges | Ways forward |
|--|---|
| The foremost requirement is the strengthening of the PHEOC. Unless this is done, the hub-satellite network will not function in a proper manner. | The hospitals, especially the emergency division, need to be strong and efficient. |
| The PHEOC does not have permanent or temporary sanctioned positions. Instead, it is being operated by WHO staff. The frequent turnover of personnel has led to a lack of adequate skilled human resources. | Warehouse management and maintenance in hub and satellite hospitals should be supervised by the Province Health Logistic Management Centre. |
| The budget currently allocated to the PHEOC is not enough to carry out extensive activities. | The PHEOC should be strengthened, and additional human resources should be allocated to make the Hub and Satellite Hospital Network more functional. There should also be a proper division of work among the three levels of government. |
| The hub and satellite hospitals should internalize a sense of ownership over their resources. They should make optimum utilization of the resources. | |

Presented by Dr. Jagadish Joshi, Director, Health Directorate, Sudurpaschim Province

Plenary Session 1: Province 1, Madhesh Province, Bagmati Province, and Gandaki Province

Panellists

Dr. Anuj Bhattachan, Secretary, Province 1, Ministry of Health

Mukti Narayan Sah, Chief, Health Service Division, Ministry of Social Development, Madhesh Province

Maheswor Shrestha, Director, Provincial Health Directorate, Bagmati Province

Dr. Shreeram Tiwari, Secretary, MoHP, Gandaki Province

Questions

Mr. Gyan Bahadur Basnet, Director, Health Directorate, Province 1

Even though we haven't been working for a long time, we have been working in constant conjunction with Koshi Hospital, BPKIHS, and Mechi Hospital in Province 1, and MoHP, Province Health Directorate, as well as PHEOC. Despite the fact that PHEOC has been involved in this collaboration for a long time, the hub hospital will not have a job to fulfill if the satellite hospitals do not have space to perform. It is my belief that, despite performing continuous work, the hub hospital will not have space to do their part if there isn't one. There is a lack of proper coordination in communication, coordination, staffing, and stockpiling. There is a need for prompt action and management in readiness and response activities, along with widespread monitoring and ranking. Health facilities have coordinated well, but there is still a need for prompt action and management. A malpractice occurs once a disaster has been handled, as a result of forgetting the experience or losing the knowledge or manpower for future potential disasters.

Dr. Ashis Shrestha, Focal person, PAHS

Hub hospitals are asked to provide data frequently. But the same data is requested in different formats each time. This costs us a lot of time and human resources. How and where is the data used? How is it processed? And how does it affect our future activities?

Dr. Uday Narayan Singh, Disaster Focal Person, Narayani Hospital

The integrated emergency service is a huge undertaking. But before taking on a project of its scale, we must first assess and understand our reality. The foremost factor that needs to be assessed is the condition of the physical infrastructure where the service is provided. Also, it is of utmost necessity to make sure all emergency department staff are adequately trained. At present, 80-85% of the emergency staff are untrained, and we are compelled to provide the service only with the help of paramedics. Another issue is the lack of ambulances, hearses, and drivers. These pre-hospital services and training to emergency health workers should be the top priority if any kind of plan is being made.

Dr. Krishna Prasad Poudel, Me. Su. Bharatpur Hospital

The physical infrastructure where emergency services are provided should be designed in a manner that makes it easier to triage the area. The HEOC or PHEOC must provide on-site PTC and advance trauma life support courses rather than just organizing it in Kathmandu.

In government hospitals, the ICS has not been properly operated because of the absence of designated officials. Currently, only senior doctors are operating the system, but they are only available in the hospital from 10 am to 3 pm. What about the hours after that? Accidents can happen anytime. Also, the 'One Doctor, One Hospital' policy has not yet been implemented.

Similarly, only junior staff have been working on the hospital command system and disaster plan. What is their credibility and service quality? How can we manage disasters when the least experienced and least qualified workers are in charge of disaster management?

The HEOC and PHEOC should take the lead in organizing training courses at the exact location of the hub hospitals. Besides, they should ensure that necessary training courses, such as trauma training, are also available.

Who is responsible for the disaster plan? Is it the senior doctors, who are mostly absent, or is it the old paramedic staff, who no longer work there? Or do we need to mobilize the nurses? Maybe it is possible to involve the nurses in disaster planning and not only during the provision of services.

Dr Sharad Chandra Baral, Physician, Pokhara Academy of Health Sciences, Gandaki Province

How is the BiPAD portal system being used in the hub and satellite network in Province 1? How did Madhesh Province respond to methanol poisoning? What were the protocols that were followed? Thirdly, since Bagmati Province has the greatest number of satellite hospitals, how is such a big network being managed?

Dr. Yadu Chandra Ghimire, Director, NHTC

I think we require a standard and uniform training package on a national level so that none of the health workers are left behind. Site-based training is being practiced in Bir Hospital, while Pokhara has been practicing institution-based training. Regarding critical care training, we have trained 4000 health workers at their own institutions. Furthermore, providing a training of special courses in all provinces in a simulation-based format—with resource tracking of trainers, infrastructure, and budget—will reduce the cost of the activity.

Dr. Shyam Sundar Yadav, Chief Specialist, MoHP

The most important aspect of this network is coordination and communication, and its mainstay is resilience. If there was proper coordination and communication, how was it done? How many meetings were held? We know that not all hospitals have adequate manpower, but I want you to share how you utilized the available manpower to make your services resilient.

Insights from the panellists

Dr. Anuj Bhattachan, Secretary, Province 1, Ministry of Health

From the *Jana Andolan* to the COVID-19 pandemic, we have accumulated numerous experiences. In Province 1, the PHEOC is being run under the supervision of the province secretary. There has been remarkable coordination between Koshi Hospital and the provincial MoHP.

First of all, I would like to support Dr. Ashis's opinion. When we need data on the health emergency situation of a province, it is not easy to get the exact picture. The data is not properly managed. However, there have been efforts to improvise the information system in a dashboard format. Moving on to Dr. Krishna, I think that leadership is the most important factor for emergency management. The leader should have the capacity to understand the importance of the situation and time, and make prompt informed decisions to mobilize resources. Lastly, I would like to put forward the need of HOPE training in our province. I would also like to mention that telemedicine services should be made the top investment priority in the field of emergency and disaster management.

Dr. Mukti Narayan Sah, Senior Health Administrator, Madhesh Province

Data is an integral part of any experience and management system; hence, it should be actual. Addressing the query, yes, poor physical infrastructure is a lingering challenge. Along with this, the lack of ambulances and vehicles to transfer dead bodies posed a big problem during the COVID-19 pandemic. But we addressed that problem by allocating a separate budget for the said vehicles in each hospital.

To address the query of methanol poisoning, we managed the outbreak by following the 10 steps of Outbreak Response. First of all, we confirmed the situation and then we communicated with the respective municipality through phone calls and even letters. We also coordinated with the MoHP, provincial and local government, and the police. Then, we reached the source of the outbreak and shut down the alcohol production place. After this, the legal issue was looked after by the police. We transferred the patients exposed to the chemical to Janaki Medical College and Janakpur Provincial Hospital. Lastly, awareness programmes are needed to further prevent similar incidents.

We also conducted weekly cluster meetings during COVID-19 where all hub and satellite hospitals were involved. It was led by the PHEOC.

Maheshwor Shrestha, Director, Health Directorate, Bagmati Province

I would like to address the question regarding the lack of training for emergency department staff in the context of Bagmati Province. We have started the training for doctors and other health workers involved in basic health services and emergency services as mentioned by the Constitution of Nepal. The training started from government hospitals and, gradually, it will reach private and community hospitals. Additionally, starting from the next fiscal year, we will be providing Standard Treatment Protocol training to a large number of doctors and paramedics working in emergency services.

We have also sped up the activities of the dispatch centre. The building is ready, and the human resources have already been trained. We have a detailed database of the 598 ambulances of all districts in the province. We have plans to strictly implement the GPRS system in all the vehicles. Save the Children is providing us with around 90 GPRS and we will purchase the rest ourselves. So, the four dispatch centres will be functional soon. There will also be a control room to monitor the ambulances 24/7, and it will be staffed by a medical doctor.

What's more, we have been conducting orientation programmes for the District Ambulance Management Committee in all concerned districts. We also have an orientation programme for ambulance owners and drivers regarding the installation of GPS. We have two types of orientation programmes for all 598 drivers: one-day orientation on GPS installation for those that have received the EMD training, and both EMD and GPS installation training to those that have not received any training. The estimated expense for these orientation programmes is NRS 29 lakh 50 thousand.

We also have a plan to develop a short promotional video clip involving national figures. It will be about how the public can reach the ambulances in case of emergency by dialling 102. We are looking forward to your feedback on our activities.

About the management of the large network of hub and satellite hospitals in Bagmati Province, we are still to build a strong and effective coordination mechanism. I am looking forward to the fact that this conference will provide us with a framework of the mechanism to further foster the work of this hub-satellite hospital network. Moreover, the essence of coordination and communication as mentioned by Dr. Yadav is being maintained by the concerned districts of Bagmati Province, even in the initiation of the four dispatch centres.

Dr. Shreeram Tiwari, Secretary, MoHP, Gandaki Province

I would like to address the opinion of Dr. Yadav regarding the training. During the first wave of COVID-19, when we did not have any protocols for its management, we collaborated with Gandaki Medical College and Pokhara Academy of Health Sciences and conducted a two-day training. But later, the province started following the protocol to provide training after it was made available from the NHTC. We have been providing PTC and BLS training through our own training centre and also through Red Cross Society. Finally, I would like to mention that we are planning to impart the same training to the medical staff working in the emergency and dialysis departments of every satellite hospital.

Closing remark of Plenary Session 1 by Dr. Dipendra Raman Singh, Director General, Department of Health Services, Teku, Kathmandu

Seeing a strong health system at work has given me a sense of positivity and hope. After this two-day Hub and Satellite Network meeting, we will have a plan to set a direction. We must accept that we are not starting from scratch, but rather with an established foundation. Because disasters are so unpredictable, Hub and satellite hospital networks function as emergency services. We must be clear about what and how it operates to help save lives. We've learned a lot from two large catastrophes. In 2015, an earthquake took place, and in 2020, a virus outbreak occurred. We are still fighting the -virus outbreak. If we do not learn from these two distinct disaster experiences, we will be unprepared for future unknown hazards. Everyone has been able to come together and put the pieces of the puzzle together to create a nice picture for our future here at this conference. For instance, it's my belief that we should think about deploying human resources in disaster situations in a more thoughtful way. Doctors who work tirelessly, away from their family and their timely replacement, must be cared for. EMDT could be an option, but its leadership must be carefully monitored. It's all about our own experiences in sharing. We have 25 main hospitals and lots of satellites, and we have to understand them better. Many good policies exist, but we struggle to implement them. We've recently added palliative care and rehabilitation to the Public Health Act. We have EMDTs, CICTs, RRTs, and a variety of other initiatives. To accomplish what we need to do every day, all aspects must be incorporated.

Plenary Session 2:

Lumbini Province, Karnali Province, and Sudurpaschim Province

Panellists

Dr. Bikash Devkota, Secretary, Ministry of Health, Population and Family Welfare, Lumbini Province

Mr. Krishna Prasad Kapri, Secretary, Ministry of Social Development, Karnali Province

Dr. Jagdish Joshi, Director, Ministry of Social Development, Sudurpaschim Province

Questions

Dr. Ashis Shrestha, Focal person, PAHS

How are the hub-satellite hospital networks managed? And how have you been managing the ambulance network in Lumbini Province?

Dr. Krishna Prasad Poudel, Me. Su. Bharatpur Hospital

We are aware that the hub-satellite hospital network has proven to be very effective, especially during the COVID-19 pandemic. However, there is no proper referral mechanism surrounding this network. In other countries, there is an established referral system, which prevents the patient-flow from being high in specialist services. But in Nepal, almost all hospitals have specialists in OPD who can be easily visited by patients. This has decreased the quality of patient diagnosis. Therefore, I think improving the referral mechanism and integrating it in accordance with the hub and satellite concept would ensure better quality of treatment.

Dr. Madhav Prasad Lamsal, Senior HA, NHTC

How are the hub hospitals linked with each other? Especially in the context of Karnali Province, how are Jumla and Surkhet provincial hospitals linked?

I also have a suggestion: if the PHEOC had a proper working structure, its current work would be more sustainable.

Dr. Pragya Singh Basnet, Me. Su. Rapti Academy of Health Sciences

I just wanted to share an experience rather than pose a question. Our hub hospital looks after nine satellite hospitals, the majority of which are private hospitals. In our experience with them, we have not witnessed a sense of ownership and communication on their end. Our hub hospital has always been doing its most for the satellite hospitals, while the satellite hospitals only request support from hub hospitals. There has been no actual coordination between this network.

The second experience is about our facilities, or lack thereof. Recently, our hospital's emergency facility was damaged because of flooding. And we are a hospital that gets mass casualty cases of road traffic accidents. To add to matters, our facility does not have ambulances. During the COVID-19 pandemic, we were compelled to transport our patients in autorickshaws provided by the Rotary Club. But the problem was that the fare had to be paid by the patients themselves. There have been talks about ambulances and GPS systems, but for an institution like Rapti Academy of Health Sciences to not even have an ambulance is really a matter of indignity.

Dr. Uday Narayan Singh, Disaster Focal Person, Narayani Hospital

The ambulance service initiated by Lumbini Province is a really good first practice in Nepal. You have categorized the ambulances in the GPRS tracking system, how have you been managing it? Have you been following the guidelines for the types of ambulance vehicles?

Dr. Binod Kumar Giri, Director, Health Directorate, Lumbini Province

The work done by the network could be better digitalized. The presentations today were more on the qualitative side. There should be a proper information system to track the activities and data, and the HEOC should be able to link all the hospitals into the system. So, I would like to request that there be a health emergency information system of the HEOC where all information from all three levels of health facilities is uploaded. Only then will we be able to work in a proper mechanism.

Dr. Manish Subedi, General Physician, Mechi Hospital

I would like to mention one of the challenges of this hub-satellite hospital network. Mechi Hospital has been selected as a hub hospital but I am doubtful if the hospital even fulfils the selection criteria because we are a 10-bedded facility. Our hospital has only eight medical officers (or staff????), and only one is a scholarship bond officer.

I once encountered a student of mine who was working at a PHC near Kathmandu Valley. Through him, I found out that there were five medical officers at the PHC, while there is only one medical officer in a zonal hospital like ours (as one officer mentioned here). How is this possible? How will this lead to the

development of hub hospitals? Does the ministry have any criteria on the number of medical officers to be deployed to a PHC, district hospital, or zonal hospital?

A solution to this issue might be changing the requirement for the two year-bond to a year in PHC and another year at a district/zonal hospital.

Insights from the panellists

Dr. Bikash Devkota, Secretary, Ministry of Health, Population and Family Welfare, Lumbini Province

The ambulance system in Lumbini Province does not have many technical aspects to it; it is simple and effective. There are a total of 120 ambulances in this system. The drivers of the ambulances have the app installed on their phones. They are required to be online 24/7, and we have been reimbursing them for the mobile data used during the process. We also have a reference room in the directorate where the staff monitor the ambulances in the system 24/7. In case anyone requires the ambulance service, they can call us on a dedicated number. Once the monitoring staff receive the call, they check to see which of the ambulances are available and at the closest proximity, and they dispatch the vehicle to the said location. Now as for the question about the linkage of the system with hub hospitals, I do not think hub hospitals are linked to the ambulances on the same app.

Mr. Krishna Prasad Kapri, Secretary, Ministry of Social Development, Karnali Province

Humla and Dolpa have no connection with KAHS Jumla. Provincial Hospital Surkhet is the hub for the two districts. Since Karnali is the largest province in Nepal and has a very scattered population, our work has been difficult. The connectivity between the hospitals has always been a challenge. The roads are not accessible and are prone to traffic accidents; meanwhile, air services in Karnali are the rarest in the country. Furthermore, we face issues with electricity and Internet as well. Combined, all these factors make it challenging for KAHS Jumla to make their services reach the health facilities of Humla and Dolpa. Therefore, we have decided to strengthen the capacity of Provincial Hospital Surkhet to extend their services to both Humla and Dolpa.

We should question our health institutions' capacity, motivation, and strength to provide quality services, along with its sustainability.

Provincial Hospital Surkhet has been receiving support from the central and provincial governments for its capacity building so that it can also look after the services of its satellite hospitals. In this manner, we should be able to provide adequate human resources, equipment, and other logistics to hub hospitals so that the service can be extended to satellite hospitals. I think the hub-satellite hospital network is most essential in Karnali Province because it is meant to support facilities with less accessibility during and beyond emergencies and disasters.

We had also submitted a proposal to the Government of Nepal for a special grant of NRS 10 crores to strengthen the telemedicine and e-health services; however, we received only seven crores. We have also proposed to mobilize specialist services in KAHS for the coming fiscal year.

Once the provincial hospital is reinforced, further support can be provided to KAHS, and their resources can be optimally utilized. One thing about KAHS is that they have the human resources but lack adequate finances. But the provincial hospital is low in both human and financial resources; therefore, it needs further support from the Government of Nepal.

Lastly, I wish the declaration passed at the end of this conference will pass a certain framework on the standard and collective workload of the hub and satellite hospital network. Also, there is a need for a province-specific plan so that the emergencies can be addressed more effectively and, on a need-basis.

I think we should look at the hub and satellite network from a comprehensive point of view so that it can be utilized even in regular services.

Dr. Jagdish Joshi, Director, Ministry of Social Development, Sudurpaschim Province

We all believe that the PHEOC needs to have a certain structure. The foremost factor in making a sustainable structure in PHEOC is sanctioned positions. But the question is where should it be placed? In my opinion, it would be better if the PHEOC works under the health directorate.

The staff structure too must be efficient. Currently, our province has only one staff member from WHO working at the PHEOC. This does not ensure sustainability of our work. It would be better if the government could create permanent sanctioned positions right away. If not, at least temporary positions could be allocated to carry out further work.

Lastly, I would like to add to what Mr. Giri mentioned about the information system. I also second his opinion that we are in need of a proper health information system. The HMIS and DHIS 2 systems are in use and the reporting in those systems is satisfactory, but we fall short in recording. All the hospitals should have a uniform EHR system for proper documentation and recording.

I would also like to add that Sudurpaschim Province has recently started an ambulance dispatch centre under the direction of the health directorate. I hope we will be able to operate the ambulance service soon.

Closing remark of Plenary session 2 by Dr. Guna Raj Lohani, Chief Specialist, MoHP

The hub and satellite system were created in the 1950s by Delta Airlines as a hub satellite system. It was used for transportation logistics and communication beginning in the 1970s. It was also used in the late 1970s to coordinate and connect healthcare providers. It is not a new or innovative concept; instead, it is a communications and coordination framework that enables us to perform our jobs efficiently. The hub and satellite concept were first endorsed by the Nepali government in 2072 and began in 2072. It is a scheme to efficiently utilize our limited resources to save as many lives as possible. There are countless lives to be saved, requiring the support of hospitals such as Hub hospitals. We must identify their training requirements, focal persons, logistics help, etc. It is also helpful for disaster response to make use of the best available resources. There is no opting out from being part of this system for anyone because the primary function of any health institution (government or private) is to help save lives. I remember one incident in Nuwakot hospital where one patient was taken to OT and was ready for amputation, the focal person coordinated with doctors in Kathmandu and brought the patient. The doctors later concluded that the amputation was not necessary. There are many instances where coordination through this network proved to be very helpful. For example, during the COVID-19 pandemic, the network saved many lives. While it may not have reached every province, every place in its full-fledged function, we are hopeful our continuous efforts will get us there. For example, the emergency line 102 for the ambulance was new back then, but we adapted to it, and it is a sound system now. Similarly, we will adapt, improvise and make this network functional. Networking is vital, and we each have a responsibility to be part of this hub satellite network to make it functional.

Case Scenario – Panel 1 (Gandaki and Karnali Province)

Table 17: Emergency Case Scenario for Gandaki and Karnali Province

No. of injured: 100

No. of dead: 20

Context: A sudden storm occurs, and people are evacuated, but around 200 people still remain to be rescued. There is no electricity and communication networks are down. By evening, the worst part of the storm is over. The army and police then send rescue teams and request nearby hospitals for support.

Where? Fewa Lake in Gandaki Province and Rara Lake in Karnali Province, both of which are major tourist attractions.

In this scenario, and amidst the COVID-19 pandemic, the following actions were considered by Gandaki Province.

1) **Verify and convey the information**

Firstly, information about the incident will be received at the Emergency Department at Pokhara Academy of Health Sciences through the army and the police. Then, the information will be verified (type, anticipated number of patients, and time of arrival). This is important as hospitals often receive false information.

Once verified, the information will be relayed via walkie-talkie to the disaster focal person (the hospital director/hospital incident commander)

2) Deploy Emergency Medical Deployment Team (EMDT)

The EMDT will reach the incident site and carry out triage in coordination with the already present rescue teams. The results of the field triage will be based on colours: Red - 50, Yellow - 40, and Green - 10. The team coordinator will coordinate with hub and satellite hospitals (GMC, Fewacity, Charak, Metrocity) via walkie-talkie, and ensure the proper transfer of cases in phases according to field triage (Red followed by Yellow followed by Green)

Dead bodies will be kept in a separate area and, based on their capacity, transferred to the hub hospitals.

The incident commander will communicate with the Provincial Health Emergency Operations Center (PHEOC) and the HEOC. Satellite hospitals will be contacted and updated information—regarding the cases and activity—will be collected. A press meeting will be organized for formal briefing and a situation report will be prepared. Furthermore, hospital incident command system (HICS) committee members, the EMDT, the Medical Counter Measures team, and the hub focal person will meet to review activities in accordance with the plan.

3) Inform the respective departments for coordination

The operation officer (head of department, emergency) will be contacted to secure triage areas, provide updates on bed status, and communicate with other departments for manpower availability within the emergency room. The logistics officer (paramedic head, emergency) will ensure that resources are in place and help in coordination with the store and pharmacy. The planning officer (matron) will collect data, manage duty shifts, and analyse the response activity in accordance with plans. The communication officer (stat head) will work closely with the operation officer, make a list of the victims and their status, and post on the notice board of the emergency. They will also provide a copy to the hospital's telephone enquiry, and communicate with police and media. The security officer (head, Group 4) will coordinate with local police to control crowds. Finally, the finance officer will record financial issues.

4) Activate HICS

Two of Gandaki Province's hub hospitals—Western Regional Hospital and Dhaulagiri Hospital—will activate the necessary protocols. The three main hospitals that will be activated are Gandaki Medical College (GMC) Teaching Hospital, Manipal Teaching Hospital, and Western Regional Hospital. Information can also be conveyed to the police hospital and satellite hospitals (with 50 beds or more).

Since the province does not have a communication system, sirens can possibly be used to alert other hospitals. Additionally, a meeting can be set up to assign roles to members.

5) Deactivate HICS

After the dissemination of information, the HICS will be deactivated with a resolution to meet for cold debriefing.

(Presented by the Director of Pokhara Academy of Health Sciences, Dr. Bharat Bahadur Khatri)

Similarly, the following actions were considered by Karnali Province.

1. Confirm incident and activate Emergency Operating Centres

Nearby hospitals should be informed as soon as possible. These include Mugu Hospital, Kalikot Hospital, Karnali Academy of Health Sciences (KAHS), and Karnali Province Hospital (KPH).

2. Primarily manage cases by sending EMDT/rapid response team (RRT)

From Mugu Hospital, the EMDT/RRT will leave for the site, which is at a distance of four hours by road. KPH and Kalikot Hospital are also several hours away, which further adds to the difficult situation. The army and police will send rescue teams and ask for assistance from Mugu Hospital. An EMDT will be called from KAHS, with requests for PPE and sanitizers.

The army will provide primary treatment to injured victims, while the EMDT will give additional treatment. If possible, victims will be air lifted by helicopter.

For serious triage, cases will be primary managed and possibly air lifted to KAHS. Patients will be separated according to colour: Red, Yellow, and Green. Red and Yellow patients will be prioritized and transferred to Mugu Hospital using whatever means necessary; Green patients will be treated at the site, and dead bodies will be transferred to hub hospitals the next day. This responsibility should mainly be given to the army or the police.

There will not be delays in primary treatment, and patients will be sent to KAHS as soon as possible. Patients requiring neurosurgery will be referred to Nepalgunj Medical College and KPH as KAHS lacks neurosurgery services. Patients that are stable will be treated at Mugu Hospital.

Mugu Hospital has only 15 beds and 100 personnel. Hence, they will have to work in shifts. This situation will require major preparations. After triage, patients will be sent to KAHS and Kalikot Hospital, and will be treated there if they are manageable. As mentioned earlier, patients requiring neurosurgery will be sent to Nepalgunj or Surkhet.

3. Activate HICS

Extra help will be requested from local people, local hospitals, and hub hospitals, including Tribhuvan University Teaching Hospital (TUTH) and the National Academy of Medical Sciences (NAMS). These hospitals will be contacted if patients require neuro or cardiac surgery, although neurosurgery services are also available in Surkhet and Nepalgunj.

This will be followed by the recording of information and communication.

4. Document and report to the Emergency Operating Centres

The report will document every action taken; it will be an analysis for managing similar situations in the future. The report will be sent to the Health Emergency Operating Centres.

The major challenges in Karnali Province are the unfriendly geographical conditions, along with limited manpower and resources.

(Presented by the Emergency Incharge, Provincial hospital, Surkhet, Dr. Padam Giri)

Following the presentations, feedback was provided by personnel from other hospitals in the Hub and Satellite Hospital Network.

Table 18: Feedback for Panel 1

| | |
|------------------------------------|--|
| <p>General feedback</p> | <ol style="list-style-type: none"> 1. We need specific disaster plans for floods, fires, and storms, along with modification plans as per the nature of the disaster. The disaster in itself does not need confirmation. The focus of communication should be oriented around patients and health workers. In addition, planning officers of both hub and satellite hospitals should work out a plan after communicating the needs of casualties and health workers. (Dr. Ashis Shrestha, Focal person, PAHS) 2. A better option in this case would have been to provide detailed and elaborated steps on the management of the scenario (Prof. Dr. Pradeep Vaidya, Assistant Dean, IOM) 3. The services need to be coordinated by the PHEOC and properly assessed. The incident manager should refer only after need analysis, and referral should be based on availability. (Dr. Samir Adhikari, Chief, HEDMU/HEOC, MoHP) |
| <p>For Gandaki Province</p> | <p>Communication mechanisms should be set in case of slow information flow. In-person message conveying is not practical during such a disaster; a better alternative would be to use devices carried by police personnel. (Dr. Ashis Shrestha, Focal person, PAHS)</p> <ol style="list-style-type: none"> a. The plan could have had more practical strategies and efforts. b. Disasters are unpredictable, but we can install preventive measures, such as software that predicts storms. c. The police can act as a communication bridge between hub and satellite hospitals. But the question is on the practicality of using them as such, given their own roles and responsibilities during any disaster. The use of walkie-talkies could also be difficult, given our prior experiences. For instance, the devices could be jammed. For evacuation, it is also wise to look at multiple alternatives, such as motorcycles. d. During this disaster, the emphasis should not have been only on the casualties near the lake, but also in the general population area as there could be other emergencies. e. Proper on-site management, including training, is necessary to deal with major issues. (Prof. Dr. Pradeep Vaidya, Assistant Dean, IOM) |
| <p>For Karnali Province</p> | <p>The best option might be to use the proper communication channel and wait for the storm to subside before transporting patients. (Dr. Ashis Shrestha, Focal person, PAHS)</p> |

- a. Airlifting via helicopters has to be properly planned and executed since neither hospitals nor the PHEOC can order them for rescue efforts. Therefore, prior coordination with the army is important.
- b. A central commanding centre is needed to prevent loss of time.
- c. Armed forces with Medical First Responder and CSR training would be great assets during incidents in difficult geographical region. The army has the training and equipment to stabilize casualties.
- d. The EMDT has to be provided with good equipment in case efforts take a longer time. (Prof. Dr. Pradeep Vaidya, Assistant Dean, IOM)

Case Scenario – Panel 2 (Province 1 and Sudurpaschim Province)

Table 19: Emergency Case Scenario for Province 1 and Sudurpaschim District

| | |
|------------------|---|
| Context: | During the Dashain festival, a bus carrying 70 passengers falls 200m off a hilly road. The site is only reachable by foot. Passers-by inform the police about the accident. The police then contact the closest district hospital and provide them the details: 20 dead, 20 with serious multiple injuries, and 30 with minor injuries. |
| Location: | A hilly road |
| Route: | Khotang to Biratnagar in Province 1/ Dadeldhura to Dhangadi in Sudurpaschim Province |

In this scenario, and amidst the COVID-19 pandemic, the following actions were considered by Province 1.

1. Confirm the scenario and deploy EMDT

Accessible roads and intact communication will make it possible to transfer the victims to the hospital via ambulance. But with the vehicle having fallen 200m below the road, help will be needed from the local people, the police, and the army to carry up the injured patients. The 30 people with minor injuries can be treated at the accident site. The EMDT from Koshi Hospital can treat minor injuries.

Triage will be conducted at the site to assess the injuries, while a quick antigen test will also be conducted to separate patients with COVID-19. The 30 minor injured patients could also be managed by the district hospital and those requiring further treatment will be referred to Koshi Hospital. The 20 seriously injured can be taken to Sunsari Hospital and Inaruwa Hospital, both of which are en route.

2. Activate HICS

At the hub hospital, triage will be performed again for the 20 seriously injured patients. Different departments in the hospital will be informed and consulted for co-ordination, while satellite hospitals with multispecialty services will also be contacted.

Sunsari Hospital and Inaruwa Hospital are well-equipped and can manage the 20 serious cases. The emergency team (doctors, nurses, paramedics) will be informed and made to stay on standby. Meanwhile, the dispatch centre will be activated, and the ambulance and dead body van will be contacted for rescue purposes. The patients will be sent to nearby satellite hospitals. Information will also be conveyed to the medical superintendent and emergency in-charge of Udaypur District Hospital.

Within 200m from Koshi Hospital, there are six satellite hospitals that have more than 50 beds. But it is important to consider the load they can manage during COVID-19, and the number of ICU beds available. Currently, there are 24 ICU beds in Koshi Hospital, which also has neurosurgery services. Beyond this, patients will have to be referred to other hospitals.

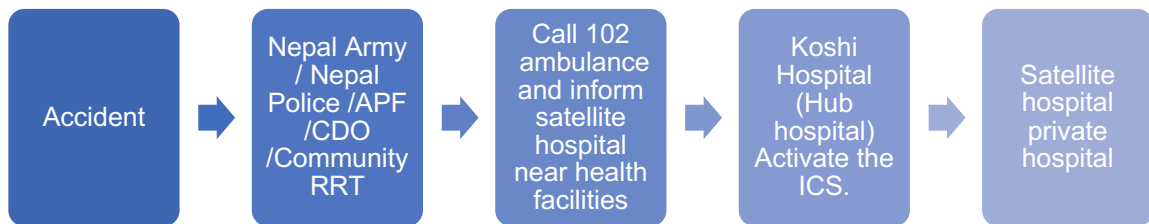


Figure 9: Action flowchart of Province 1

Presented by Dr. Yagya Raj Kharel, Me. Su., representative from Koshi Hub Hospital, Province 1

Similarly, the following actions were considered by Sudurpaschim Province.

1. Confirm and verify incident

The accident is assumed to have occurred at a distance of around 30 km from Dhangadhi. The nearest hospital is Seti Hospital. There are a few private hospitals nearby, while Mahakali and Seti Provincial Hospital are 60 kms away. The incident will be confirmed through the ICS.

2. Primarily manage cases by deploying the EMDT/RRT

Trained security personnel will be required to bring casualties and the injured up to the road. Primary treatment and triage will be conducted on all patients. After triage, patients will be taken to Seti Hospital via ambulance due to its proximity to the site.

Related and concerned departments will be informed of the incident, after which the focal person, paramedic team, nurses, and anaesthesia assistant (carrying necessary equipment) will leave for the site. Security personnel will be in charge of dead bodies.

Patients will be further surveyed, and serious patients will be categorized. Some may have head or thoracic injuries. At first, cases will be primarily treated at Seti Hospital, after which they will be referred to other hospitals. Referral will only be done after confirming the need and availability in other hospitals.

3. Activate HICS

Once the HICS is activated, the emergency focal person will have a major role in communication. The incident commander will liaise with various departments to deploy the EMDT and will be in contact with the PHEOC and the HEOC. Security personnel and other high-level authorities will be contacted for dead body management.

4. Debrief and document

The programmes will be debriefed after they are conducted. Emphasis will be given to cases that require follow-up for a long time or those that require rehabilitation. For future reference, proper evaluation will be done on the limitations and the areas that require improvement. Such documentation and evaluation will be helpful to manage future incidents as a hub hospital.

Presented by Dr. Sher Bahadur Kamar, Hub Coordinator, Seti Provincial hospital

Following the presentations, feedback was provided by personnel from other hospitals in the Hub and Satellite Hospital Network.

Table 20: Feedbacks from Panel 2

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| General feedback | <ol style="list-style-type: none">1. It is extremely important to focus on the on-site management of the accident (including triaging), taking note of the time—since the accident and since information was transmitted. Emergencies like these should first be managed at the community level, then the pre-hospital level, and finally at the post-hospital level. More active pre-hospital activities may save more lives. Triaging and re-triaging needs to be a continuous process. System activation and the chain of command between hospitals needs to be established and followed. In this regard, the MoHP can help by providing a clear directory on the chain of command. (Dr. Ramesh Kumar Maharjan, Chief Emergency Medicine, Teaching University Teaching Hospital (TUTH))2. Actions should also be planned in consideration of the timing of the incident. The planning process might be affected during Dashain period which is when hospitals may have a lower number of health workers due to the holiday period e.g. at reduced functionality or “at skeletal workforce”. (Dr. Allison Gocotano, Team Leader, WHO)3. Stakeholders, including hub and satellite hospitals, have a major role in reducing on-site deaths. The public, ambulance drivers, and health practitioners should have basic related knowledge. The four-to-six-hour window after an accident is critical, and many die in geographically difficult regions. As an orthopaedic spine surgeon, I know that it is sometimes better to treat patients on-site rather than quickly transporting them to hospitals. In one particular spine surgery case, an accident victim could initially move their hands, but later lost function after being transported to the hospital. Proper awareness and training and giving patients basic care during the golden hour can be crucial during such times. (Dr. Krishna Prasad Poudel, Me. Su. Bharatpur Hospital, Bagmati Province) |
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4. In risk management, it is equally important to manage the media and the crowd at the accident site. (Dr. Mukti Narayan Sah, Chief, Health Service Division, Ministry of Social Development, Madhesh Province)
5. Micro-level details on system activation and other plans would be helpful. (Dr. Madhav Prasad Lamsal, Senior HA, National Health Training Center, Teku, Kathmandu)
6. The system for disaster management should be put into practice rather than just regarded as theory. When accidents, such as in this scenario, take place during the COVID-19 pandemic, antigen and other testing protocols need to be aligned with national guidelines, and health workers should focus on keeping themselves safe first. When deploying the EMDT, we should also consider the specific equipment required for on-site emergencies, keeping the pandemic in mind. Diverting patient flow according to the availability and need of patients after triage would help save time. In addition, there should be clarity on how EMDTs are formed, and whether or not the rescue team should wait for the EMDT at the accident site. If not, the rescue team will probably send the patients to the hospital via random vehicles, without triage. If this happens, there will be an unexpected flow of patients at the hospital. The patients will then need to re-triaged and sent to other hospitals. (Dr. Ashis Shrestha, Focal person, PAHS)
7. My experiences with air accidents, including the US-Bangla Airlines crash, shows the importance of drills for better practiced response in emergencies, especially transportation. Transporting patients after labelling them seems to be a critical problem since they cannot reach the hospital on time, and so lives end up being lost. We have experienced several other problems: in one case, a patient was lost for three days, and in another, the airport did not involve the HEOC as a command system. The pre-hospital, hospital, and post-hospital care is very important and we need to strengthen the system. (Dr. Dinesh Lamsal, Hub coordinator, Civil Hospital)
8. The need to conduct hazard mapping is extremely important for hospitals to prepare for accidents or storms. A trauma team—with a surgeon, orthopaedician, neurosurgeon, and anaesthetist, at the very least—and necessary equipment bags for the EMDT should be made available. In case of emergencies, the concept of 'Stay and Defend' should be practiced to stabilize equipment, rather than 'Grab and Run'.

With proper Emergency Medical Technicians (EMT) in ambulances, patients have a 90% survival rate. At a minimum, ambulances should have one doctor, collars, a spinal board, and PPE for infection control. They should be readily available in case of accidents or storms. The roles of all personnel in the proper emergency system should be known and followed. It is also important for collaboration—between community members, police, rescue team, medical persons, hub coordinators, satellite hospital members, and the EMDT. Further, the PHEOC should manage

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| | <p>security, the media, VIP concerns, and overcrowding. (Prof. Dr. Pradeep Vaidya, Assistant Dean, IOM)</p> |
| <p>Response from Province 1</p> | <p>The presentation was based on a theoretical scenario, but the feedback is appreciated. In trauma management, the golden hour is very important. Once the PHEOC is activated, proper transportation can be managed, and more patients can be saved during the golden hour. Patients with fractured legs can be brought in after those with spine injury. Sometimes, when an accident takes place and many have been injured, real triaging should be conducted in satellite hospitals by the EMDT because the golden hour can be lost if triaging is done on-site. Only then should patients be sent to hub hospitals for the required services. And of course, continuous reassessment is also important.</p> <p>Koshi Hospital can be hard to reach for media personnel because of its distance. In the case of VIP and media management, this can be done by satellite hospitals.</p> |
| <p>Response from Sudurpaschim Province</p> | <p>We only had a short time to prepare and deliver the presentation, but we have delivered to the best of our ability. The disaster plan was narrowed down, but the responsibility of disaster management should not be limited to only hub or satellite hospitals. Every health organization, NGO working in the health sector, PHC, clinic, and hospital should contribute and take ownership. The focus should not only be on the roles of hub and satellite hospitals. Instead, disaster response should also be on whichever institution is closest to the incident.</p> |

Case Scenario – Panel 3 (Province 2 and Lumbini Province)

Table 21: Emergency Case Scenario for Province 2 and Lumbini Province

Context: Heavy rainfall has caused floods in two villages of a municipality that shares a border with India. There is more rain in the forecast. The health infrastructure of the municipality and most of its medical stock are underwater. Flood victims are living in small camps in neighbouring villages, and a majority are suffering from loose stool and vomiting.

In this scenario, and amidst the COVID-19 pandemic, the following actions were considered by Province 2.

1. Confirm the ground scenario

First of all, along with the confirmation of the incident, the condition of the people living in the camps will have to be understood to plan a better response.

2. Initiate information coordination and communication (internal/external)

Communication will immediately begin with the HEOC, PHEOC, satellite hospitals, and ambulance dispatch centre. The HICS logistics officer will make available different logistics, medicines, and other equipment. The communication officer will handle all communications, and the security officer will ensure the safety of the patients. Since the COVID-19 pandemic persists, standard safety precautions will be followed. In addition, coordination and communication with satellite hospitals and the PHEOC will continue.

3. Activate the HICS and deploy the EMDT

After that HICS is activated, the EMDT, consisting of three or four members, will be deployed to the site for rapid triage and treatment. Those that require further treatment will be taken to the hub hospital. There, the operations-in-charge will decide on whether to admit or discharge the patients. If admitted, the availability of beds will be checked. The plan for resource distribution will be according to the patient flow. If needed, hospitals can turn on their sirens to alert people.

The possibility of acute gastrointestinal problems might lead to a cholera epidemic. Therefore, patients will be separated and kept in isolation. A triage officer will send the patients to different departments, depending on the need and upon unavailability of beds in the hub hospital. Satellite hospitals will be contacted, where patients will be transferred for treatment or if there is a shortage of beds.

4. Start post-disaster documentation

After the disaster, all information will be updated to the HEOC. The information will include the number of patients at satellite hospitals and their status. The HICS will sit for a meeting and logistics will be discussed for actions and possible improvements in future responses.

(Presented by Dr. Uday Narayan Singh, Disaster Focal Person, Narayani Hospital)

Similarly, the following actions were considered by Lumbini Province. In this case, the scenario was considered to be fitting for Banke district.

1. Verify information

Verification will be done through the police officers at the hospital, the district administrative office, or the district police. The impact of the disaster on the area will also be assessed. Verification will follow a bottom-up approach, and all forms of communication—whether onsite, hospital, or district—will follow the ‘One door’ policy. Drones will be used to better assess the situation.

2. Activate the HICS and mobilize the EMDT

The hospital will activate the HICS after verifying the incident. Following its activation, the EMDT will be mobilized to the site. The DHO will also be coordinated, and the RRT will be deployed. Alternative means of transportation will be used in case motor vehicles are not feasible. For example, boats will be used to ferry health workers and transport equipment.

A temporary safe site will be managed by the team to check stool and water samples. If the forecast shows more rain, local people will be transferred to nearby schools. For this, cooperation will be needed with security forces and social welfare organizations. Food and medicine will be managed by the health team, all while following COVID-19 safety protocols.

3. Coordinate with required stakeholders

The EMDT will provide Minimum Initial Service Packages to patients. If the situation continues to worsen, patients will be air lifted. This will require coordination with the CDO and home ministry. Boats could be another alternative. Healing materials and medicines can be sent to the health centres by drones. Another important issue that will be prioritized is dead body management.

4. Prioritize treatment and preventive efforts

Water, sanitation, and hygiene (WASH) awareness is crucial during such disasters. Clean water tends to be scarce, so clean water transportation is necessary, and chlorine tablets will be used to purify water from hand pumps. Importantly, community members that are unaffected and with no symptoms will be made aware about prevention methods.

Female community health volunteers (FCHVs) will be mobilized since all patients do not have to be taken to the hospital. In suspected COVID-19 cases, antigen test kits will be provided, and patients will be isolated. Positive patients will be quarantined and serious cases will be taken to the hospital. Depending on its feasibility, a vaccination drive can be organized for unvaccinated people.

Public health and social measures will be implemented to provide quality care and services.

The victims, after they are rescued, will be kept separately and continuous triaging will be performed on the basis of their symptoms.

5. Start briefing and documentation

Regular briefings are a must. Cold and hot briefings will provide information, and proper informational channels will decrease chances of miscommunication and overcrowding. Occasional briefings, at least every hour or so, will help the public and everyone concerned stay updated. The gathering of crowds can lead to violence, so family counselling is also important.

After outbreak management efforts, cold briefing will include mortality and morbidity rates. These and all learnings will be presented in the report, which will be compiled and disseminated with mitigation plans focusing on the management of future disasters.

Presented by Dr. Prakash Bahadur Thapa, Senior Consultant Ortho surgeon, Bheri Hospital

Following the presentations, feedback was provided by personnel from other hospitals in the Hub and Satellite Hospital Network.

Table 22: Feedbacks for Panel 3

General
feedback

1. There is a difference in the roles and responsibilities of the RRT and EMDT. The emphasis should be on the RRT during an outbreak, since it includes a public health manager and lab. Along with the vaccination drive, the focus should also be on patients with daily medicine needs. And while family counselling is important, psychosocial counselling is also required for the post-disaster scenario. Additionally, maternity kits can be provided but maternity conditions also need to be checked. (Dr. Chuman Lal Das, Director, Epidemiology and Disease Control Division, Teku, Kathmandu)

2. Similar to the EMDT and RRT, the roles of the PHEOC and HEOC also differ. Their responsibilities and management teams are different, and both have well-established guidelines.

In the case of trauma, there are orthopaedic surgeons, whereas outbreaks have infectious disease medical persons. Hospitals and labs are necessary during outbreaks, with the PPHL as the concerned agency. Diseases need to be diagnosed through lab tests. When the whole modality is different, you cannot just rely on the EMDT. The EMDT needs to be sent during trauma disasters and the RRT during outbreak management. WHO has provided a 10-step guideline for outbreak management, and it needs to be followed. The EMDT and RRT have different treatment modalities so there is a need to incorporate the two in the HEOC. Case management has been done during floods but it has not been successful. So, WASH activity is extremely vital. Cholera outbreaks will continue until proper hand washing and toilet-use habits are practiced in every household. The province and local level need to work actively towards this end. (Dr. Binod Kumar Giri, Director, Health Directorate, Lumbini Province)

3. There are multiple other sectors that respond to disasters. For example, different UNICEF clusters look after drinking water as they support logistics for water purification. Timely collaboration through the HEOC will help us in our outbreak response and the efforts do not have to be diluted. Concentrating on only one sector will make focusing on it easier, and the resources will be adequate. Another example that is helpful for this outbreak scenario is that WFP has placed boats and other rescue materials, in coordination with the district administration. If it is mobilized through the HEOC, then we can also have access to them. Similarly, UNFP has coordinated and placed different kits as it has communication clusters for risk communication. With intact communication between the hub coordinators and the PHEOC, it will be easier to amount the available resources that can be mobilized during the rescue process. (Mr. Damodar Adhikari, NPO, WHO)

4. In monsoon, when there is continuous rain and the high possibility of water-related disasters, it is better to link and coordinate with authorities that provide drinking water facilities. This will help reduce caseloads when regular logistic supplies run out. (Dr. Madhav Prasad Lamsal, Senior Health Administrator, NHTC)

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| | <p>5. While different aspects of public health actions, including risk communication and stool and sample collection, are required in such a scenario, it might be interesting to further explore the linkage between RRT and EMDT. For example, the provided scenario is an early case where loose stool has been detected. In this, RRT would be deployed first for the purpose of case investigation. What would happen if the situation suddenly escalates and leads to severe cases of dehydration? This may likely require the deployment of EMDTs and in that case coordination between RRT and EMDT will need to be in place. Referral mechanisms from displacement camps to receiving hospitals would be important for severe cases to have the appropriate medical counter measures. Additionally, from the public health perspective and surveillance site, the initial cases are only located in the small camps. In addition to what has already been mentioned, it would be important to also check if there are cases reported for neighbouring villages that are hosting the flood victims. (Dr. Allison Gocotano, Team Leader, WHO)</p> <p>6. It would be a good idea to evacuate locals to a safer place every year during the floods. There are two ways to combat floods: one is to build a wall, which is impossible, and another is to let the first floor of the building be submerged and move people to the second floor. With early planning, pre-flood notifications could be given to people living in areas prone to flooding. GIS is very important in the HEOC and PHEOC. It can show the level up to which the flood will arise within 24 hours and provide details of the nearest health facility and available support. (Prof. Dr. Pradeep Vaidya, Assistant Dean, IOM)</p> |
| <p>Response from Province 2</p> | <p>Trauma and outbreak teams are important in every disaster, making the RRT crucial as patients are already in the campsite. Moving locals to safe spaces, such as schools and colleges, is not done by the hub hospital. They can communicate with the PHEOC, which can activate other agencies regarding the needed facilities, whether it is vaccination or immunization. So, the network actually needs a definite role for hub hospitals.</p> |
| <p>Response from Lumbini Province</p> | <p>The EMDT can be from the hub hospital or it can be a collaborative team from satellite hospitals. In contrast, the RRT is deployed from the DHO. The EMDT can prepare a temporary health site or use school buildings to screen and treat patients. Other factors, such as WASH, maternity and other services, are handled by the RRT.</p> |

Case Scenario – Panel 4 (Bagmati Province)

Table 23: Emergency Case Scenario for Bagmati Province

Severely injured: 10
Moderately injured: 20
Minors injured: 30
Dead: 10

Context: An aircraft crash lands due to a wind shear while touching down at the airport. It comes to a rest 700 meters from the terminal. The aircraft is on fire and severely damaged, and debris is widely scattered over the runway and surrounding areas. The airport authority informs the health desk about the incident.

In this scenario, and amidst the COVID-19 pandemic, the following actions were considered by Bagmati Province.

1. **Activate HICS**

The HICS will be activated. Then, search and rescue operations will take place.

2. **Deploy EMDT/RRT**

Pre-hospital care will be carried out with adequate coordination and communication between the HEOC, PHEOC, dispatch centre, DEOC, Hub and Satellite Hospital Network, and blood banks. The deployment of hospital EMDT/local or district RRT teams from the Hub and Satellite Hospital Network, and municipality/district will commence after the activation of the information system.

The closest hub hospitals from the airport are Civil Service Hospital, TUTH, Bir Hospital, and Shree Birendra Hospital. The area also has satellite hospitals. However, the most glaring gap in the Hub and Satellite Hospital Network in Kathmandu Valley is the omission of Kathmandu Medical College (KMC) as a hub hospital. KMC, in fact, is closest to the airport.

The management of cases will begin with first aid. Patients with minor to severe cases will be sent to the hospitals, while following COVID-19 guidelines.

Furthermore, case audits and reviews of statistics will be conducted, and a hospital spokesperson will be designated to handle the crowd and the media. Additionally, patient management will be carried out. Daily updates will be submitted to the MoHP.

All dead bodies, with proper tags, will be transferred for post-mortem to TUTH-IOM. The police will coordinate with relatives to facilitate dead body recognition and disposal. The HICS will be activated if required.

3. Ensure communication, co-ordination, and on-site triage

The first responder will evaluate the scene and ensure the safety of rescuers and patients. The number of casualties will have to be redefined, and on-site triage (START- simple triage and rapid treatment) will be conducted. Emergency medical dispatchers and additional support will be provided as well.

Ambulances will be arranged according to the number of casualties through coordination with the dispatch centre. Then, the centre will coordinate with the hub and satellite hospitals closest to the accident site. Next, the casualties will be transported to the hospitals. They will be distributed according to severity; severe cases will be taken to the closest hub/satellite hospital and re-triaged.

Communication with hub and satellite hospital is necessary to manage COVID-19 patients, and evacuation of existing patients at ER wards will be requested. Emergency medical dispatchers at the Provincial Dispatch Centre will be asked for additional support.

4. Start documentation and de-briefing

The incident summary will be documented, while ensuring insurance details. Constructive feedback will be recorded for future cases.

Presented by Col. Dr. Kumar Roka, Hub Coordinator, Army Hospital

Following the presentations, feedback was provided by personnel from other hospitals in the Hub and Satellite Hospital Network.

Table 24: Feedback for Bagmati Province

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| General feedback | <ol style="list-style-type: none"> Accidents happen but we should always be prepared. Health workers, in particular, cannot make excuses by citing the unfamiliarity of the situation. COVID-19 was unprecedented, but health workers worked through it, learned, and improved. Aviation accidents are also similar; the response has to be planned in advance. The US-Bangla Airlines crash and other incidents have taught us to view such exercises as means to improve our action response. (Dr. Samir Adhikari, Chief, HEDMU/HEOC, MoHP) |
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2. A health desk is present at the airport. If such an incident occurs, reports will reach the staff at the desk. In emergency cases, there is no need to wait for the EMDT since the health staff at the airport will already have commenced triaging. The deployment of RRTs is not required.

Rather than question, I have few additional remarks. The list of satellite hospitals needs to be reviewed by the HEOC or the PHEOC. One of the responsibilities of hub hospitals is to coordinate and communicate. There is no question of power; everyone has equal authority to respond to health disasters. We are categorized into hub and satellite only to make communication and coordination strong. There is no difference between any institution in patient management and responsibility. (Dr. Ashis Shrestha, Focal person, PAHS)

3. How can we grade or label disasters? How do we know the right number of hub hospitals that need to be involved? How many satellite hospitals do we need to involve? Similarly, what is the required number of human resources and logistics? That is another task we need to work on. We have to create protocols or guidelines. (Dr. Ramesh Kumar Maharjan, Chief Emergency Medicine, Teaching University Teaching Hospital (TUTH))

4. Each province has an airport, and we now have new international airports as well. But almost half a decade has passed since an emergency drill was conducted in Kathmandu. What is the role of the NEOC or HEOC in health-related disasters and emergencies? Emergency drills need to be conducted in places with airports, and should involve provincial authorities and hub hospitals. And what is the role of the Nepal Airlines Corporation (NAC)? (Dr. Binod Kumar Giri, Director, Health Directorate, Lumbini Province)

5. The Nepal Centre for Disaster Management has SOPs that label disasters from levels one to four. It clearly mentions the agencies responsible for taking action. This should be taken into account to make disaster response easier.

7. Internationally, we categorize disasters into three levels: local, national, and international. The number of hubs that are to be activated depends on the capacity of the hub hospital. For example, if Hub A has enough capacity, then Hub B only has to stay alert for required support. Our plan response could follow this method. (Mr. Damodar Adhikari, NPO, WHO)

6. We think about health when we talk of disaster. There are four levels of disaster as per the Disaster Risk Reduction Act. It states that up to 10 casualties will be handled by the local level, and 10 to 100 by the province. The national government will be involved in cases with over 100 casualties. Bigger disasters will involve the international level. We do not have an accurate estimate of the required human resources. If help is needed, it is the local level that steps in first, followed by the province. We have talked about specific disasters, but anything can be a disaster. The local level is active in road traffic accidents. We have LEOCs in every municipality that are active and deploy RRTs.

Every accident needs health staff to conduct triage; if not, other people need to be given training. This was not the case at a fire incident in Taplejung, where a health team was completely absent. As for floods, alerts should be established during the monsoon season. (Dr. Sangita Rai, Focal person, PHEOC, Province 1)

7. Globally, there are three levels, but Nepal has four levels of disaster: local, provincial, national, and international. But even if casualties number below 10 but are serious, then it might need to be addressed by the national level. If 10 neurosurgeons are required, the situation cannot be managed by the local level alone.

In airports, no one can enter without permission. Problems may arise if there is no HICS and incident management site. Then there are VIPs, media, and other health personnel whose safety also needs to be considered. The medical team should stay in a zone, and the army and police should rescue people from the plane. A burn ward is also needed. Every hospital has to do its job. The 'hub hospital' title could be just a name assigned for coordination. Stressing over it is futile. Finally, the foreign ministry also needs to be involved in the process. (Prof. Dr. Pradeep Vaidya, Assistant Dean, IOM)

8. Regarding the different guidelines in the local, national, and international context, and in terms of the standardization of the different types, the closest equivalent of the emergency medical equipment would be the emergency medical team. There are currently three types from 1 to 3, including specialized care teams. Each type has predefined capacities and there is common understanding of services available in each type. So, in this particular scenario, if we know the estimated number of casualties and that the EMDT guideline has been finalized (with specification as to services available and team composition), then we would be in a better position to plan for the appropriate number of required EMDTs. Additionally, what if the airport authority itself calls the hospitals directly? It would be important to clarify what would be the role of the HEOC and PHEOC in that scenario so that key stakeholders will have a common understanding. (Dr. Allison Gocotano, Team Leader, WHO)

Panel Discussion

Topic: Hospital Plans: Hospital Disaster Preparedness Response Plan/Mass Casualty Management Plan/Emergency Medical Deployment Plan

Panelists

- Dr. Gunaraj Lohani, Chief Specialist, MoHP
- Dr. Bikash Devkota Secretary, Ministry of Health, Population and Family Welfare, Lumbini Province
- Prof. Dr. Pradeep Vaidya, Assistant Dean, IOM
- Col. Dr. Kumar Roka, Hub Coordinator, Army Hospital

Question

Moderator (Dr. Samir Adhikari, Chief, HEOC/HEDMU, MoHP): Focusing on hub-satellite hospitals, I would like to ask Dr. Pradeep to share his opinion on our preparations for times of disaster, and the present condition of our approaches and dialogues?

Insight

Dr. Pradeep Vaidya: Hub and satellites are a very good concept. But unfortunately, in Nepal, when we come up with good concepts and start working on it, its sustainability gradually declines. Throughout this conference, we have been made aware that the focal persons in such establishments are mostly too busy to respond. The coordination among satellite hospitals is still not enough. So, our suggestion on how to move forward is for the MoHP and HEOC to make proper step-by-step guidelines for all hospitals.

For example, we have understood the concept of hub and satellites, and trainings have been given. Now, I think we should conduct practice drills on our own hub systems. Then, we will learn about the situation in our hospitals, and how the process unravels. I think such drills should be carried out once every two years. At the very least, we will learn what is happening in the satellite hospitals. Currently, it is very difficult to even identify a satellite hospital.

About changing hub hospitals, I think we should wait for at least five years before reassigning new hub hospitals. Let's work properly first, and if deemed necessary, we can always change. We will identify what works and what objectives need to be re-formed. If we start changing it every two years, it will be a short-lived policy. It will impact careers.

Imagining our families in disasters is scary. We should be prepared for disasters, but the MoHP and HEOC should provide a helping hand. It all comes down to our willingness and our attitudes toward it. Unless each hospital desires to help the community, it will be difficult to execute. My request is to move forward with this concept. We will all help you but you should also help each other.

Question

Moderator: Now, I would like to request Dr. Kumar to add more insight into what Dr. Pradeep just said. Alongside, please do connect it with how we can establish the practice of sustainability in our approaches and improve the management of drills and simulation exercises. What are your views on making our current communication more effective? How can we achieve this and what are your opinions on it?

Insight

Col. Dr. Kumar Roka: For quite some time now, I have felt that it is easier to talk about disasters than actually implement the cautions associated with it in our behaviour. From the point of view of the patient's health, we should conduct a minimum of two to three mandatory disaster drills in institutions. A special kind of curriculum should be developed by the ministry, and they should also oversee its education and implementation.

There is also a need to consider human resource networking. For instance, although we work at different hospitals, in times of calamity, we should be unified and integrated. When there is a shortage of manpower, as often happens during emergencies, human resource networking becomes necessary.

Another issue is the prescribed guideline by the Government of Nepal regarding ambulance categories, which is vague or insufficient. For patient safety, satisfaction, and earliest evacuation, all hub hospitals should be provided with category 'A' ambulances.

And of course, despite our efforts to avoid such situations, we have all experienced a scarcity of oxygen. I remember receiving a call from Dr. Bhagwan Koirala at Manmohan Cardiothoracic Centre requesting Shree Birendra Hospital for 200 litres of oxygen. It was a very critical stage where their patient would have died if oxygen was not supplied. The situation was stressful since we had shortages of our own due to our COVID-19 patients. Nevertheless, we arranged for the requested oxygen to be supplied under half an hour. So, similar to the human resource network, there should be an arrangement for oxygen networking during disaster situations.

If these four points can be included moving forward, we can look forward to better outcomes for disaster management response.

Question

Moderator: As mentioned earlier, in terms of coordination, we can manage resources and manpower in a timely manner. It was also mentioned that if drills and practice were carried out regularly, the management of this system would be easier. I will link this with what Dr. Bikash mentioned earlier. During Dr. Kumar's presentation, he talked about how we have to work together in a unified manner, how disasters are easy to explain but hard to face, and how drills are necessary. But the actual experience differs from the built scenario. So, from the province level, how can we work towards making the hub hospital network better and effective? In what ways can we re-think the process to make it better?

Insight

Dr. Bikash Devkota: As everyone here knows, the province is in between the local and the federal governments. If observed from the surface, it seems like there is a lot we can accomplish. This is because we can reach out to the local level due to their proximity in terms of programmes and geography, and we can reach out to the federal government as provincial representatives because of the existence of a forum consisting of secretaries, along with the various programmes that are organized.

As a province secretary, there are two principles in regard to this. First, the important thing is for our health institutions to provide proper and efficient services, with all necessary resources. Overall, all health institutions—from hospitals to health posts—should be strengthened. This is the responsibility of the province.

Secondly, there are various criteria and guidelines that have been presented but not all here are on the same page. This could be due to various reasons: our perspectives and levels of understanding, the documents we can access, and our involvement in the matter. The point is that coordination is easier said than done, and it comes with its own problems. This coordination can be between a hub and satellite. Since the hub is greater than the satellite, any resource gap is to be fulfilled by the hub. However, satellite hospitals also give their resources to hubs; likewise, there are many medical colleges in the satellite network along with various hospitals. The data that are collected there are mostly organized by government bodies.

In that sense, let me share the experience of Lumbini Province. Regarding the strengthening of satellite hospitals, we have been assigning doctors from various hospitals to satellite hospitals and giving them motivational factors. For the past three years, we have provided grants to strengthen our emergency system. There are separate grants for radio and imaging in laboratory services. So, these are a few ways in which provincial hospitals have been trying to strengthen satellite hospitals. Such an approach may be useful for the Hub and Satellite Hospital Network too.

Most important is the strengthening of the PHEOC. Towards this, my suggestion would be to include a temporary sanctioned position or some other post. Resources can be stored by the provincial level without interference from the federal level. Our guidelines should include some kind of structure or sanctioned post for proper coordination. A coordination focal point, of course, will be necessary.

Another issue is the absence of quarterly progress reviews on our part. The province's Ministry of Internal Affairs conducts quarterly progress reviews, but we do not. So, these two points should be made effective, and the provincial level government has been working towards it.

Question

Moderator: Dr. Devkota has mentioned the work done from the provincial level. Now I would like to direct the question to Dr. Lohani. Health institutions have been continuously working in emergencies. The hub

and satellite hospital concept may have been established to provide a better communication and coordination environment to government, non-government, and private sectors. How did the background of this come about? Did the background concept and reality align? Were we able to apply it in reality?

Insight

Dr. Gunaraj Lohani: The document for the hub and satellite concept was endorsed by the Government of Nepal in 2070 B.S. It was before the earthquake. At that time, the scenario of the country was focused on change. We were in the midst of discussions towards bringing in a federal system, and our country already had many private institutions by then. In this backdrop, the MoHP faced an overload of information, and there were time issues with management. So, in my opinion, the document's only purpose was to implement a chain of command. It was to achieve a quick and timely response and have effective management. The core principle was resource pooling among hubs and satellites. All institutions should have similar resource backup in terms of HR or equipment. The hub and satellites of a particular place work together to share resources, HR, and equipment. And as I mentioned earlier, there was a boom in private institutions and medical colleges. The concept of a PPP model was available by then.

In this conference, we have talked about the strengthening of the health system, focusing on ambulances and referrals. Earlier, those systems were in place, but they were not as effective or properly executed.

Overall, our target is to make our health system more resilient during future pandemic situations. And the hub and satellite concept started as one of the ways to achieve just that.

Question

Moderator: The hospitals that have participated in this conference have been working continuously even without properly knowing about the concept of hub and satellite hospitals. But after today, what additional approaches can we take? And on the issue of chain of command, there have been instances when big hospitals, such as Medicity and PAHS, have questioned the chain of command since they are larger institutions. How are resource pooling and mapping executed by hub and satellite hospitals? Is it to create a chain of command or just establish a communication network?

Insight

Dr. Guna Raj Lohani: It is not a matter of which hospital is bigger or smaller. This concept does not care about whose building is bigger or who has more patients. It is a matter of bearing responsibility. Since the implementation of our new constitution, we are moving towards a right-based approach. But this hub and satellite hospital concept is a responsibility-based approach. Basically, this is a government system, and the government is responsible for strengthening the overall health system of the country. We have taken this approach to fulfil that responsibility.

Questions from participants

Dr. Bharat Bahadur Khatri, Director, Pokhara Academy of Health Sciences

The hub and satellite hospital allocation is not a demarcation line, it is just a responsibility. Both are co-dependent and interrelated with each other. During disaster or emergency situations, it should not matter

whether it is a private or government hospital. Private institutions also have to adhere to the government's rules and regulations. Another point I would like to put forward is that during the COVID-19 pandemic, there was a policy that 10% service should be given free of cost. The government has not properly calculated this 10% free service. Where is the reimbursement for it?

Dr. Padam Giri, Emergency Incharge, Provincial hospital, Surkhet

During the presentations, we did not get much information regarding mock drills in other places apart from Pokhara, where it has taken place twice. It has not been done in our hospital although it is an established practice in army hospitals such as Shree Birendra Hospital. Could you elaborate on how we can conduct such drills? Who should be involved and what are the required resources? Also, as mayors are part of local bodies, what role do they play during disasters?

Dr. Sher Bahadur Kamar, Hub coordinator, Seti Hospital

Disaster, hub, and satellite are words that have been recently introduced here. We know that our national health structure consists of health posts, PHCs, district hospitals, zonal hospitals, and central hospitals. The term "hub" and "satellite" has only created confusion among health workers.

Regarding the disaster management system, there are different units in our hospitals or PHCs. Each hospital has its own emergency management plan. We have been executing it continuously, so it only requires further organization. There is no need to prepare a separate reporting system or hire additional manpower. All such resources are present in our current health system as well.

Lastly, I am confused about whether this programme is about networking or disaster management. Practically, if Bir Hospital were to activate its siren for disasters or emergencies, how many people do you think would show up? Maybe only workers from PAHS or Shree Birendra Hospital? This is because we are not aware about the role of health workers during disaster management. We might have received one or two trainings, but that is a separate issue.

Our workers are only hired on a short-term basis and are transferred frequently. Who determines the role of each health worker during disaster management? The head of any institution plays a very big role. They need to conduct a disaster management meeting with all staff and assign them their roles. Though these are present in our guidelines, they are not properly thought about.

The authorities do not actually practice employee motivation. Nor do they apply it for retaining HR. After workers give their all during emergency situations or disasters, they do not receive any form of admiration or acknowledgement for their work.

To sum up my questions:

- The term "hub" and "satellite" are confusing. Why is it necessary to give such names to hospitals?
- The reporting system is already in place so what is the usefulness of separating names such as PHEOC or HEOC? What are its advantages and disadvantages?
- How do we better manage manpower? How do we motivate and retain HR?

Dr. Ashis Shrestha, Focal person, PAHS

We have developed the hub and satellite system, which has been endorsed by the MoHP. But the state has to legitimize it legally as well because, in the future, we may not only be linked to the MoHP but other ministries as well.

Which legal documents have mentioned the concept of the Hub and Satellite Hospital Network? What is its legal status?

Insights from panellists

Dr. Gunaraj Lohani, Chief Specialist, MoHP

We have been constantly involved in emergency management. Some patients go to private hospitals or elsewhere, so the accounting is not properly managed. This concept was created to manage that chaotic accounting.

We can use other terms besides “hub” and “satellite” but our administrative structure has allocated responsibility of hospitals according to the federal, provincial, and local level.

A question that should have been raised is about the linkage between the three levels of government in terms of health. This is one approach to increase and encourage that health linkage. It is our need and it is time-tested. It is not something that was done because someone else told us to or someone else coined the words. We were somewhat successful during the earthquake and the COVID-19 pandemic, so if the system is working then we should look at it from a lens of improvement. We should focus on how to make it more effective.

The next point is about motivation. It’s not like we should not put it forward as an institutional reform, but motivation in terms of financial rewards is not easy to incorporate in health institutions. It should not affect our profession. Our responsibility is to save lives.

Moreover, there is still work to be done to make the PHEOC more managed. We are trying to follow the already established and functional process in place at the provincial levels. We should be incorporating it into one system because if the hub hospital concept and the reporting system are not merged, it will look like we are taking two parallel roads.

And to answer Dr. Ashis, this point is not mentioned anywhere in the constitution, but we did pass it legally. It was approved by the government, so our legal document is that very endorsed document itself.

Dr. Bikash Devkota, Secretary, Ministry of Health, Population and Family Welfare, Lumbini Province

I believe that it will not be suitable to reimburse that 10% service at the moment. It was the need of the hour during the pandemic. During disasters, it does not matter whether an institution is private or governmental. The situation demanded bringing all types of medical personnel—from retired professionals to those that were just registered. Both private and governmental health institutions worked equally in the same mechanism.

So, regarding COVID-19 reimbursement, we did decide to enforce it at private hospitals too, but we were unable to properly account and implement it. The government should have made a proper system, though one was in place.

Question

Moderator: How can we manage that 10% service in the Hub and Satellite Hospital Network in the coming days?

Dr. Bikash Devkota, Secretary, Ministry of Health, Population and Family Welfare, Lumbini Province

Right now, after pandemic, 10% does not seem relevant. Calamities are declared by us, and if it has a different reference, we will take a different approach. But it is necessary to remember that 10% will be available even during that situation.

Emergency situations will take place, but why I think it is necessary is because of three things: unexpected overflow of patients, the differing levels of seriousness, and the need for more resources than usual. Proper work is difficult during these situations because of the crowd and atmosphere.

And another thing, the policy and documents already include disaster management. The Hub and Satellite Hospital Network is one part of disaster management, which is included in all acts and policies.

As to why it has been divided into provinces, the reason is province-specific health-related issues. We should conduct drills and map resource requirements accordingly. This would make it easier if seen from a provincial perspective.

There are other issues that need further discussion, which we will do when platforms such as these are made available.

Prof. Dr. Pradeep Vaidya, Assistant Dean, IOM

Our hospital preparedness and response have a seven to 10-day simulation course for mock drills. There is another specialty course for those wanting to become specialists. Basically, mock drills help analyse one's work. There is no need to involve the entire hospital at once, you can analyse a particular department with small drills, and perform a real drill once every two years.

I agree that orientation is not enough. The problem is in communication—an expert explaining something tends to assume the listeners have understood everything.

The hub and satellite network is based on a scientific method, but no matter how scientific it is, it is useless if it is not practical. Our health system lacks enough resources, so in this situation, hospitals that are in proximity need to support each other. If the help is stretched out to a region, then it becomes easier. This is a very scientific approach.

The hub-satellite concept should be practiced in normal times as well. For instance, currently, the emergency at TUTH is packed and beds are unavailable. Why not involve other hub and satellite hospitals too?

Another issue that was raised was that of only government hospitals being made hub hospitals. The answer is simple: it is about a system running smoothly. For instance, government systems will run smoother in government facilities. There is less paperwork if a government order has to be implemented. And, anyway, it is the government's job to facilitate people.

Furthermore, unlike private institutions, government hospitals cannot shut down. So, all these scientific factors were taken into consideration before assigning the hub hospitals. It may not be perfect at the moment, but it can always be modified later.

Col. Dr. Kumar Roka, Hub Coordinator, Army Hospital

Shree Birendra Hospital is a hub hospital with five satellite hospitals under its wing. We gathered all five hospitals and held a meeting, shared its conclusion with the ministry and dignitaries, and conducted mock drills. To be more organized and managed, we prepared a hospital mass casualty guideline book. We also developed a course that includes various stimulation exercises. We can conduct the simulation exercises in the form of mock drills as well. Shree Birendra Hospital has been doing it twice a year, and we have been including the doctors from our satellite hospitals too.

The result has been effective and people are very motivated. This has brought a good deal of coordination and communication among the hospitals. “Hub” and “satellite” are just terminologies that should not be given much emphasis; rather, it is the concept that matters. All we need to do is work in a united manner. Additionally, social media has made it easier to create a channel of communication.

I believe the concept of logistic and medical stores at the local level is still not properly practiced. All health-related materials for disasters can be acquired from such stores, so we need to bring logistic stores into practice in a defined demarcated manner.

Further, the practice of air ambulances should be brought to government facilities. If the government makes such arrangements, our disaster response and preparedness plan will surely be improved.

As for the motivation factor, as health workers, motivation should come from within. If you feel that you are motivated, you will be successful. Aid from organizations and the government is secondary.

Dr. Gunaraj Lohani, Chief Specialist, MoHP

There are no distinctions between the local and central level, we are all part of the government. We are parts of a coordinating mechanism, where each role is important. This is necessary during disasters and pandemics, which require proper mapping and chain of command. Without it, there will be no responsible agency, which will only lead to confusion and suffering for patients.

Coordination in the federal system can improve through the hub and satellite system. This system has a step-by-step coordination process that allows open communication between different levels. Rather than asking for permission, it is more of a verification and informing process. Basically, the concept establishes a communication network that can be used during other emergencies as well.

Moderator

Adding to that, may I ask Dr. Bikash to explain more about the same mechanism that we can practice during regular conditions? When disaster strikes, there may be changes in the hospitals that do not align with the system during emergencies. So how can we create a practice that establishes a stable system at all levels of hospitals during all times?

Dr. Bikash Devkota, Secretary, Ministry of Health, Population and Family Welfare, Lumbini Province

Firstly, our PHEOC should be strengthened because that is our focal point. Secondly, the other option is regular interaction. Since we are representing parts of different provinces, the main point is how accurate and strong our hospitals are in those districts. The hub and satellite are a part of it but the problems that we have faced are happening every year. It will be better to have help from provincial governments during such situations.

And we cannot do anything if we have no data. We do not have much data regarding our activities compared to that maintained by disaster management.

Caring for patients that come to us is our job but preventing them from coming to us is also part of what we do. Our ultimate goal is not to treat patients; it is to reduce mortality. That is why it is necessary to conduct pre-hospital measures.

Similarly, we have been coordinating and communicating with the hospitals and medical colleges regularly. There are unions present in such establishments. The provincial government has been communicating with the unions as well. We spend more than five percent of the local level programme budget on infrastructure construction of health institutions. In order to strengthen the system, the provincial government places itself in between the unions and such institutions.

We are lacking information sharing among each other, and we are not very clear on what and how to do things. But we can help each other through interaction programmes such as this that are held between governments of all levels, unions, and health institutions.

Questions from participants

Mr. Krishna Prasad Kapri, Secretary, Ministry of Social Development, Karnali Province

All three levels of government have health-related services. Where is the linkage between them and how are they running? We are all aware about the system placed by our constitution. List of individual and concurrent powers of federation, state, and local levels are separated for health issues. There are several laws and policies already made or being made in our constitution. Regarding the hub and satellite concept, I wanted to focus on other acts and policies connected to it. It would be good if the MoHP could conduct similar programmes to discuss this topic as a whole with the thematic committee union. If agendas could be discussed with all provinces, then it will be easier to prioritize matters as well as encourage the local level.

In the health system, the issues and support received vary in different places. Now, all three levels of government have health facilities that have issues to resolve, so we need to prioritize on the ones that need most focus. I feel like the unions do not know what the province is doing and vice-versa.

Dr. Ramesh Kumar Maharjan, Chief Emergency Medicine, Teaching University Teaching Hospital (TUTH)

The only concern is the emergency patient referral system during disasters as well as during regular services. We faced issues during the earthquake and COVID-19. Can the HEOC monitor coordination and control for the referral system of emergency patients? If coordination is done by hospitals in an individual manner, it may not be controlled. Some hospitals may be forced to send patients to other institutions, but

the other end may not have the capacity to receive them. During a workshop at TUTH, we called 13 hub (or satellite ???) hospitals. We learnt that such coordination is possible, but it is not monitored or in order, and is poorly coordinated. That is why we request the HEOC or a similar body to fill the gap and monitor it. Is that possible?

Dr. Uday Narayan Singh, Disaster Focal Person, Narayani Hospital

Among the hub and satellite hospitals, all private hospitals are included as satellites. If we look at the local environment, there are different kinds of hospitals included together. There may be 30 hospitals in Birgunj, but during COVID-19, only four or five were hub or satellite and retained patients. Do we have established criteria for qualifying as satellite hospitals or do we just include all available hospitals as satellite?

Dr. Yagya Raj Kharel, Medical Superintendent, Koshi Hospital

Personally, I really like the concept of hub and satellite. Since we have just been in a pandemic, I think we all have come to realize the problems that we faced and the support we received or did not receive. Patient referrals became the first, second, and third phase of COVID-19. It looked very different in the field. Locals of certain areas will know how the satellite and hub hospitals responded during the pandemic. So, this concept really binds the scattered system together. We have been diligent and honest in running the procedure. My suggestion is to include this concept in our policies and acts to give it a tangible form.

Dr. Shreedhar Aryal, Director, Bhaktapur Hospital

Most hub hospitals are government hospitals and satellites are private hospitals. Inside the Kathmandu Valley, these are the big hospitals, but outside the Valley, there are many hospitals below the district hospitals that are working at the local or grassroots level. When a disaster strikes, the risk is seen more in the periphery areas than in the hub area. And so far, we have not had programmes that incorporate trained health professionals from health posts or PHCs in pre-hospital care or in the hub and satellite concept. What plans does the ministry have for this?

Secondly, we have experienced an earthquake as well as a pandemic. During those times, we observed that while government hospitals were working, private hospitals were reluctant to do so. In the initial stages of both scenarios, private hospitals were very reluctant to provide such services. So how can the government legally bind private hospitals in the satellite? Even during pre-disaster phases and preparation, how can we ensure more participation from private hospitals? If a satellite declines to participate, no action can be taken by the hub hospital. In order to bind them legally, during their license renewal can we give them points based on their participation?

Thirdly, the concept of hub satellite hospitals is still confusing in many places while some are ready to implement it. Kathmandu has even started its drill phase. In our situation, more than the plans that we make for hub and satellites, we should strengthen the existing programme and provide trainings in various hub hospitals. If we can incorporate this in our regular government programmes, even an annual event will be viable. Eventually, understanding and functioning will be smooth from the ministry to the grassroot level.

Insights from the panellists

Dr. Guna Raj Lohani

Firstly, yes there is a gap in functionality. Our indicators and communication were loose. The central government being weak is also because of the health ministry. There are many different ministries, one for health, one for population, another for census or family, and so on. Is it really necessary? Were we unable to provide proper guidance, or did we not have a way to give that guidance?

Dr. Ramesh talked about monitoring from the HEOC. When hub and satellite are implemented, the HEOC becomes even busier. During the pandemic and earthquake, emergency referrals were done by the HEOC. In actuality, the load of the HEOC should be lessened. If the hub hospitals take on the responsibility, then the HEOC could possibly do its work more smoothly.

Regarding the criteria for satellites for health posts and PHC, we have to bring them into the system during pre-hospital preparedness. The health posts and PHC need to consider the availability of beds, doctors, and 24-hour service. The reason for hospitals being included was due to their 24-hour service. But the criteria for who can and cannot be included in satellites can be discussed later.

Regarding acts and policies, it is still a work in progress.

All hub hospitals are government-owned since health response measures can be made compulsory in these institutions. However, if the government feels like the necessary measures or service for patient care are not enough, we can encourage private hospitals to be involved by making necessary arrangements like capitation, customs clearance, among others. But, ultimately, more than size it is the responsibility that matters most.

Infectious Hazard Management Plan and HICS Experiences from COVID-19

Presenter: Dr. Ashis Shrestha

Focal person, Disaster Management, Patan Academy of Health Sciences, Lalitpur, Nepal

PAHS created its disaster management plan more than three decades ago. I have been involved in disaster management for over ten years, and when I started, the plan was in its tenth version. As of today, it is in its fourteenth. The current version was developed using in-depth literature evaluations, research, and lessons learned from our past mistakes. We can make the most of the one we have in place, as it is accessible to everyone, rather than rebuilding it. Based on our experiences with COVID-19, I will be discussing the HICS or Infectious Hazard Management Plan.

One catastrophe that taught us a lot was the 2015 Nepal earthquake. It revealed our strengths and our weaknesses. We were able to assess our methods and system and make the necessary improvements. We carried out a number of trainings, including those relating to trauma, and we established disaster protocols for potential earthquakes. We discussed future disasters and pandemics. And, among hospital-level management, we searched for plans pertaining to infectious diseases. We found none. So, in 2017, we focused on infectious diseases because we were aware from the experience with SARS that the nation would face challenges in containing and recovering from a similar outbreak. In 2018, as a subplan of the main disaster management plan, we began scientifically working on an infectious disease outbreak management plan. It was endorsed by the hospital, and we published it under the title: 'Epidemic Disaster Preparedness and Response Sub Plan'.

There is a difference in the strategy and the actual execution of the main plan because there were many obstacles in the way of it fully functioning. With the support of the WHO and the Ministry of Health and Population, we were able to contact various agencies about the planned disaster drills. This was not only the first disaster management epidemic outbreak plan, but also the first exercise conducted in Nepal. When the world saw the emergence of COVID-19, we were already prepared to step in. We were fortunate

because in 2018, we had already conducted an influenza outbreak drill, where patients with respiratory illness would arrive and be treated periodically in the hospital, unlike for trauma patients. We had already practiced wearing PPE, taking swabs, and transporting respiratory patients in the influenza outbreak drill.

We also published a paper called 'Development and implementation of First Hospital Based Epidemic Outbreak Management Plan: Lessons learned from Nepal'. This report included our experiences, observations, and learnings as an outbreak plan. Its biggest strength is that it had been prepared and revised thirteen times before the COVID-19 pandemic. There were a few updates to it, such as the disaster cycle and mitigation plans, along with preparedness, response, and recovery.

Another important and helpful addition during COVID-19 was the modified structure of the HICS, with categorized sections of the components for incident command. We did not change the generic terms but created a sub-division and group division of work for people. There was also a challenge that we observed: the HICS could not be activated in some places and, in such cases, everyone became the incident commander. Ideas clashed, which led to work being delayed. Battling a pandemic or an outbreak takes years. Thus, it is necessary to have a single door, single entry, single command system during infectious disease outbreaks.

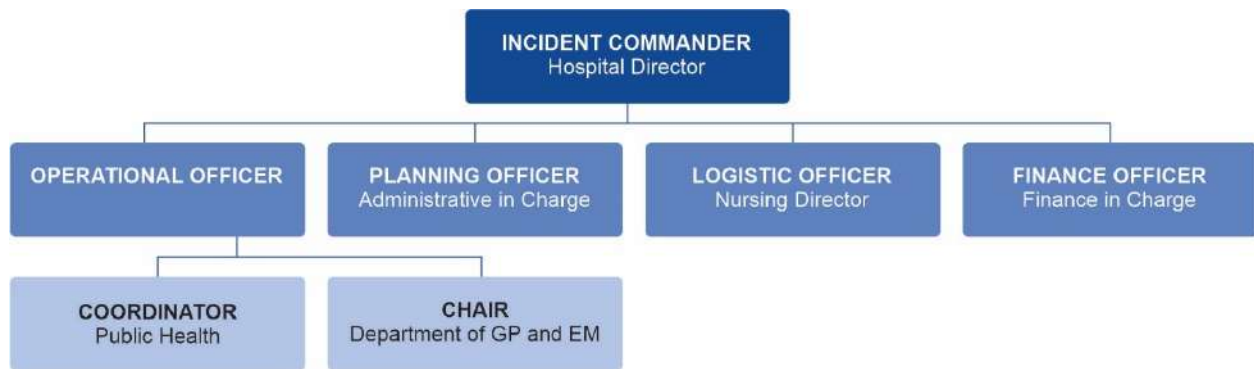


Figure 10: Structure of HICS in 2018

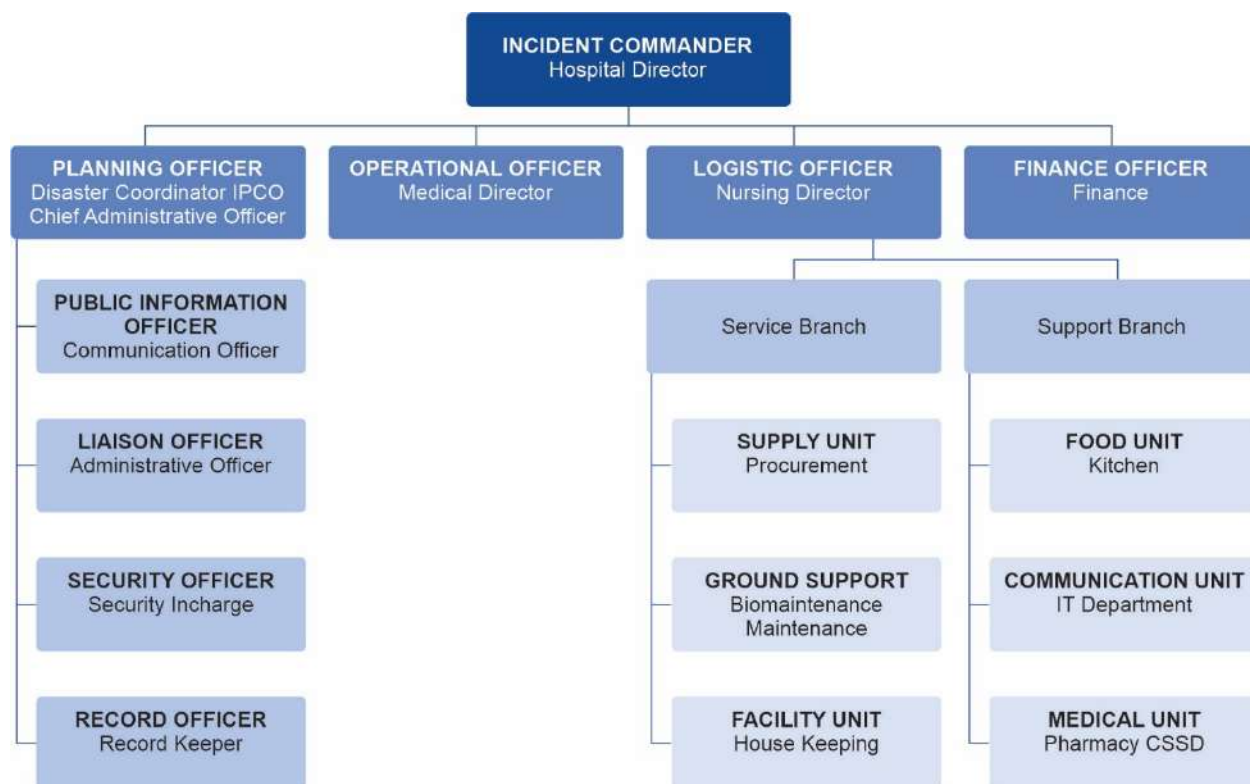


Figure 11: Modified structure of HICS in 2019

On 16 March 2020, we published the 'COVID-19 Preparedness and Response Plan' under the epidemic outbreak protocol. The country's hospitals functioned under this protocol. Hospitals were divided into two sections: COVID-19 and non-COVID-19. Many hospitals argued about COVID-19 hospitals not letting in non-COVID-19 patients, and vice versa. However, we were clear that we would divide ours into both systems, which was guided by our incident command. Putting it into practice made command and control much easier.

This incident command system worked for communicating with our satellites as well. The focal persons at all satellites communicated with each other but all the aspects of hub and satellite coordination was done through the incident command decision. And we have documented and published it too. Another strong element in infectious disease outbreak is infection prevention and control (IPC). The IPC system was upgraded and improved to project it on a bigger scale. During the disaster, we learnt that the existing system should be escalated, instead of creating new methods and techniques. Or else, it would lead to failure. We need to identify which system or protocol to escalate beforehand during disasters. IPC is a perfect example as PAHS still provides regular IPC training. Some trainings and systems can be escalated by adding information regarding COVID-19. So, if the existing system is upgraded and escalated, then staff can adapt and work properly.

Bigger databases and resources could be created using our work, experiences, literature, and research if institutions come forward in academia. The collected resources will help the next generation too. Even if they are local success stories, it will help ease work in the future. This is why we need to document even the smallest incident in hospitals.

One may have a large number of resources, but if you do not know how to make use of them, they will never be enough. This explains why we need our hub and satellite system. We need to learn how to utilize the scattered hub and satellite hospitals. During disasters, one hospital cannot buy all resources even if they are in a position to do so. Resources need to be properly distributed, and we need to work collectively in order to have effective results that benefit all people from all places.

Between 2015 and 2020, I observed our health system shifting from working well individually to working well collectively. Change is a gradual process; our goals will be accomplished if we continue to work towards it.

The hub and satellite hospital system is a skeleton, a framework that can help hospitals coordinate. Without networking, it is impossible to get things done. For example, an army institution or hospital functions smoothly because of its network rather than resources or money. Health institutions require that level of networking. This was not the case in 2015 but we are now closer to developing such networks.

One of the communication platforms we used during COVID-19 was Viber. In 2017, a group was created for hub-satellites of PAHS, and it remained active for two years. Most communication took place through the group, and it helped resolve some problems. Similarly, we created another group for the ICU hub-satellite where we discussed only referrals and ICU cases. This was the internal coordination system that helped us make decisions. We communicated through the platform during vaccination as well.

There are protocols regarding our roles and responsibilities as hub and satellite—for pre-disaster, during disaster, and post-disaster. They are all documented in written form, including the roles of the PHEOC. However, challenges exist in running them smoothly on a practical level.

Another positive change is the development of the warehouse, which started during the earthquake. The basic concept was that if buildings collapse, we would need to save resources and necessary materials. So, they were to be placed in a storage container. But, later, we received complaints, such as lack of monitoring and supervision, negligence in replacement of rotten/expired materials, among others. Such problems can be solved. The discussion of problems can guide and pave the way to success by creating solutions.

We are moving forward in the context of the Hub and Satellite Hospital Network, but there is still a huge gap. We are pushed ahead by laws and policies, but when we reach the gap, we are solely dependent on our motivation to go forward. Our health system has the HEOC and PHEOC; we have physical structures and manpower. But looking at the hub hospital, the connecting person for a hub is the focal person. The focal person has a number of other responsibilities along with their role as a focal person. If we were to predict the future, the focal person will not be as useful because they are driven only by self-motivation. In the case of satellite hospitals, the situation is even more difficult.

All hospitals do not have emergency departments; some do but they exist only as emergency rooms where anyone could be the person-in-charge. Similarly, disaster management departments have not been established in the hospitals. During disasters, the government communicates with the hospital, which deals with multiple issues everyday aside from that disaster. Would it not be more practical to treat a patient at their doorstep than spend time preparing for an earthquake that might happen in 10 years? It is obvious that hospitals prioritize current patients. During disasters, the hospital director visits the health ministry, when in fact the information that needs to flow should be connected to the emergency department and its disaster unit. Hence, the work of the disaster unit should not be neglected, and any health institution should have a strong and functioning emergency department.

Documentation and everyday reporting are very important so that during disasters or similar situations, a system is already available; staff should not have to adapt to an entirely new system. Everyday emergency can be scaled up accordingly. Likewise, it is better to familiarize the software among health workers

beforehand. We already have various platforms for information management that can be used during normal times and scaled up during disasters.

We often hear about insufficient or lack of trainings, but this only shows our flawed education system. The requirement for trainings comes from a lack of preparation even after completing MBBS and internship. We should be emphasizing on improving our education system rather than organizing short training programmes. We have versatile needs and systems. A person who is trained may have to perform a very different duty in a dissimilar role, so they may require different training each time they receive a new responsibility. It is important to learn new skills and techniques through training, but undergraduate, post-graduate, or specialty education also need to include disaster management in their courses.

Regarding warehouses, there are materials that need to be put to use before they expire. Some containers are not even properly monitored because other agencies have not provided us access to open or use them. Thus, we cannot even check if the supplies are fit for use. The supplies in the storage are not fresh and they may cause health hazards. Another issue is the distribution of those supplies as satellite hospitals do not want to pay for them. Similarly, replacing those supplies after they expire will consume time and manpower, and the same equipment cannot be replaced with what is available locally as they have been imported. Therefore, the biggest challenge here is recycling these stored equipment and materials.

To manage the warehouse, we should establish only one storage unit for everything. It should not be scattered or divided among different boxes or storage spaces. Management should be taken up by the pharmacy. If the warehouse is controlled by the ministry, and the pharmacy is controlled by the hospital, we face several problems. The hospital must regularly maintain disaster stock, but we do not really need medicines immediately. We may need trauma equipment immediately in times of disaster, so it is good to have stock available. Twenty percent of this stock can be stored in pharmacies for their respective hospitals. With this, recycling becomes easier, and should be done with products that can be bought in Nepal.

There is no end point for strengthening the hub and satellite system. We need to keep working on it so that our efforts are fruitful for the next generation.

Lastly, Figure 3 shows the development of the health intelligence system. The problem here is the lack of a data bank. If we had one, everything could be inter-connected. Data needs to not only be collected but analysed and properly synthesized. This flowchart is the skeleton of our system, and we should focus on strengthening it.

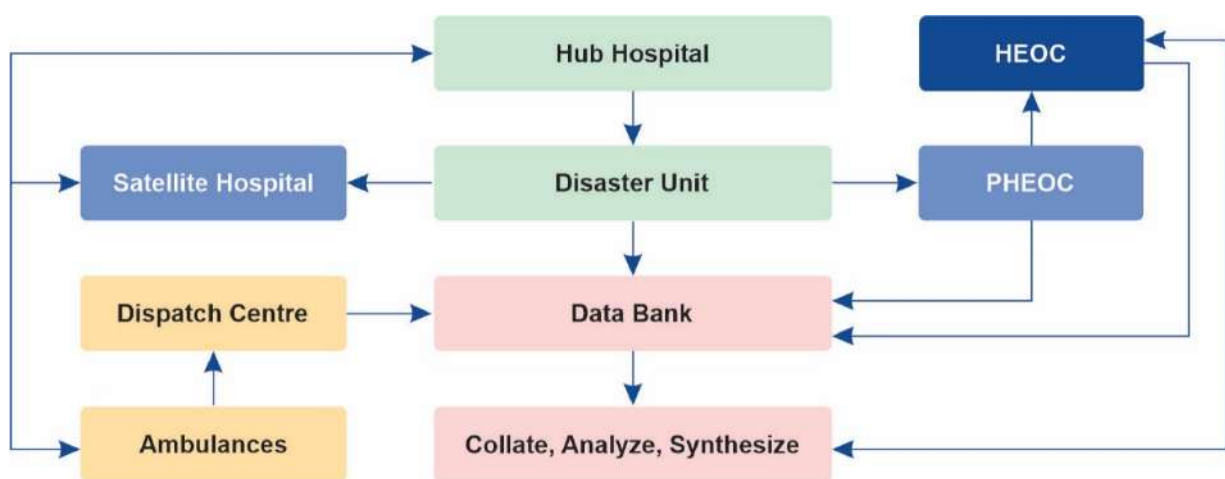


Figure 12: Development of Health Intelligence System

Reflection and learnings from the 2015 Nepal earthquake

Presenter: Prof. Dr. Pradeep Vaidya
Prof. of Surgery, TUTH, Chairman, Disaster Committee, TUTH
Assistant Dean, IOM

The 2015 Nepal earthquake occurred seven years ago, but the experience is still very relevant for what may come tomorrow.

The most important aspect in disaster risk management is planning, and the Ministry of Health and Population was interested in a disaster risk management plan. Towards this, different trainings were organized for hospital staff and the ministerial disaster team because it was important for both teams to be on the same page. After the training course, there was an improvement in teamwork.

We also conducted hospital preparedness for emergencies and developed the incident command system under the PHEOC. We knew about the HOPE course, but it was not implemented. HOPE and HDPRP courses were developed by the government, but plans were individualized by the hospital teams during the course, so that they had disaster plans right after. A technical team with disaster experts also worked on developing these courses. The GIS system has proven to be vital for disaster prevention. In case of earthquakes or floods, it helps us assess and predict the impact of the disaster.

The hub and satellite system was also established then, followed by the development of many protocols. We learnt about the importance of protocols from Haiti's experience, where many foreign medical teams consisted of inexperienced students, who ended up causing severe damages, such as unnecessary amputations. Fortunately, the protocols to strictly monitor amputation cases were passed just a day before the earthquake and we had comparatively lower incidents. Hence, protocols are important, especially in disaster management.

In terms of support, the Government of Japan supported the structural and non-structural retrofitting of buildings, especially hospitals, so that they do not collapse. This was done by three teams within six months. Equipment storage in hospitals was and still is supported by WHO.

Many provincial, central, and private hospitals attended disaster management trainings. Primarily, only PAHS had disaster management plans, which were later adopted by TUTH. Now, most hospitals have disaster management plans. In the days after the earthquake, active leadership with proper command in the MoHP was very helpful. They used every resource available, mobilized teams quickly, documented and collected data, and coordinated meetings with FMTs.

However, coordination with the army could have been improved as their medical team arrived without the MoHP's knowledge. In addition, EMTs came from abroad without being called, all of which led to an unorganized, chaotic, and unsystematic situation. Then, the MoHP made a committee for EMTs and asked for daily briefings. EMT coordination training is important, and they need to be registered with WHO as a team (type 1, 2, 3) to be able to travel to other countries. The main problem was the communication gap. Teams were created and were functioning with no communication channel between them, making work impossible. Later, communication improved after they were merged as a single unit.

Also, it is important to note that the major difference between the HEOC and HEDMU is that HEOC is an office but HEDMU is a unit of people working together.

A positive aspect post-disaster was the maximum number of trainings that were conducted. HOPE training, which used to take place twice annually, was done 12 times a year. In addition, pre-hospital care system guidelines for ambulance, trauma, and mortuary vans were all developed after the earthquake.

Knowledge transfer should not be limited to a hospital focal person. Instead, the ministry should focus on providing orientation about the hub and satellite system to everyone, regardless of which hospital they may work for in the future. Improvements in the health system would ensure every citizen's safety, so there is a need to adopt the hub and satellite system as a policy.

The general Nepali mindset places its fate on a higher power, in the belief that they will be saved by god. In doing so, we later tend to forget the pain and suffering we went through during the disaster, and become lax in preparation. The earthquake and pandemic were both disasters, and although they may have required different materials, planning and finances were the same. The management may be different but there is a need to have disaster experts in the hospital for all instances. Despite managing the pandemic with much difficulty as we started the ICS, we deviated into a whole new system rather than implementing and sticking to the existing plan. Our plans, policies, and preparations are good but we lack in implementation due to our conflicts of interest and varying objectives.

Every health institution should have a distinct role and responsibility, and everyone should work accordingly. Duplication of work was found to be another problem, hence running a command and call centre efficiently and effectively would help provide better services. Such a centre should be set up at the HEOC.

Disaster plans, trainings, and drills were mostly based in Kathmandu. Disaster management training is carried out twice a year at TUTH for all staff and students. While it will take some time to change the MBBS curriculum, having a disaster management course helped save a lot of lives. During the disaster, the only available manpower at TUTH were students. They immediately started conducting triage, which saved a lot of time. None of the ICU, CCU, and post-op patients had to be transferred from the hospital, and the disaster equipment provided by WHO helped to treat a large number of people.

Post-earthquake, we tend to be inactive as the latent period begins. But for disaster management, trainings have to continue. The hub and satellite system needs to be strengthened through drills, and not just on paper. Minor infrastructure and logistic issues can also create problems during disasters. Thus, it is

essential to properly manage electricity lines, generators, water supply, food storage, rest rooms, refrigerators, beds, complex tents, and equipment racks.

For a better disaster management system, hospitals should plan a multi-hazard disaster plan and prepare materials to implement them. Replenishing medical storage, training various personnel (security guards, nurses, doctors), and practicing drills are essential for disaster risk management. Focus should also be put on hospital preparedness for triage, evacuation for internal incidents, and medical countermeasures for external incidents, such as surge capacity management or incident site management by the EMDT.

The role of every stakeholder should be clear and distinct. For example, when a plane crashes, many individuals rush to save people. This is a failure of on-site management, and it could lead to even more patients. Any medical first aid has two rules: the first is to save yourself; the second is to go back to the first rule. International courses like HOPE, EMT, EMVO, EMD, CSSR, MFR, first aid, BLS, and CADRE have already been tested and piloted. Different agencies are helping conduct these trainings, and the HEOC can identify the institutions that are in need of these courses. Gradually, each province can conduct their own training after Training of Trainers.

There is an interesting programme called Enhancement of Emergency Response (PEER). Under it, when a disaster occurs in a geographically difficult area, the first response is from CADRE-trained community members. Then, armed police arrive in helicopters to help the victims using CSSR, and MFR stabilize the patients, after which they are referred to hospitals. Systems like these help in disaster risk management. Hospitals will never have enough resources if they cannot properly use what they already have. Hence, the Hub and Satellite Hospital Network will help save many patients.

Hospitals already have knowledge, facilities, and equipment. Now, all we need is a strict implementation policy that will help in coordination and monitoring.

Hospital Safety Index + (HSI Plus)

Presenters:

Mr. Jagdish Rauniar, MoHP

Mr. Damodar Adhikari, WHO

Mr. Deepesh Sthapit, WHO

Hospitals in disasters

The hospital is the first institution that intervenes during health emergencies and disasters. For this reason, the hospital facility, its staff, and its resources should always be prepared for crisis situations. Keeping this in focus, we have introduced the Hospital Safety Index concept. The call for Safe Hospitals was initiated after the Mexico Earthquake in 1985, and it was followed by the global call of action through 2008-2009 by UNISDR/World Bank/WHO. In addition, the Hyogo Framework of Action 2005-1025 and the Sendai Framework for Disaster Risk Reduction 2015-2030 have mentioned ways to minimize disasters, strengthen governance, and prioritize emergency preparedness.

Objectives of the Safe Hospital Initiative

- To enable hospitals to continue to function and provide appropriate and sustained levels of healthcare during and following emergencies and disasters
- To protect health workers, patients, and families
- To protect the physical integrity of hospital buildings, equipment, and critical hospital systems
- To make hospitals safe and resilient to future risks, including climate change

What does “hospitals” mean in the Safe Hospital Initiative

The Safe Hospital Initiative is not just for big hospitals but medical institutions on all levels. These include health centres, laboratories, blood banks, and even clinics. The Initiative also involves ensuring the safety of workers and takes into account the protection of investment made in the facilities, such as equipment, furnishings, and other utility services that are essential during emergency response. Another level includes the operational protection of the hospitals which involves maintaining and improving the facility's capacity to function during future disasters or emergencies.

Hospital Safety Index

The Hospital Safety Index (HSI) is an assessment tool. It was developed in 2019 in cooperation with the Department of Urban Development and Building Construction. The tool helps assess the strengths and vulnerabilities of the health facilities and identifies areas that require prioritized attention and/or mitigation measures.

After the conference, our next step will be to use the HSI tool in our hub hospitals. Through its assessment, we will be able to identify the possible emergency/disaster hazards in our facilities and its surrounding areas. We will also be capable of assessing the condition of the buildings and medical equipment through other modules within the tool.

Even if a facility's structure, equipment, and human resources are in proper condition, there are other factors that need attention, such as emergency preparedness trainings and capacity building of health workers for emergencies.

However, it is important to note that the HSI tool only assesses a hospital's vulnerabilities; it does not provide solutions.

The HSI tool covers issues related to the structural, non-structural, and functional aspects of a hospital. The structural module covers areas related to lifeline-oxygen supply, fire safety, emergency exit, water supply, and other stock. The non-structural safety module deals with the safe storage of equipment installed within the facility. The tool also has an emergency and disaster management module, which addresses the coordination within and among the facilities and all levels of government, existing plans, information management systems, human resources, logistics, finance, and services. Aside from this, it can also assess the protocols for internal disasters within the facility (evacuation site, division of roles).

The tool includes several other modules: hospital profile, hazard profile, hospital safety index, hospital safety committee, incident command system, job action sheets, and standard operating procedures.

(Note: Please see annex for further information on the app.)

Closing Remarks

Reflections on the ‘National Conference on the Hub and Satellite Hospital Network’

Representative of Provincial Hospital Surkhet, Dr. Damber Bahadur Khadka, Medical Superintendent

Provincial Hospital Surkhet is in dire need of coordination. In my four-decade-long experience of working in the health sector, the situation in hospitals outside Kathmandu is negligible, even for something as simple as coordination. I have worked with many central hospitals—such as Tribhuvan University Teaching Hospital, Bir Hospital, and Patan Academy of Health Sciences—and we have discussed the multiple issues that exist in our health sector. In district and provincial hospitals, the absence of doctors and human resources has led to unmanageable situations. We have been teaching a great number of medical officers for free. Many leave Nepal to work in foreign countries while the rest use nepotism to stay in urban areas. This has created a difficult situation outside Kathmandu, and the impact of this phenomenon is more prominent when a disaster strikes. But officials from the MoHP that need to know about this are not present today.

We need to operate in accordance with the rule of law; laws should be enforced and implemented to the maximum level. We need to ensure basic services all over Nepal. If the basic services are not ensured, all the burden will be placed on central hospitals. We need quality assurance to transform the services in periphery hospitals as well. There was no coordination among the hub and satellite hospitals before this. However, this programme has helped bring understanding about the issue.

During the COVID-19 crisis, it was a challenge to give equal health services to COVID-19 infected and non-COVID-19 patients. But we tried our best to do so even in a rural area like Surkhet. Many NGOs and INGOs helped rural places during times of crisis by diverting their skilled personnel. We are in urgent need of such assistance. I would like to request the MoHP, WHO, USAID, and other NGOs and INGOs to extend such types of assistance in the future.

The narrative that has been ignited here should be extended to satellite hospitals, health posts, and primary healthcare centres. Similarly, the public should also be sensitized using various Information and Communications Technology tools to reduce mass casualties. Additionally, all services across the network

should be standardized. And importantly, the concerned authorities should decentralize skilled human resources to areas outside Kathmandu too.

Representative from Civil Service Hospital, Dr. Bidhan Nidhi Poudel, Director

This conference has given health professionals a platform to connect and exchange inter-provincial experiences. I have been part of the health sector for several decades, and I am well aware that it is not easy to manage everything in times of disaster. Still, we have always worked hard. During the COVID-19 pandemic, Civil Service Hospital was able to link hub and satellite hospitals in an efficient manner. We conduct quarterly meetings and visit the satellite hospitals every three months to monitor their resources and map the necessary assistance. Hub and satellite hospitals should have a close relationship. This can also make work easier from a managerial perspective.

Drills should be conducted every three years. Similarly, these types of conferences should also be conducted every two years; they should take place in hub hospitals or provinces. That will help us sensitize and assess the situation. Like Dr. Yadav had mentioned, we need to link and relate the four 'Ss' with health service. We are aware about the importance of disaster management and resiliency, and, in fact, had recently provided training to our staff. However, being aware does not equate to being fully capable. In this regard, we are all learning.

Representative from WHO, Dr. Allison Gocotano, Team Leader

Nepal has taken a proactive approach in strengthening the Hub and Satellite Hospital Network. For the past two days, we have engaged in table-top exercises and experience sharing amongst various hospitals, which have ultimately led us to come to a conclusion and commit to a declaration. While it is necessary to address the concerns of the Hub and Satellite Hospital Network, it is only one part of the entire health emergency preparedness and response. One of the indicators for a successful meeting or conference is having several action points. The declaration is a concrete example that guides the steps that we can take to further strengthen Nepal's disaster and public health emergency readiness.

Representative from Lumbini Province, Dr. Bikash Devkota, Secretary

When this conference began, I did not feel like we had made any achievements. But as it ends, I have come to realize that there have been several accomplishments.

The discussions regarding the Hub and Satellite Hospital Network point towards two factors: one, that we are all not on the same page and, two, our eagerness to work. Looking at it from all perspectives, I feel like the network is effective for disaster risk reduction but we need to further work toward co-ordination between two networks or even the whole system. We need to develop a coordination mechanism among the Hub and Satellite Hospital Network, utilizing all available resources at the local or provincial level. This modality can succeed if there is inter-hospital exchange of crucial information about data and logistical management, and various other components.

Representative from the MoHP, Dr. Shyam Sundar Yadav, Chief Specialist

The Hub and Satellite Hospital Network is a structure where everything could come together and merge as a unit. Throughout the conference, many doctors have emphasized on the importance of pre-hospital care.

I feel like this issue was not adequately addressed. We should sensitize the local community as well. The concept of “jump start” has also been highlighted by one of our doctors. When we conduct a triage, we need to identify and segregate everything accordingly. Secondly, the issue of prevention has also not been sufficiently underscored. Prevention should be linked to the issue of the disaster. When there was an aviation accident in Kathmandu, we could not save many people. We need to learn from such events. Hospitals should also stress on prevention strategies—for oneself and for others. We need mitigation strategies for natural disasters.

I would like to thank everyone for their valuable responses. I appreciate the honesty and the feedback from all hospitals. I support the cause and I will voice my opinion to the concerned authorities. I would like to thank all stakeholders and participants for being part of the programme.

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Annexure



Hospital Safety Index+ (HSI plus)

Android, iOS & Web Apps suite

12 - 13 June 2022 [29-30 Jestha 2079]
Kathmandu, Nepal

National Conference on Hub and Satellite Hospital Network, 2022

12-13 June 2022 | Kathmandu, Nepal



Hospitals in Disasters

- Vulnerability of hospitals, a critical life saving service, has always been a key area of concern
- The call for Safe Hospitals taken up through different initiatives
 - A major initiative since the Mexico earthquake 1985 in PAHO
 - Global call of action through 2008-2009 UNISDR/World Bank/WHO World Disaster Reduction campaign on Hospital Safe from Disasters
 - Follow up action through One Million Safe Schools and Hospitals campaign 2011
 - World Health Day Theme in 2009 "Save Lives. Make hospitals safe in emergencies"
 - Hyogo Framework of Action 2005 – 2015
 - The Sendai Framework for Disaster Risk Reduction 2015-2030



National Conference on Hub and Satellite Hospital Network, 2022

12-13 June 2022 | Kathmandu, Nepal

Hospital Safety Index (HSI)

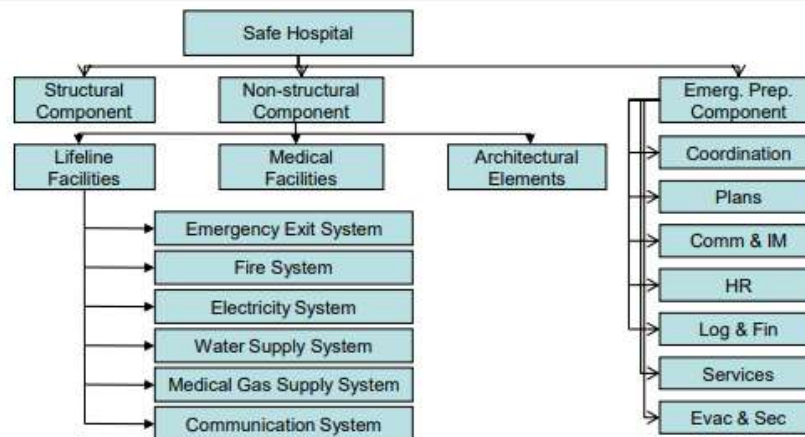
- Composed of 4 modules
 - Module 1: Hazards and vulnerability assessment
 - Module 2: Structural safety
 - Module 3: Non-structural safety
 - Module 4: Emergency and disaster management
- **It is not a tool to assess the overall operations of a hospital. It aims to give a snapshot of its resilience in the face of different hazards**



National Conference on Hub and Satellite Hospital Network, 2022

12-13 June 2022 | Kathmandu, Nepal

Major Elements of the HSI



National Conference on Hub and Satellite Hospital Network, 2022

12-13 June 2022 | Kathmandu, Nepal

Pictures of the National Conference on Hub and Satellite Hospital Network, 2022



Figure 1: Inauguration of the National Conference on Hub and Satellite Hospital by Hon. Minister Birodh Khatiwada, Ministry of Health and Population



Figure 2: Hon. Minister Birodh Khatiwada, Ministry of Health and Population giving his opening remarks



Figure 3: Dr. Roshan Pokharel, Secretary, Ministry of Health and Population giving his remarks



Figure 5: Dr Dipendra Raman Singh, Director General, DoHS giving his remarks on the opening ceremony



Figure 4: Dr Sangeeta Kaushal Mishra, Chief Specialist, MoHP giving her remarks on the opening ceremony



Figure 6: Dr Guna Raj Lohani, Chief Specialist, MoHP giving his remarks on the opening ceremony



Figure 7: Dr. Samir Kumar Adhikari, Chief, HEDMU/HEOC giving his remarks on the opening ceremony



Figure 8: Dr Rajesh Sambhajirao Pandav, WHO Representative to Nepal giving his remarks on the opening ceremony



Figure 9: Scenario based group exercise and Panel discussion



Figure 10: Dr. Allison Gocotano, WHO-WHE Team Lead answering the queries raised from group work exercise



Figure 11: Group picture of HEOC Team



Figure 12: Group picture on the Opening Ceremony of the National Conference on Hub and Satellite Hospital Network, 2022



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Ministry of Health and Population



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