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Guideline for Conducting Emergency and Disaster Simulations and Drills in Health Facilities

Emergency Medical Services Division
Department of Medical Services
Ministry of Health

**GUIDELINE
FOR CONDUCTING EMERGENCY AND DISASTER
SIMULATIONS AND DRILLS**



First Edition
2018

Emergency Medical Services Division
Department of Medical Services
Ministry of Health
Royal Government of Bhutan
Thimphu

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Foreword



It is necessary to have a preparedness and response plan to facilitate organized and coordinated actions during an event of any health emergency or disaster. Plans are not theoretical exercises, they must be tested frequently so that they can be evaluated, adapted, and updated before and after an actual event. Simulation exercises and drills are among the most useful tools for evaluating and testing these plans, and they have been used systematically over the past few years by the Ministry of Health. They help in identifying the extent to which the SOPs and plans are effective and also aid in revising these if required. They are also excellent tools for training, for evaluating tools and procedures, for decision making exercises, for developing team work, and for inter- and intra-sectoral coordination.

So it gives me great pleasure to present you with this Guideline for Conducting Emergency/Disaster Simulations and Drills. It has been written primarily for health sector organizations that are in the process of reviewing and updating emergency preparedness and response plans, but institutions from other sectors will also find it useful. I am very hopeful that this guideline will benefit health organizations in organizing, developing, and evaluating simulations and drills.

I would also like to take this opportunity to thank many dedicated people who have worked so hard on the development of this guideline.

Lastly, since simulation exercise is the only way to keep ourselves prepared for emergency and disaster, I would like to urge districts and hospitals to conduct simulation and drill exercises at least two times in a year.



(Lyonpo Tandin Wangchuk)
Health Minister

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CHAPTER 1

BACKGROUND

1.1. Introduction

We cannot prevent the earth from shaking, the wind from blowing, or the rain from falling. Disaster occurs when these events come in direct contact with the environment resulting in loss of human lives and properties. However, we can prevent such losses with proper assessment, planning, and preparedness to facilitate organized and coordinated actions during an event. It involves such preparedness plans to be tested frequently so that they can be evaluated, adapted, and updated before an event or disaster occurs. Moreover, preparedness of the health facilities is particularly important because of the important role it plays during an event, especially to minimize the potential morbidity and mortality from disasters and health emergencies.

This guideline provides the directions for conducting simulations and drills in the health facilities. It is based on multi-hazard approach because each health facility has a unique event and circumstance based on their location. This document is based on several literatures and reviews by experts from both within the Ministry and the WHO. Thus, this document provides a starting point for the hospital emergency management committees to execute exercises based on their emergency preparedness plans and settings.

1.2. Objectives

The prime objective of this guideline is to provide a general procedure for conducting simulations and drills for emergencies and disasters. Specifically:

- To provide a step-by-step guidance and logistics required for the simulation and drills.
- To test emergency and disaster preparedness and response plans and systems, including plans, policies, procedures, roles and responsibilities, and identify resource gaps.
- To validate and update the above.
- To train health personnel on emergency and disaster preparedness and response

1.3. Definition of Simulations & Mock Drills

A simulation is a discussion based exercise which is often done as table-top exercise that recreates a hypothetical disaster scenario where a group of participants must make decisions based on information that they receive during the exercise. Each participant is assigned a role in the exercise that can match his or her actual job. The events in the exercise happen in “simulated time” (representing days or weeks), during which the players receive information about situations that might arise during an emergency or disaster.

Whereas, a drill is a coordinated, supervised activity used to test a single specific operation or function in a hospital or other organization. Drills are carried out in “real” time and each of the participants assumes the role that he or she customarily performs in his/her regular work.

1.3.1 Types of Mock Drill:

Drills have different characteristics depending on the number of persons who will be involved, whether those involved have prior knowledge that it will take place, and the degree of complexity. It can be classified as:

- **Partial or full-scale drills:** This depends on whether all or only some services or agencies are involved. For example, a *partial drill* would be a simulation of the arrival of injured at the emergency department of a hospital; the complete evacuation of a workplace would be a *full-scale drill*.
- **Pre-announced or surprise drills:** This depends on whether the participants and the public are informed prior to the exercise, or whether only the coordinating committee knows of it. *Unannounced* or *surprise drills* must be part of a process that includes earlier exercises that were announced and should be used only when there are established response plans. If the drill is *announced*, the public will be informed about the objectives and the location, date, and time of the exercise, but will not be given details about the staging, impacts of the simulated event, or the script.
- **Simple or complex:** This depends on the variables to be evaluated. In a *simple drill*, only a single activity is carried out, for example the evacuation of a building, with neither injuries nor potential risks. A *complex drill* has a variety of situations associated with the main event, for example, multiple injuries or potential risk scenarios for higher numbers of the population.

CHAPTER 2 CONDUCTING SIMULATION EXERCISE

This chapter describes the process of conducting the simulation including planning, execution, briefing, evaluation and follow-up activities.

2.1. Definition

A simulation is a tabletop exercise wherein a hypothetical disaster scenario is recreated and a group of actors make decisions and act based on information that they receive during the exercise. During the exercise each participant is given a role which matches his/her actual work. The events happen in the simulated time and the actors receive information about situations which might arise during an emergency/disaster. The participants are required to provide realistic responses based on existing procedures and resources. The evaluation of the simulation can help in improving preparedness plans. Information is provided through messages distributed at different times in exercise; they can be transmitted orally, in print, or digitally among other ways.

2.2. Objectives

- To evaluate the decision-making capacity of people responsible for emergency and disaster preparedness and response as per the existing emergency plans and procedures.
- To validate the emergency preparedness and response plan for health facilities and Ministry of Health.
- To test the effectiveness of mechanisms for coordination of responses of different agencies in emergency situations.

- To build the decision-making capacity to manage the crisis and information in emergency situations.

2.3. Planning

2.3.1. Scenario Development

To conduct the simulation exercise, emergency and disaster scenario must be created. Sample scenarios and triggering events for different emergencies and disasters are attached as *Annexure 2*. You may refer the sample and use the local information to build the scenario that is suitable in your setting. It consists of scenario description and triggering or impact events. The duration of the exercise can vary between 4 and 6 hours to achieve the full psychological effect of an emergency situation for participants. In case of national or regional simulation, the exercise may last two or more days.

The description of scenario must have at least the following components:

- Background and general description of the area;
- Geopolitical characteristics: geographical location, political boundaries, types of occupation, climate, and other aspects;
- Characteristics of the target population: number, gender, age groups, socio-cultural characteristics, and others;
- Economic characteristics: type of production activities, services, and others;
- Health conditions and description of the health services structure;
- Resources, including: material, financial, human resources; service networks; transportation and communications systems, and others;

- Risk levels, specify hazards and vulnerabilities.

Triggering events and the impacts of the event consist of a description of the features of the phenomenon and its effects on the population, infrastructure, services, environment, and general impact on the affected area. These features should include the following:

- Type of event
- Time and date of incident
- Place of occurrence
- Other associated events generated
- Number of fatalities
- Number of injuries (severe, moderate, and mild)
- Number of missing/displaced population
- Number affected
- Damage to public facilities (total collapse or with serious, moderate, or slight damage; number damaged and type of damage; consequences, etc.).
- Damage to private facilities (total collapse or with serious, moderate, or slight damage; number damaged and type of damage; consequences, etc.).
- Damage to critical networks and infrastructure (total collapse or with serious, moderate, or slight damage; number damaged and type of damage; consequences, etc.).
- Damage to critical services (total collapse or with serious, moderate or slight damage; number damaged and type of damage; consequences, etc.).

2.3.2. Team Formation

For proper planning, organization and conduct of the exercise, it is necessary to identify organizers and incident management team (actors) with clear roles and responsibilities. The overall coordinator shall ensure that the members of the simulation and the incident management team are identified. Refer *Annexure 1* for details.

The planning and organizing team includes the following:

- Exercise controller
- Logistics team
- Evaluation team
- Observers

The incident management team includes the following (based on the actual role mentioned in the disaster and emergency plans of the district or hospital concerned):

- Incident Commander – DHO
- Operation Officer – CMO
- Emergency Room Officer – Emergency In-charge
- Administrative/Planning/Finance Officer –
Administrative Officer
- Public Relation/Liaison Officer – as appropriate
- Logistics Officer – Store Keeper
- Dead body/Mortuary Officer – Drungtsho/Menpa
- Security Officer – as appropriate

(Note: One person may take the role of one or more of the above mentioned team members or identify a separate role for each)

It is important to maintain contact with all the different working groups throughout the preparation process in order to approve content, validate the tools, establish guidelines, monitor compliance with the activity schedule, correct divergence from the script, and facilitate coordination.

2.3.3. Logistics and Supplies

Depending on the type of scenario, the following equipment and furniture are required:

- Tables
- Chairs
- Whiteboards
- Flip charts
- Paper
- Message cards
- Marker pen
- Pencil
- Cello tape
- Telephone/Walkie talkie
- LCD projector
- Laptop
- Video camera
- Food and shelter as necessary
- PA System
- Name tags

2.4. Execution

Before initiation of the simulation, the coordinator should:

- a. organize a briefing for controllers/evaluators, health personnel, actors, players, and observers/media

- b. distribute exercise documentation (scenario script, triggering events, message cards, materials, evaluation forms, etc)
- c. provide necessary instructions and administrative information, and answer any questions
- d. Involve relevant sectors or communities

The simulation should be initiated by the coordinator as planned. Every activity and response should be carried out according to the scenario and respective SOPs. Method of receiving and delivery of messages can be verbal, written on paper or by telephone or fax. These messages are directed specifically to individual or designated agencies that are responsible for coordinating responses. From the message input, the participants should determine the expected response and consequently coordinate with concerned internal and external agencies or individuals to take the necessary action. During the simulation, evaluators document all activities based on the criteria of simulation scenario. Each simulation should have its specific area of evaluation so that all actions are observed and evaluated.

CHAPTER 3 CONDUCTING MOCK DRILLS

This Chapter describes the process of conducting the drills including planning, set-up, briefings, facilitation/control/evaluation, and wrap-up activities.

3.1. Definition

A mock drill is a practical exercise in managing operations which simulates damage and injuries in a hypothetical emergency situation. Participants face mock situations, using the skills and techniques that would be applied in real situations. Drills require the actual mobilization and use of personnel and material resources. Drills are carried out in real time and each of the participants assumes the role that he/she normally performs in their regular work.

3.2. Objectives

- To test the relevance and effectiveness of plans, protocols, procedures, guidelines, and SOPs for emergency response.
- To evaluate abilities and the use of techniques, tools, resources, and actions related to the organization of emergency response operations.
- To improve coordination and application of specific techniques for risk reduction and control of consequences on the part of multiple actors and organizations.

3.3. Planning

3.3.1. Scope

The scope of the drill includes the boundaries of the drill and the possible collateral hazards associated with the main hazard

which triggers the events. The following five aspects should be considered while defining the scope:

- a. Hazards – Identify one specific hazard/collateral hazard for the drill
- b. Geographic area – Identify a defined location for the event and identify a hazard impact scenario
- c. Agencies and personnel – Identify which agencies will participate and the personnel required
- d. Exercise type – Identify the type of exercise to be conducted based on the realistically achievable results within the drill scenario
- e. Operating Procedures – Identify SOPs as per the scenario to test emergency response functions and coordination

3.3.2. Scenario Development

To conduct the mock drill, emergency/disaster scenario must be created. Sample scenarios and triggering events for different emergencies/disasters are developed and attached in *Annexure 2*. You may refer the sample and use the local information to build the scenario that is suitable in your setting. It consists of scenario description and triggering/impact events. The duration of the exercise can vary between 4 and 6 hours to achieve the full psychological effect of an emergency situation for participants. In case of national or regional simulation, the exercise may last two or more days.

The description of scenario must have at least the following components:

- Background and general description of the area;
- Geopolitical characteristics: geographical location, political boundaries, types of occupation, climate, and other aspects;

- Characteristics of the target population: number, gender, age groups, cultural characteristics, and others;
- Economic characteristics: type of production activities, services, and others;
- Health conditions and description of the health services structure;
- Resources, including material, financial, and human resources; service networks; transportation and communications systems; and others;
- Risk levels, specifying hazards and vulnerabilities.

Triggering events and the impacts of the event consist of a description of the features of the phenomenon and its effects on the population, infrastructure, services, environment, and general impact on the affected area. These features should include the following:

- Type of event
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- Other associated events generated
- Number of fatalities
- Number of injuries (severe, moderate, and mild)
- Number of missing
- Number affected
- Damage to public facilities (total collapse or with serious, moderate, or slight damage; number damaged and type of damage; consequences, etc.).
- Damage to private facilities (total collapse or with serious, moderate, or slight damage; number damaged and type of damage; consequences, etc.).

- Damage to critical networks and infrastructure (total collapse or with serious, moderate, or slight damage; number damaged and type of damage; consequences, etc.).
- Damage to critical services (total collapse or with serious, moderate or slight damage; number damaged and type of damage; consequences, etc.).

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For proper planning, organization and conduct of the drill, it is necessary to identify organizers and incident management team (actors) with clear roles and responsibilities. The overall coordinator shall ensure that the members of the simulation and the incident management team are identified. Refer *Annexure 1* for details.

The planning and organizing team includes the following:

- Exercise controller
- Logistics team
- Evaluation team
- Observers

The incident management team includes the following:

- Incident Commander – DHO
- Operation Officer – CMO
- Emergency Room Officer – Emergency In-charge
- Adm/Planning/Finance Officer – Administrative Officer
- Public Relation/Liaison Officer – as appropriate
- Logistics Officer – Store Keeper

- Dead body/Mortuary Officer – Mortuary In-charge(death occurring in the health facilities where there is mortuary)
- Security Officer – as appropriate

(Note: One person may take the role of one or more of the above mentioned team members or identify a separate role for each)

It is important to maintain contact with all the different working groups throughout the preparation process in order to approve content, validate the tools, establish guidelines, monitor compliance with the activity schedule, correct divergence from the script, and facilitate coordination.

3.3.4. Logistics and Supplies

Depending on the type of scenario following materials, equipment and furniture are required:

- Tables
- Chairs
- Whiteboards
- Flip charts
- Message cards
- Paper
- Marker pen
- Pencil
- Cello tape
- Telephone/Walkie talkie
- LCD projector
- Laptop
- Video camera

- Food and water as necessary
- Maps
- Triage card
- Name tags (The role the person plays)
- Vehicle/ambulance
- Moulage kits and masks for fractures, wounds
- Shock faces and burns
- Fake blood
- PA system
- Evaluation checklist & guideline

Transportation has to be arranged for the participants from the drill venue to the incident location. There should be constant communication between facilitators and participants since they are in several locations at the same time, and it is imperative that they can communicate easily to facilitate the smooth running of the drill. Mobile phones and two-way radios are easy way to ensure communication. The facilitators and resource persons can communicate on one channel, which is not used by the participants. The participants do not need to have a radio each, but each team or function should have a radio.

3.4. Execution

Before initiation of the drill, the coordination team and actors are briefed on their assigned roles and sent to different incident sites as necessary along with the required materials. Following this the coordinator briefs the hospital staff, media and evaluators on the drill. During this time, distribute evaluation forms, provide necessary instructions and administrative information, and answer any questions. Relevant sectors and communities must be involved.

The drill should be initiated by the coordinator as planned. Every activity and response should be carried out according to the scenario and respective SOP. Method of communication will either be through mobile phone, radio, walkie talkie, telephone or fax. Based on the messages communicated, the participants should determine the expected response and consequently coordinate internally and externally with concerned agencies or individuals to take the necessary actions. During the drill, evaluators document all activities based on the criteria of drill scenario. Each drill should have its specific area of evaluation so that all actions are observed and evaluated.

CHAPTER 4

DEBRIEFING, EVALUATION AND IMPROVEMENT PLAN

4.1 Debriefing

A briefing session is facilitated by the coordinator after the termination of the drill. All the participants of the drill should attend the session. The representatives of all the participants will share their experience and lessons learnt about the exercise. Observers will also present their findings and observations. Each person should be given an opportunity to provide an overview of the functional area they observed and both strengths and areas for improvement should be documented. This meeting enables controllers and evaluators to capture events while they remain fresh in the minds of the players and to ascertain their level of satisfaction with the exercise, and determine any issues or concerns and recommend for improvement. Each member of the incident management team should share their experiences.

4.2 Evaluation

Evaluation team will assess the result of the drill exercise and provide feedback to participants and key management staff. This feedback mechanism helps to understand the strengths and weaknesses of the simulation process from planning design, and execution of the exercise and helps to improve the organization of future events (*Annexure 3*). The findings should be properly documented and used to update disaster and emergency response plans, and correct any shortcomings.

The evaluation should cover the following aspects:

- Information flow, overall dynamics and coordination;

- Ability of the participants to take appropriate and pertinent decisions under pressure;
- Quality of the decisions made, given the possible consequences that these decisions would have in a real situation;
- Logic and consistency between the decisions made and what was anticipated in the plans, protocols, and procedures that were applied;
- Practicality of the decisions in terms of the type of resources available in the context of the exercise;
- Use of different tools and application of innovative alternatives where resources are lacking;
- Specific performance of each participant (leadership, involvement, interest, teamwork, etc.);
- Ability to work and take decisions as a group;
- Achievement of goals, given the assumptions under which participants are working.

The coordinator of the drill exercise should submit a detailed report with results of the evaluation to the relevant stakeholders involved. The authorities of these organizations are responsible for monitoring and implementing the recommendations and updating their preparedness and response plans.

4.3 Improvement Plan

Post exercise activities are essential to garnering the benefits of an exercise. Careful analysis and prioritization should go into developing recommendations and the Improvement Plan (IP) content. The IP converts lessons learned from the exercise into concrete, measurable steps that result in improved response capabilities. It is developed by the planners and

specifically details the actions that will be taken to address each recommendation, who or what department will be responsible for taking the action, and the timeline for completion.

4.4 Improvement Tracking and Planning

Once the IP has identified recommendations and action items and responsibility and due dates have been assigned, the hospital facility and/or department(s) should ensure that each action item is tracked to completion. Each facility/department should review all exercise evaluation feedback and resulting IPs to assess progress on enhancing preparedness and incorporate the information into its planning process. This review process may identify needs for additional equipment, training, exercises, coordination, plans, and procedures.

Annexure 1: Areas of responsibility and tasks for simulation exercises

Work area	Tasks
General Coordinator	<ul style="list-style-type: none"> • Establish and coordinate the teams responsible for different tasks in the preparation and execution of the simulation. • Approve the premises for and all parameters of the exercise according to the items to be tested. • Direct the internal and external activities before and during the exercise. • Coordinate the self-assessment of the overall process of organizing the exercise. • Prepare the budget. • Coordinate documentation on lessons learned for the exercise. • Prepare the relevant reports, including financial report.
Exercise Controller	<ul style="list-style-type: none"> • Review functional and methodological details for execution of the simulation with other teams. • Ensure that all resources and details have been addressed for the exercise. • Ensure that all participants understand the methodology and expected tasks of the exercise • Oversee the development of the different

	events and time periods elapsed during the exercise, following the script.
Participants	<ul style="list-style-type: none"> • Perform the assigned tasks and follow procedures as they pertain to participant specialties.
Simulators	<ul style="list-style-type: none"> • Act as simulated characters according to the roles assigned.
Technical Design Team	<ul style="list-style-type: none"> • Develop the script of the exercise and prepare all the related devices. • Determine the logistical requirements for the exercise in accordance with the script. • Video documentation and video presentation after the simulation
Scenario Team	<ul style="list-style-type: none"> • Design the scenario of the likely effects in collaboration with a team of specialists on topics related to the event being simulated.
Logistics Team	<ul style="list-style-type: none"> • Ensure the availability of facilities and equipment.

	<ul style="list-style-type: none"> • Provide necessary supplies for the working groups. • Provide adequate transportation for participants, guests, simulators, evaluators, and observers. • Ensure the efficient and timely availability of all the resources required for the development of the simulation, including the purchase of necessary supplies and materials.
Evaluation Team	<ul style="list-style-type: none"> • Know the details of the script and all related mechanisms for the exercise, especially the evaluation instruments. • Evaluate the decisions taken by participants during the exercise in accordance with the script and expected actions and use evaluation instruments to record the observations. • Conduct the plenary session of the exercise evaluation. • Provide a final exercise evaluation report to the Coordinator.
Evaluators	<ul style="list-style-type: none"> • Use the evaluation forms during development of the simulation. • Participate in the plenary analysis sessions and evaluation sessions. • Give explanations for the criteria used in the simulation evaluation form.

Observers	<ul style="list-style-type: none"> • Observers have the experience or level of authority to evaluate specific processes or activities, and are part of the evaluation team. • Participate actively during the exercise and present general evaluation criteria during the plenary analysis session immediately following the exercise. • Observers may use specific observation guidelines or use their own criteria based on their experience.
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Annexure 2: Scenarios for Simulation

1. Earthquake Scenario for Simulation

Thimphu city has a population of about 100,000, which extends from Babesa in the south to Kabesa in the north. All the Ministries are situated near the Dzong and most of the people are civil servants and their dependents. There are many government and private schools in the city and students make up about 10% of the population.

There are only 2 hospitals in the city, one is a tertiary hospital (JDWNRH) and the other hospital is the army hospital in Lungtenphu. There are 3 satellite clinics, which provide primary health care services to the people on a regular basis. There is a BHU in Dechencholing with 5-bed capacity. There is another hospital at Gidakom with 60-bed capacity. The hospital is situated at about 20 km from Thimphu city. JDWNRH is a tertiary hospital with 350-bed capacity. The hospital is situated above the police camp and the road running below the hospital is always busy with vehicles plying to town and school children walking to school. Today the road is

over crowded with vehicles and people attending Wang given by His Holiness the Je Khenpo in the police ground. The hospital has approximately 95% occupancy rate at present and about one-third of the 550 employee staffs are on duty. Four of the eight operating rooms are finishing cases. There are around 90 physicians in the hospital on a regular payroll. Of these, most are consultants and around 50 are in the hospital right now. The next hospital which belongs to the army is a secondary care hospital with 40-bed capacity. The ambulance service for the city is run by the Health Help Center (HHC) through the free toll number **112**. The HHC also provides information on health aspects and advices people during times of emergencies and disasters.

You are in your regular office work. There is a sudden ground shaking. Objects hanging on the walls started falling and you hear crashing sounds outside your office. People are screaming. You have sustained an impact to your head when the picture frame hanging behind your chair fell on you. The shaking lasted for about 1 minute. You barely managed to escape to the parking lot. While in the parking lot, some hospital staff approached you for directions and some were saying that most of the staff and patients in the hospital were either trapped or dead, while some escaped with minor injuries. There is total black out and the power generator house is also damaged.

You join the other hospital staff gathered at the assemble point where you are given a briefing by the Medical Superintendent, whereby you are given your assignment and corresponding Job Action Sheet. You are instructed to go to your specific Emergency Operations Center (EOC). The Hospital is now operating under the Hospital Emergency Incident Command System.

Day one Scenario

1. According to a radio, there is news of partial blackout in the city. They are still trying to check with BPC about the complete situation.
2. There is a small fire in the kitchen area of the hospital.
3. Initial report says that some wards and offices are dangerous due to threat of possible collapse.
4. There is confusion among the hospital personnel. ER is not functional due to collapse of the ceiling, some patients are trapped and some injured.
5. The nursery department's staff members are requesting additional nurses. The cribs fell and the babies are crying. The assigned nurse doesn't know what to do.
6. 10 patients arrive in the hospital. 8 are serious and would need emergency operations.
7. There are a number of relatives requesting information on the whereabouts of their relatives. No one is talking or entertaining them. Some are shouting and verbally abusing the guards.
8. There was some commotion in the upper floor of the hospital. The ventilators are not functioning in the ICU according to a nurse passing by.
9. Radio news mentioned that there is stampede in the police ground and reported that about 50 to 60 people are injured.
10. Operating supervisor reports only 1 operating room is available. The rest is damaged.
11. There is smell of gas leak. Switching on back generator will take about 3 hours. It is enough to provide power to all key areas of the hospital such as the ER, OR, ICUs, and Blood Banks; a report from the power stations mentioned that there are extensive damage to transmission line and the blackout might continue for another 3 days.

12. Regional office is requesting status and report of the earthquake in the hospital within an hour.
13. Health Emergency Operating Centre (HEOC) is requesting status report in your hospital in relation to the earthquake reported. The (MoH) will have a press conference in an hour.
14. There are some reporters on the line asking the Medical Director or the Incident Commander to go live on the radio for updates.
15. Emergency services are requesting 10 units of Type O blood and another 5 units of Type B blood.
16. Regional Office is calling to check if the hospitals have already received patients from RBP ground.
17. Emergency services is requesting for supply of Td vaccine as they have already used the 50 vials.
18. The National Disaster Management Authority (NDMA) is requesting a hospital representative to sit in the meeting at their office.
19. An additional 5 red tag patients and 15 yellow tag patients and 25 green tag patients have brought in by the different rescue groups.
20. ER nurse is requesting additional manpower to be given to the Emergency Room, likewise reporting of overcrowding in the ER due to relatives and media reporters.
21. A representative from Desung called asking if they can volunteer and help.
22. Laboratory personnel are reporting that their areas have no electricity and that there is an influx of laboratory requests.
23. Some patients in the private rooms are complaining that their air conditioner is not functioning.
24. The X-Ray department is requesting that they be prioritized for power due to the requests for X-ray.

25. The MoH is on the line and would like to talk to the Incident Commander, while the Thrompon has arrived and is requesting to talk to the IC as well.

Day Two Scenario

The following day, all patients who requested to go home were discharged.

All other patients, such as obstetric and pediatric patients including elective patients were referred to other hospitals. A total of 110 patients were seen, 50 patients were admitted, 30 of which were operated, 30 transferred to other hospitals and another 30 were minor cases who were treated and discharged. There were 10 patients who died within the 3 days from the 30 operated, half of which are now in the ICU. Power returned this morning. The hospital went on Code Red on the first and second day. Today the code was lowered to code white.

On the site of the damaged buildings in town, there are still ongoing search and rescue operations. There is a temporary evacuation center serving as home to people living within the vicinity where their houses have minor to severe damages making them unsafe especially with the continuous after-shocks.

Other government agencies as well as national and international non-government organizations are continuously giving relief and first aid. There are daily meetings in the morning and press conference at 11:00 am. Although reports mentioned that there is still the possibility of people being trapped, hope gets dimmer as days pass by.

Statistics showed almost 300 patients extricated, with 200 alive and referred to different hospitals. A hundred people were dead when rescued and temporarily housed in the mortuary. There were problems for identifying some of them and a few have not been identified as of this time. However, there is continued influx of relatives and friends looking for their loved ones. The area smells of dead bodies and human waste with a number of flies and rodents. The local government does not seem to have total control of the situation.

Day Three Scenario

- a. An official of the MoH (sent by the Ministry) will be visiting today early morning to take a look at the situation before attending the Press Conference in the afternoon. He/She will be in the hospital to have a visual inspection and needs to be briefed first before the meeting.
- b. There is a shortage of emergency drugs in the Emergency Department and OR. They are requesting that they be replenished soonest in the event that more patients will be coming.
- c. Some personnel are not reporting for work; nurses at the ER are requesting relief as they have been on duty for 16 hours now.
- d. The Thrompon is requesting for someone to attend the meeting at the municipal hall for the postmortem analysis.
- e. Some patients developed diarrhea after drinking water from the hospital faucet.
- f. Many of the local health workers are exhausted and requesting help.
- g. DDM is requesting for the update reports to include the cost spent by the hospital in relation to the said disaster. This should also include cost for repair of damaged section of the

hospital building. (There is a possibility of help coming from government or elsewhere)

- h. A well-known commentator from BBS is in the lobby requesting to interview the IC with regards to the status of the patients; requesting data on all admitted patients.
- i. Emergency Services supervisor reports of patients arriving from surrounding district hospitals
- j. DDM is requesting a summary of the issues and concerns, and possible recommendations for all the problems which will be discussed by the Ministers in the Cabinet today
- k. Hospital personnel are showing signs of stress and irritability
- l. Finance officer is complaining that he has no more cash available.
- m. The IC is requesting a representative to go with him during the NDMA meeting.
- n. Logistics officer is having a hard time contacting suppliers for the additional emergency purchase of some drugs and supplies.
- o. Employees are demanding incentive pay.
- p. Personnel are requesting that they be given free food during these times.
- q. A call from the Palace said that His Majesty will visit the hospital at 1:00 pm
- r. There is ongoing rumor that water is not potable due to many dead animals around the storage tanks which have cracked.
- s. There is a report from the city engineer that there could be a problem of the hospital building at the old site due to several cracks at the wall.

- t. The hospital psychiatrists are asking if they could be of help. Likewise, the MoH is asking if they need psychosocial team for the victims and the relatives.
- u. International organizations are asking how they can help the hospital.
- v. DDM is reminding you to submit your report every morning before 7:00 am for submission to the Secretary.
- w. An NGO is asking what help they could give for the victims.
- x. A retired group of doctors are volunteering themselves in any way they could be of service.

2. Earthquake Scenario for Mock Drill

- 12.25 pm: There was sudden ground shaking while you were about to go for lunch.
- 12.30 pm: According to radio news, many buildings in the town collapsed and many residences were trapped inside. Many houses and schools were collapsed across the Thimphu Dzongkhag.
- 12.35 pm: Principal, Hongtsho Primary School called 112 to send ambulances immediately since 10 students are seriously injured and some are dead.
- 12.37 pm: Principal, Chamgang Lower Secondary School reported 8 injuries in the school to 112 asking for Ambulance Services.
- 12.40 pm: Gup, Kabisa called 112 to mobilize Ambulances to 12 earthquake victims in Kabisa.
- 12.45 pm: Cook, JDWNRH reported there is fire in the kitchen areas
- 12.47 pm: Emergency Room Officer reported to the Administrative Officer, Emergency room is partially collapsed and cannot be used.

- 12.50 pm: Principal, Yangchenphu Higher Secondary School brought in 5 critical patients in his car.
- 01.00 pm: 15 patients walked in from nearby town
- 01.10 pm: One of the teachers from Motithang School brought 4 serious patients
- 01.20 pm: Black out in emergency room and x-ray room
- 01.30 pm: Leakage of water in the lab due to cracks developed in pipeline by the earthquake.
- 01.35 pm: Media is asking for the report in Casualty Management.
- 01.40 pm: HEOC is asking status of the hospital and victims/casualty (admitted, referred, dead)
- 01.45 pm: Emergency Room Officer needs 11 units of blood (3O+, 5B+, 3AB) and 5 patients have died
- 01.50 pm: Kidu Office in Wangdue Phodrang is requesting hospital representative to attend meeting in their office.
- 01:55 pm: 5 red tagged patients and 3 green-tagged patient and 10 yellow-tagged patients were brought in by local search and rescue team.
- 02:00 pm: There is overcrowding in the ED with patients and patient parties. Patient parties complain that the room is cold and they need immediate service
- 03:05 pm: X-ray unit is asking to restore electricity immediately as there are lots patients with suspected fractures. Patient parties are abusing the staff
- 03.10 pm: Emergency Room Officer asked Adm Officer to arrange refreshments for staff who has overworked.
- 03.15 pm: Emergency Room Officer asked Adm Officer about the absence of two nurses from Emergency and 2 Nurses suffering from diarrheal disease

- 02:20 pm: Lab unit is asking Adm Officer to restore power or find alternatives since there is influx of laboratory test request from ED.
- 02:20 pm: Dasho Dzungda has come to see the hospital
- 02:25 pm: PS is calling IC/Adm Officer about Hon'ble Health Minister's visit to see the JDWNR Hospital and disaster affected victims.

3. Scenario for GLOF Simulation

Wangdue Dzungkhag has population of 37,267 and its settlements are concentrated in the river basin, which extends from Bajo town to Kamichu. There are numerous glacial lakes at the sources of Punatshangchu River, out of which Lugi Tsho and Ramtsheng Tsho are potentially dangerous. Bajo Hospital and Kamichu BHU both lie in potentially red zone area of GLOF. One day, while you are going to office, there was an alarm of GLOF early warning. Within 5 minutes after early warning, flood reached Wangdue and flooded Bajo town and hospital areas. While most of the patients have been evacuated from hospital, some could not.

Day One

1. According to a radio, there is news of Bajo town flooding and hospital is not operational.
2. Hospital staff residing within the campus were affected and left homeless.
3. While the hospital is flooded and not operational at the moment causing confusion amongst the staff, 10 patients were brought in. Most of the patients were unconscious due to drowning.
4. There are a number of relatives pressing doctors and nurses to see their patient since they are unconscious.

5. Some members of the families were missing and seeking information of whereabouts of their patient. No one is talking to or entertaining them. Some are shouting and verbally abusing the hospital staffs.
6. There was commotion among the hospital staff.
7. Radio news mentioned that 50 people are missing and 60 sustained injury due to either drowning or collapse of building
8. Victims of the disaster were dying due to unavailability of health facilities for treatment. 10 victims need operation, 6 resuscitation and 15 excessively bleeding.
9. Bleeding patients need blood transfusion immediately.
10. There is extensive damage of transmission line and blackout of Bajo might continue for 3 to 4 days
11. Punakha Hospital is equally affected as Bajo Hospital
12. HEOC is requesting status report in your hospital in relation to the GLOF reported.
13. The MoH will have a press conference in an hour.
26. There are some reporters on the line asking the Incident Commander to go live on the radio for updates.
17. The NDMA is requesting a hospital representative to sit in the meeting at their office.
27. An additional 5 red tag patients and 15 yellow tag patients and 25 green tag patients have arrived who were brought in by the different rescue groups to hospital thinking that hospital is functional.
28. MoH has mobilized back up team from Thimphu with field tent, generator and some emergency medicine for establishing temporary hospital at the sites.
29. A representative from Desuung called asking if they can volunteer and help.

30. There were overcrowding in the field hospital by patient party.
31. Patient parties are requesting the doctor to see their patient first.
32. There is need of 10 units of Type O blood and another 5 units of Type B blood for emergency transfusion.
33. There is need of Td vaccine as they have already used the 50 vials brought with them.
34. The MoH is on the line and would like to talk to the IC while the Thromde Thuemi has arrived and would like to correspond with the CMO.

Day Two Scenario

The following day, all patients who requested to go home were discharged. All other patients, such as obstetric and pediatric patients including elective patients were referred to other hospitals. A total of 110 patients were seen, 50 patients admitted, 30 of which were operated, another 30 transferred to other hospitals and another 30 were minor cases, treated and discharged. There were 10 patients who died within the 2 days from the 30 operated, half of which are now in the critical condition, which need immediate referral. Power returned this morning.

On the site of the damaged building in town there are still ongoing search and rescue operations. There is a temporary evacuation center serving as home to people living within the vicinity where their houses have been damaged or washed away. Other government agencies as well as national and international non-government organizations are continuously giving relief and first aid. There are daily meetings in the morning and Press Conference at 11:00 am.

A hundred people were dead when rescued and temporarily housed in the mortuary. There were problems for identifying some of them and a few have not been identified as of this time. However, there is continued influx of relatives and friends looking for their loved ones. The area smells of dead bodies and human waste with a number of flies and rodents. The local government does not seem to be in total control of the situation.

Day Three Scenario

- a. An official of the MOH (sent by the Ministry) will be visiting today early morning to take a look at the situation before attending the Press Conference in the afternoon. He/she will be in the hospital to have a visual inspection and needs to be briefed first before the meeting.
- b. There is a shortage of emergency drugs in the field hospital. They are requesting that they be replenished soonest in the event that more patients will be coming.
- c. Some personnel are not reporting for work; nurses at the ER are requesting relief as they have been on duty for 16 hours now.
- d. The Thrompon is requesting for someone to attend the meeting at the municipal hall for the postmortem analysis.
- e. Some patients and hospital staff developed diarrhoea after drinking water supplied from the temporary shelter.
- f. Many of the local health workers are exhausted and requesting help.
- g. DDM is requesting for the update reports to include the cost spent by the hospital in relation to the said disaster. This should also include cost for repair of damaged section of the hospital building. (There is a possibility of help coming from government or elsewhere.)

- h. A well-known commentator from BBS is in the lobby requesting to interview the IC with regards to the status of the patients; requesting data on all admitted patients.
- i. DDM is requesting a summary of the issues and concerns and possible recommendations for all the problems which will be discussed by the Ministry in the Cabinet today..
- j. Hospital personnel are showing signs of stress and irritability.
- k. Finance officer is complaining that he has no more cash available.
- l. The IC is requesting a representative to go with him during the NDMA meeting.
- m. Logistics officer is having a hard time contacting suppliers for the additional emergency purchase of some drugs and supplies.
- n. Employees are demanding incentive pay.
- o. Personnel are requesting that they be given free food during these times.
- p. A call from the Palace said that His Majesty will visit the hospital at 1:00 pm
- q. There is ongoing rumor that water is not potable due to many dead animals in and around the storage tanks.
- r. The hospital psychiatrists are asking if they could be of help. Likewise, the MoH is asking if they need psychosocial team for the victims and the relatives.
- s. International organizations are asking how they can help the hospital.
- t. DDM is reminding you to submit your report every morning before 7:00 am for submission to the cabinet.
- u. A retired group of doctors are volunteering themselves in any way they could be of service.

4. GLOF Mock Drill Exercise Scenario

- 12.00 pm: GLOF struck Wangdue where hospital and towns are located nearby riverine area. While most of the patients from hospital were evacuated, some could not. Hospital is not operational due to flooding.
- 12.10 pm: 112 received call from Thromde Thuemi asking to send ambulance since many people were injured in the town.
- 12.15 pm: Call from Basochu project Adm Officer to send Ambulance to pick 5 patients struck by flood
- 12.20 pm: CMO received a call from one of the relatives of flood victims to come and attend their patient who is unconscious and bleeding.
- 12.30 pm: Thromde Thuemi asked HHC to mobilize ambulance for increasing number of serious patients.
- 12.35 pm: One of the victim's relative abuses the CMO for not sending ambulance and their team immediately.
- 12.40 pm: 10 patients were brought in the hospital where hospital is flooded and not operational at the moment. Most of patients were unconscious due to drowning. There are a number of relatives pressing doctors and nurses to see their patient since they are unconscious.
- 12.45 pm: HEOC is requesting status report in your hospital in relation to the GLOF reported. The MoH will have a press conference in an hour.
- 12.45 pm: There are some reporters on the line asking the Incident Commander to go live on the radio for updates.
- 12.49 pm: The NDMA is requesting a hospital representative to sit in the meeting at their office.

- 12.49 pm An additional 5 red, 15 yellow and 25 green tag patients have arrived who were brought in by the different rescue groups to hospital thinking that Hospital is functional.
- 12.50 pm MoH has mobilized back up team from Thimphu with field tent, generator and some emergency medicine for establishing temporary hospital at the sites
- 12.51 pm: A representative from Desung called asking if they can volunteer and help. There were overcrowding in the field hospital by patient party.
- 12.52 pm Patient parties are requesting the doctor to see their patient first.
- 12.53 pm: There is need of 10 units of Type O blood and another 5 units of Type B blood for emergency transfusion.
- 12.54 pm: There is need of Td vaccine as they have already used the 50 vials brought with them.
- 12.55 pm The MoH is on the line and would like to talk to the IC, while the Thromde Thuemi has arrived and would like to talk to the IC as well.

5. Scenario of a Vehicular Accident

An Eicher bus with a capacity of 35 passengers makes its journey from Thimphu to Bumthang on a cold chilly winter. The seats inside the bus are all filled. However, on demand, the driver lets in more passengers on the way. As it makes its journey from Thimphu till Yusipang, the bus is heavily cramped and has reached beyond its capacity. A total of 11 passengers have boarded in including the 35 passengers. The bus is now carrying 46 passengers in total. The extra 11 passengers are left without any seats. Moreover, the carrier is also heavily loaded. Already cramped and heavily loaded, the bus is faced with slippery road covered with ice while nearing the Dochula pass. After successfully crossing Dochula pass, nearing Lamperi, at around 8.48 AM, the bus slips and topples down the road almost 60 meters. A total of 18 passengers, including driver, is feared to be dead on the spot, and 12 are seriously injured who need immediate medical attention. The rest are also injured.

An alto car right behind the bus witnesses the accident, and immediately calls traffic police. After a few minutes, many vehicles are stranded; people are shouting and observing the scene. There is confusion among the travelers witnessing the accident.

The police come to the scene after almost one hour of the incident. With the help of the travelers, they try to evacuate the injured passengers.

Upon evacuating the injured passengers near the road side, 3 ambulances arrive with the siren. The heavily injured are quickly rushed to the ambulance, and are closely being monitored by EMTs in the ambulance. However, 3 of the heavily injured die near the road side due to excessive bleeding. There is also a danger that same might happen to the rest of the injured, who need immediate medical

attention. The on-scene medical team is faced with shortage of medical experts and ambulances. The injured are quickly rushed to the JDWNRH and are taken to ICU.

Discussion Items

- a. For an incident of this magnitude:
 - What measures will be taken immediately by your facility to assist?
 - Who initiates these measures?
 - What standard routines are activated and what is your specific responsibility?

- b. Blood will be needed immediately. How does your facility meet the demand?
 - What are the most urgent demands for special medical resources for this incident?
 - What services of a specialized or exceptional nature can your medical facility provide?

- c. Much literature on disaster response management indicates that one of the greatest disaster challenges is the management of civilian volunteers who arrive to assist. If your facility was the nearest hospital to this incident:
 - How would you process potential blood donors and other volunteers?
 - Who at your facility is charged with this responsibility?

- d. Assuming that your medical facility is the nearest to this incident:
 - What is your facility's plan for managing the arrival of relatives and loved ones of the injured and expectant?

- What special services can you call on to assist in addressing this issue?

6. Scenario of a Windstorm in X Dzongkhag

6.10 PM

Heavy rainfall in the last two days has dampened the X town, and according to NSB, the district is estimated to have an approximately 18900 population. The rainfall has been accompanied by thunderstorm, and strong winds. At around, 6.10 PM, Samtse town is struck by a very strong windstorm that not only blows away the tin sheet roof of the houses, it also damages the trees and weak pillars. The windstorm has killed almost 12 people, and injured few people who require immediate medical attention in the vicinity of the town and the extent of damage caused by the windstorm to other parts of the town is still unclear. The injured ones are carried by the people into a safe and sturdy shelter.

6.14 PM

As soon as the town is struck by the windstorm, there is a power blackout at 6.14 PM, which is further exacerbated by the downpour. The communications are also disturbed making it difficult to ask for help.

The official of the district hospital realizing the impact that the windstorm has caused starts to inform the emergency department in the hospital to be dispatched quickly to the scene. Realizing that there are high concentrations of people in the town area, the medical officer along with others arrives at the scene. Medical officer also informs the HHC, to further dispatch ambulance and medical specialist to deal with the injured personnel.

6.40 PM

After the arrival of the emergency medical team and ambulance, the injured are rushed to the ambulance with the help of a stretcher, and are quickly driven to the hospital.

6.55 PM

As soon as the injured were taken to hospital, the medical team with help of generator has started to assess and examine the injured. Almost one hour and there is no sign of power, and there are still problems with communications.

7.20 PM

While the health workers in the hospital are busy attending the injured, 10 more injured from people along with their family members walk in the hospital. The hospital does not have the capacity to attend the 10 more injured. There are also not enough beds for the extra injured. The hospital is also out of blood supply and is in desperate need of more blood supply and medical specialist.

Discussion Items

- a. For an incident of this magnitude:
 - What measures will be taken immediately by your facility to assist?
 - Who initiates these measures?
 - What standard routines are activated and what is your specific responsibility?
- b. Blood will be needed immediately. How does your facility meet the demand?
- c. What are the most urgent demands for special medical resources for this incident?

- d. What services of a specialized or exceptional nature can your medical facility provide?
- e. Much literature on disaster response management indicates that one of the greatest disaster challenges is the management of civilian volunteers who arrive to assist. If your facility was the nearest hospital to this incident:
 - How would you process potential blood donors and other volunteers?
 - Who at your facility is charged with this responsibility?
- f. Assuming that your medical facility is the nearest to this incident:
 - What is your facility's plan for managing the arrival of relatives and loved ones of the injured and expectant?
 - What special services can you call on to assist in addressing this issue?

7. Scenario of a landslide (table top exercise)

Gidakom is 20 km away from the capital Thimphu and is known for its mining activities. A hospital with 60-bed capacity is located at Gidakom and caters mostly to TB patients. With constant blastings, there have been complains by the local residents on the damage to their houses and the stability of the hills located near the mines.

Its monsoon season and heavy rains have been pouring continuously. These have caused several streams and drains to flood and overflow. The local media reports several minor road blockages between Gidakom and the highway to Thimphu. On 11th July at 3:30 pm, the hospital administration received reports of a major landslide near one of the mines with almost the whole mountainside collapsing into the nearby village. Dozens of homes are reported to be destroyed and many damaged by the falling boulders, debris and muds that came crashing with the landslides. The mine is 15 km away from the hospital and the hospital only has one ambulance.

With your hospital being the nearest to the disaster, it is expected that all injured due to the landslides will be brought there. Further, there might be request for ambulances and onsite medical assistances to cater at the site of the disaster. With night falling, it is important to organize and coordinate the hospital emergency response.

Day 1. Immediately after the report of the landslides

1. Most of the hospital staffs have left for home. Only the ones for the night duty are in the hospital.

2. Two health workers on night duty come running and crying as their homes are located at the site where the landslides occurred. They are requesting permission to leave the hospital to go and check on their families.
3. Hospital phones start ringing requesting for ambulances and medical staff. Many are believed to be injured or buried under the landslides
4. It is still raining heavily outside and the mobile lines are clogged.
5. The hospital beds are fully occupied and to make matters worse, the roof of one of the hospital wards is leaking.

After 1 hour

1. You receive call from Minister and Secretary of MoH asking about the situation.
2. Injured residents and miners start arriving at the hospital. About 20 injured patients are wailing in pain and asking to be seen by the doctor.
3. There is report of continual falling boulders and mud slide. Road is reported to be badly damaged. The ambulances report that it is unable to reach the actual disaster site.
4. Based on the information from people who brought the injured to the hospital, about 10 people are thought to be dead and over 100 expected to be injured by the landslides. They also expressed fears that many, especially miners at the site may be buried under the landslides.
5. More patients continue to pour in but there is limited space in the hospital.
6. Electricity is down due to heavy rain and only few hours of daylight remains.

After 6 hours

1. Many patients have lost a lot of blood. There is no blood supply in stock.
2. Some of the serious patients have been evacuated to JDWNRH

Next Day

1. The water pipes for the settlements at the site of the landslide have been cut off in most points and at other points the pipes are leaked and there is fear of outbreak of diarrheal diseases

8. Landslide Scenario for Mock Drill

3:30pm: Major landslide at mine site near a village occurred. A whole side of the mountain has collapsed and debris and mud have hit the houses located below the mountain.

3:45pm: Initial information regarding the damage and causality is received through telephones. Major casualties expected. Many feared to be killed by the landslide and even more injured..

3:50pm: The hospital administration conducts an emergency meeting with relevant team members to prepare to respond to the situation as well as prepare for the influx of patient that will be expected.

3:50pm: Hospital phones receive calls from local residents asking for medical help at sites as well as request for ambulances.

3:55pm: Mobile lines are clogged and very difficult to access mobile telephone services.

4:00pm:

Need to mobilize health staff who have left for home after duty

4:10pm: Two hospital staff come running to the Medical Officer requesting permission to leave the hospital to go and check on their families as their homes are located at the site of the landslide

4:30pm: Injured residents and miners start arriving at the hospital. About 20 injured patients are wailing in pain and

asking to be seen by the doctor. They are all brought into the casualty room but it is too small to accommodate all the patients. It's raining heavily and they cannot be kept outside.

Report of falling boulders and mud slide still continue. Road is reported to be badly damaged. The ambulances report that it is unable to reach the actual disaster site.

4:40pm: The ward in-charge reports that the beds are all full and hospital has to prepare space for the large influx of patients that will soon be expected.

4:50pm: The ward boy reports that one part of the hospital is being flooded by the over flowing drain nearby

4:55pm: With the huge number of patients, there isn't adequate staff to attend to all the injured being brought in.

5:00pm: Call from the Minister and Secretary of MoH asking about the situation

5:30pm: More patients continue to pour in. But there is limited space in the hospital.

6:00pm: Electricity is down due to heavy rain and only few hours of daylight remain.

6:30pm: Emergency relief workers and additional health workers from Thimphu arrive at the hospital to assist

6:35pm: Many patients have lost a lot of blood. There is no blood supply in stock.

9. Disease Outbreak Scenario for Mock Drill

Scenario Stage 1

A woman aged 48 visits a Darla Basic Health Unit in the Chukha District. She is running a high fever, has shortness of breath, cough with blood-stained sputum, and severe muscle and bone pain over much of her body. She lives in a rural area where small-scale production of crops and livestock are the main activity of the area. On questioning, she does not own any poultry, but four days ago purchased two birds from a nearby family, then killed them and prepared them for a family celebration.

Scenario Stage 2

Three members of a family visit the same Basic Health Unit two hours later. They are a woman aged 32, and her two children a girl aged 4 and a boy aged 7. The mother and younger child both have high fever, muscle pain with weakness and lethargy, and marked respiratory distress. The older child has a normal temperature and cough, but no respiratory distress. On questioning, the family owns a free range poultry flock of 60 chickens and 5 ducks, which scavenge widely around the land near the house. The mother sells eggs and live birds to people in the surrounding area. Six days ago, five birds died suddenly and three birds died the following day. The next day they sold 25 of the remaining birds at discounted prices to people in the surrounding area, in order to avoid further financial loss. Since then they have lost a further 2 to 4 birds each day, and their flock of chickens is now down to 17 birds. No ducks have died. Birds which were dead or looked like they might die were quickly slaughtered and carcasses were sold at the local market. The father is apparently clinically normal, but he works as a

mechanic away from home during the day, and has little to do with the poultry.

Scenario Stage 3

The clinician at the Basic Health Unit asks further questions and finds that the first woman seen had purchased her birds from this family. By this time the first woman has returned home with medication of paracetamol to reduce fever and discomfort, and advice to rest until she recovers. Now that a second linked group of cases has been identified, the clinician becomes concerned that avian influenza H5N1 is a possible diagnosis. He contacts the local hospital in Phuentsholing to advise them of his concerns. It is agreed that all three members of the family should be immediately admitted to the hospital, and that the previous woman seen should be visited and also considered for admission.

Scenario Stage 4

Hospital staffs meet to consider how they should deal with two and possibly three feverish patients with possible avian influenza, and an additional patient who may be an incubating case or may be unaffected.

Scenario Stage 5

The first three patients are admitted to Phuentsholing hospital, and a call is received from the home of the first woman seen, advising that her condition has deteriorated considerably since she returned from hospital. She has severe respiratory distress and evidence of moderate hypoxia with delirium, and it is requested that she be urgently brought by ambulance to the hospital. Hospital staff made arrangements for her transfer to the hospital, and need to give advice to the ambulance staff about

handling of the patient during collection and transport to the hospital. They also plan how they will manage the four people from an infection-control viewpoint, when they have one severely ill patient, two moderately ill patients, and one child of uncertain infection status.

Scenario Stage 6

The incident controller calls a meeting of all team leaders and asks for proposals on:

1. Diagnostic procedures to be conducted on the four cases, including measures to be taken during sample collection and processing.
2. Plans for an epidemiological investigation of the affected poultry flock and other flocks in the surrounding area to determine the avian influenza infection status of these flocks and their role in the maintenance and spread of infection.
3. Plans for an epidemiological investigation to determine whether the second family could represent a cluster with person-to-person transmission, or whether it is more likely to be common source infection.
4. Actions to be taken at national level, including requirements for reporting under the International Health Regulations 2005.

Scenario Stage 7

A family of four German tourists crosses the border from India after visiting Buxa Wildlife Sanctuary and Tiger Reserve, and come to the hospital because the two children aged 14 and 16 have high fever and acute watery diarrhoea, but no respiratory signs. Family members speak almost no English, and an interpreter is required in order to take an accurate history. The incident controller needs to arrange translation services urgently, and assigns this responsibility to 2 team members, with a

request that they advise on how to manage contact between the interpreter, the doctor and the family during questioning by a doctor.

Scenario Stage 8

International media find out about the German tourists, and 50 phone calls are received over a two-hour period at the hospital, enquiring whether the family members have avian influenza, and what action is being taken to control the disease. The communication teams are asked to prepare a media release for international distribution, and a “Frequently Asked Questions (FAQ)” to be prepared and put up on a web site, so that this can be used to deal with most enquiries.

Scenario Stage 9

Surveillance in the poultry population has identified six scavenging free range chicken flocks in which avian influenza H5N1 infection has been confirmed. All are located within 2 km of the index case in poultry. All poultry are slaughtered, but decisions are required on what action to take with members of the at-risk families, and to decide which families are in fact at risk. Availability of medication must be assessed as part of this process.

Scenario Stage 10

A nurse in the hospital, who has had no direct contact with the patients, develops a moderate fever with muscle pain, upper respiratory tract infection and nasal discharge. A rumour spreads rapidly in the local community that avian influenza is spreading beyond the known affected people. The incident controller must respond to the rumour.

Scenario Stage 11

The index case (48 year old woman) dies, and a media release must be prepared by the communications team, announcing this. Any other actions must also be decided.

Scenario Stage 12

All three members of the second affected family are now recovered, so are released from hospital and return home. This process must be managed.

10. Scenario for Fire Accident for Mock Drill

4:30 p.m.

The gas stove in Hotel Norzin blasts injuring three cooks and two assistants who were inside the kitchen. The hotel is on fire. The six-storied-shopping complex is on fire. The building has ten shops, two hotels and four residential quarters. The local Fire Department (FD) dispatch receives numerous calls about the fire. The local FD is dispatched to the incident with the Fire-fighting Squad. FD arrives on scene, sets up a perimeter, and follows their Standard Operation Procedures to evacuate the rest of the shopping complex personnel. The local Police Department was notified. The Local FD set ups a triage area for the injured and contacts the Emergency Department at JDWNR Hospital for patient destination and hospital bed availability. FD Incident Commander and the EMS officer request additional ambulances for the injured. The people inside the buildings try to get out and in the process; the elderly and young children are sustained injuries. On the street there is confusion. Arriving first responders and citizens attempt to converge on the scene of the fire, only to have to fight crowds attempting to escape.

5:00 p.m.

The crowd on the street grows quickly as uninjured personnel and the walking wounded begin evacuating from the two intact sides of the building. The burning building falls to the ground. Soon the other buildings in the area also begin to empty.

5:10 p.m.

The local FD and PD complete their search. The Incident Commander and the EMS personnel notify the ED that there is an increase of injuries and more beds will be needed.

5:15 p.m.

The first victims begin arriving at the ED. Five (5) have suffered trauma to the lower extremities. Your trauma capability is now beyond your capacity.

5:20 p.m.

You are notified that five (5) more patients are in-route with less severe injuries. All beds in your ED are filled. Unannounced, fifteen walking wounded arrive at the ED.

5:30 p.m.

The Medical Superintendent is notified that blood product supplies are becoming critical. The internal phone system goes down. Communication is limited to handheld radios.

5:45 p.m.

Thirty to forty people show up to volunteer to help, some offering to donate blood.

5:50 p.m.

Families of the injured begin arriving at the hospital, some frantically seeking information about loved ones.

5:55 p.m.

Local Police arrive and inform you that they are there to collect evidence from the victims.

6:10 p.m.

The ED is notified that all victims have been transported from the disaster site.

6:30 p.m.

Exercise terminated.

Discussion Items

- a. For an incident of this magnitude:
 - What measures will be taken immediately by your facility to assist?
 - Who initiates these measures?
 - What standard routines are activated and what is your specific responsibility?

- b. Blood will be needed immediately. How does your facility meet the demand?
 - What are the most urgent demands for special medical resources for this incident?
 - What services of a specialized or exceptional nature can your medical facility provide?

- c. Much literature on disaster response management indicates that one of the greatest disaster challenges is the management of civilian volunteers who arrive to assist. If your facility was the nearest hospital to this incident:
 - How would you process potential blood donors and other volunteers?
 - Who at your facility is charged with this responsibility?

- d. Assuming that your medical facility is the nearest to this incident:
 - What is your facility's plan for managing the arrival of relatives and loved ones of the injured and expectant?
 - What special services can you call on to assist in addressing this issue?

11. Scenario for Chemical Incident

Day One

At 6:00 am, several containers of benzene were spilled accidentally while unloading benzene at Pasakha Industrial estate, Phuentsholing, releasing it into nearby river. The river is the main source of drinking water for factory workers and nearby residents. At the incident, around 30 workers suffered with shortness of breath, chest tightness, wheezing, coughing, burning sensation of eyes and throat, blurred vision and loss of consciousness. Most of the workers were traumatized (include the condition of people residing nearby), however, the supervisor managed to call 112 and informed about incident. Immediately, Phuentsholing hospital dispatched 2 ambulances along with the emergency medical team at the scene. Not all patients were able to transport in 2 ambulances. Three less severe patients were transferred to hospital in private cars and nearby available taxis.

The remaining workers at the factory, drained the spilled benzene into the nearby river increasing the concentration of benzene, more than 30 times the national safety level (normal contain of benzene in drinking water is 0.01mg/l).

Day Two

On the second day, more than 50 people arrived at the hospital with the same symptoms of illness. Among which around 30 of the patients were affected through contaminated drinking water. The contaminated river with benzene happens to be the source of drinking water for this group of people. The hospital was overwhelmed by people seeking treatment. The sudden inflow created wide spread disorganization and generated a shortage of

medical supplies. Due to excessive inhalation of benzene, 5 workers out of 30 referred on the first day died.

Ministry of Health is requesting status report from the hospital. At the same time, the CMO of the hospital need to prepare a media release.

4. What policies, plans, and procedures should be reviewed, revised, or developed? Identify specific plan/policy/procedure and list them in order and indicate the priority level for each.

Part II. Design and Conduct of Exercise					
1. Please rate the following on a scale of 1 to 5, with 1 indicating strong disagreement with the statement and 5 indicating strong agreement.					
Assessments (Please tick against the respective box)					
The exercise was well organized and structured	1	2	3	4	5
The exercise scenario was realistic					
The briefing and/or presentation helped me understand and become engaged in the scenario					
The facilitator(s)/controller(s) was knowledgeable about the material and kept the exercise on target					

The exercise handbook used during the exercise was a valuable tool throughout the exercise					
Participation in the exercise was appropriate for my role					
The level and mix of disciplines and participants included the right people for this exercise					
2. How would you improve this exercise? What changes would you make?					

Annexure 4: Reporting Template

A. Introduction

B. Scope and Objectives

- Drill/exercise scope
- Participants/Participating agencies
- Mock drill objectives

C. Scenario Summary

- Initial conditions
- Sequence of events

D. Critique

- Scope of Evaluation
- Summary
- Notification and communications
- Operations and field responses
- Equipment and facilities
- Standard Operating Procedures
- Drill-related problems
- Other Observations

E. Outcomes

- Significant findings/successes
- Loopholes/Deficiencies/Omissions
- Opportunities for Improvement

F. Plan of action for corrective actions

GLOSSARY

- Players* : Players have an active role in responding to an incident by either discussing (in a discussion based exercise) or performing (in operations-based exercises) their regular roles and responsibilities.
- Actors* : Actors are volunteer victims who simulate specific roles, including injuries from a disaster, to add realism to an exercise.
- Scope* : Determines the extent of the actions or effects of the activity. It defines the scale of the exercise in terms of geographic coverage, topics covered, level of complexity, and number of participants, among other factors.
- Objectives* : The qualitative expressions of the level of performance and results expected from the activity. These guide the evaluation of the exercise.
- Target audience* : The organizations and individuals who participate in the exercise. Their selection is based on the themes or issues examined by the simulation.
- Timeline* : The planned timing of the various activities to be carried out during the preparation and execution of the exercise. This allows those responsible to track the entire process. (The form in Annex 5 lists activities to be considered in this schedule)
- Observers* : Observers are usually authorities, experts, or others invited to witness the execution of the exercise without playing an active role.

They are not part of the evaluation team but may give their opinions and observations during the evaluation period if they so wish.

Messages

: The messages inform participants of the development of the simulated events, pose problems, and provide instructions. They are delivered sequentially as established by the script. They can be delivered orally, in print, or electronically.

