Hospital-Based Medical Disaster Response Reference Book

First Edition

January, 2018

Publisher: AaBET Hospital, St. Paul Hospital Millennium Medical College, Addis Ababa, Ethiopia

Lead Author: Yonas Abebe (MSc)

Authors: Alegnta Gebreyesus (MD), Messay Assefa (MSc), Ayalew Zewdie (MD), Helina Bogale (MSc), Menbeu Sultan (MD), Gelila Mengistu (MD)

Contributors: Woldesenbet Waganew (MD), Niguse Taye, Tsegaye Tissaw, Yayesh Gayim, Getamessay Kinfe, Teshome Gishu, Zegeye Kebede, Alemayehu Sileshi, Solomon Mikru, Solomon W/Yohans, Begashaw Belay (MD), Surafel Mulugeta, Werku Debrework, Samuel Lema, Bethelhem Fekadu, Liulseged Ketsela, Sajin Leksa Tarekegn, Adiyam Mulushewa, Solomon Daniel, Efrem Bekele, Tesfaye Getachew (MD), Abera Lemma, Selamawit Degfe, Selamawit Zewudu, Tsehay Deresse, Zebiba Seid and Shemsu Temesgen

Reviewers: Tolesa Dida (MSc), Pia Daniel (MD), Tsion Firew (MD), Aklilu Tumebo (MD), Assefu Woldetsadik (MD), Fatuma Ebrahim (MSc), Finot Debebe (MD), Lemlem Beza (MSc), Heyria Hussien (MSc), Dagnachew Siraye (MD) and Jalene Aga (MSc)

Acknowledgment

We are grateful to all contributors and reviewers for making this book tangible and so useful. AaBET hospital patient flow and quality improvement office has huge contribution for this wonderful initiative. Since the drill was the reason to begin this endeavor, we also appreciate all hospital staffs and coordinators who were participated on the unique and first in kind disaster drill done at AaBET hospital in July 7th 2017. This book was made possible with a support of AaBET hospital management team and higher officials of the college.

Finally, we are thankful of all staff at Ras Emiru Printing Enterprise for their vigorous work.

Contents

Introduction I

Scope of the book IX

Operational definitions X

1. Proposed structural frame work of hospitals' disaster preparedness and response office 1

2. Roles and responsibilities of each leader of the office 2

    2.1 Chief of disaster preparedness and response office 2

    2.2 Disaster research head 3

    2.3 Disaster store head 5

3. Proposed structural frame work of the office (during disaster incidents) 7

4. Roles and responsibilities of incident commander and other coordinators (During disaster incidents) 8

    4.1 Incident commander 8

    4.2 Head of medical service 8

    4.3 Head of logistics 20

    4.4 Head of security and safety 23

    4.5 Head of communication 26

5. Proposed structural frame work of hospitals' mobile team for scene disaster medical response 27

6. Who has the authority to declare a disaster and activate this disaster response plan? 28

7. What to do during the disaster response phase 29

8. Hospital-based disaster drill 31

9. Stakeholders of hospital disaster preparedness and response office 32

10. Communication means 33

Annex 1. Site-allocation map of AaBET hospital (Sample) 34
Annex 2. Job cards (Sample) 35
Annex 3. Triage tags 37
Annex 4. Disaster response badge (Sample) 41
Annex 5. Badge list for all personnels (Sample) 42
Annex 6. Human resource checklist (Sample) 44
Annex 7. Reporting formats (Sample) 49
Annex 8. Recovery checklist for all departments (Sample) 51
Annex 9. Disaster kits checklist (Sample) 54
Annex 10. Drill case scenario (Sample) 61

Introduction

The word disaster comes from the Middle French désastre from the old Italian disastro, which comes from the Greek pejorative prefix dis– (bad; Gr: δυσ-) + aster (star; Gr: ἀστήρ). So disaster lit. means "bad star". The sense is astrological, of a calamity blamed on an unfavourable position of a planet [1].

The United Nation defines disaster as "a serious disruption of the functioning of society, causing widespread human, material, or environmental losses which exceed the ability of the affected society to cope using only its own resources" [2]. From medical perspective, disaster is defined as any incidents that cause imbalance between patient need and resources required for the care of victims [3].

Human being has been fighting with different disasters since the dawn of our existence [4]. Many people are affected by both natural and man-made disasters each year worldwide. It has a potential to cause physical injury and loss of life. Victims could also lose home, possessions, and community. People who goes through this process experience emotional and physical problems [5].

Disaster related researches were being conducted since many years back. Many researchers believe that all disasters are human-made due to the fact that human actions on different hazards could possibly prevent the occurrence of disaster. It has also been demonstrated that all disasters are related to inappropriate disaster management measures undertaken by human being [6].

As disaster affects any nation in the world, the management of disaster is important to reduce damage to human being, property and the surrounding. Sufficient political attention, economic strength,

awareness of the society and other factors causes great discrepancy between each nation's disaster responses capacity. Though no nations can fully immunized from any disaster, depending on our effort we can minimize the incidents and its impact [4].

Disasters throughout History

Disaster is unfortunate event which shape collective human history. Entire civilization have been destroyed intently time and time again due to epidemics and pandemics which reduce world's population as much as 50% across Europe during the fourteenth century bubonic plague (Black Plague) pandemic [4]. Theorists suggest that great civilization in history such as Mayans, Norse, Minoans and Egyptian empire were brought to their knees not by their enemies but by widespread occurrence of disasters [7]. In modern history, catastrophic event has also occurred including the December 26, 2004, earthquake and tsunami (over 230,000 killed), the 2005 Kashmir earthquake (80,000 killed), the 2008 Sichuan earthquake in China (68,000 killed), and the 2010 Haiti earthquake (perhaps as many as 200,000 killed) [4].

Several disasters have been occurred in Ethiopia. It has both natural and anthropogenic origins. For example, the 1984-85 famines and droughts (claimed one million lives), and the Dire Dawa flooding in 2006 (approximately 210 dead while about 290 people missing and 10,000 people displaced) can be classified as natural origin. On the other hand, dozens killed in Oromia festival stampede in 2016 (52 killed) and 2017 Ethiopia garbage dump landslide at Koshe (more than 113 people killed) were from anthropogenic origins [8,9,10,11].

Types of Disasters

There are four main categories of disaster [12]

A. Natural disasters: these are forms of disasters that causes immediate impacts on human health like floods, hurricanes, earthquakes and volcano eruptions. Such type of disaster also causes further death and suffering from floods, landslides, fires and tsunamis as a secondary impacts.

B. Industrial/technological disasters: disasters from industrial and technological activities which can cause pollution, spillage, explosions and fires. In developing countries where unregulated industrialization, and inadequate safety standards and disaster response capacity are significant, it causes large-scale loss of life and infrastructure damage.

C. CComplex emergencies: it is usually man-made, with multiple contributing factors. War between nations, internal conflicts and terrorist attack are the common example.

D. Epidemic diseases: outbreaks like cholera, measles, dysentery, respiratory infections, malaria, and HIV threaten many human beings especially the displaced population.

Based on the onset of disaster occurrence, we can also classify disaster in to two categories [12].

1. Sudden-onset disasters: disasters often without any warning including floods, earthquakes, tsunamis, volcanic eruptions, and landslides.

2. Slow-onset disasters: disasters from adverse weather conditions combined with poor land use. It is a process and takes time to occur. Droughts, famine, environmental degradation, deforestation, pest infestation and desertification are some of the examples.

Hazards

A hazard is defined as “a dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage” [2]. Hazard can arise from human origin or natural occurrence. For example, the absence of rain which lead to drought or the abundance of rain which often cause flooding are examples of hazard arising as a result of natural phenomenon. Similarly, inappropriate agricultural practice will, in the long run, lead to possible disasters may also be classified as a hazard of human origin [13].

The origin and effect of hazard can be single, sequential or combined. Each hazard is characterized by its location, intensity, probability and likely frequency. There should also be clear distinction between natural hazards and normal natural occurrence. Incidents can be a normal natural occurrence unless it affects human being. For example, a massive earthquake in an unpopulated area (e.g. the Sahara Desert) is a natural phenomenon but if the same phenomenon has contact with human being, it becomes a natural hazard. If this natural hazard affects human being and can’t able to cope, we call it disaster [13].

In Ethiopia, the common hazards causing disasters include drought, epidemics, floods, landslides, earthquakes, civil war, and mass displacement. Of all natural hazards, drought is the commonest

disaster trigger accounting for over 98% of disaster fatalities [8]. One of the study done in Addis Ababa also shows some of the hazards that we have here in Addis Ababa. It says, “A rapid urban population growth in the city of Addis Ababa poses many challenges to city authorities and if not well managed, the city can also become generators of new vulnerabilities to varying risks, such as structural fires, floods, traffic accident, human and animals disease epidemics, and environmental pollution, among others adding risk to disasters.” This study also mention the below priority hazards for Addis Ababa City, 2015 [14].

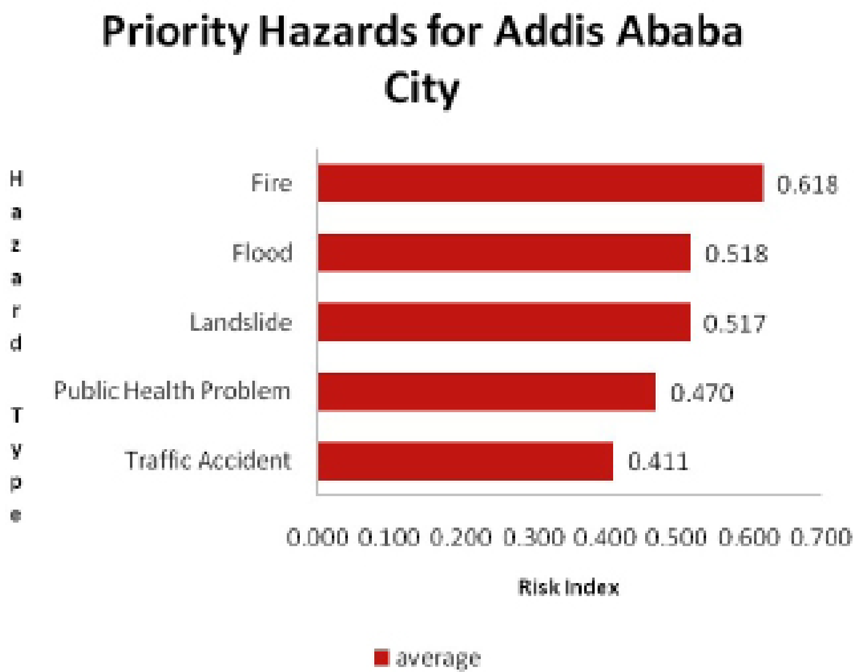


Figure 1: Priority Hazards of Addis Ababa City, 2015

Hazards, Vulnerability and Disaster Risk

Disaster is a result of any hazard's impact on a society. Vulnerability is defined as the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard [15]. Physical, social, economic and environmental factors varies the susceptibility of a communities regarding to the impact of hazards. Vulnerability can also be expressed as the degree of loss resulting from a hazard [13].

Hazards by itself do not create disasters. But it is the product of the combination of three elements vulnerability, coping capacity and hazard. So, the effects of disaster are determined by the extent of a community's vulnerability to the hazards and their coping ability [16].

Disaster risk (R) = Vulnerability (V) x Hazard (H)
Capacity (C)

Disaster Medicine

Disaster medicine is "the area of medical specialization serving the dual areas of providing health care to disaster survivors and providing medically related disaster preparation, disaster planning, disaster response and disaster recovery leadership throughout the disaster life cycle" [17]. Medical dictionary also defined disaster medicine as "large-scale application of emergency medical services in a community, following a natural or man-made catastrophe" [18]. The fundamental principle of disaster management is to do the greatest good for the greatest number [3].

History of disaster medicine

The biblical description shows Noah as a master planner and executer of an evacuation from "The Genesis Flood". He knew there will be a catastrophic disaster so that he planned and executed an evacuation to minimize the effect of the flood by building the Ark and organizing a mass exodus [19].

Disaster management existed since people were living together in a community. It is true that throughout history, management of large disaster was conducted by the military. Similar to disaster management, disaster medicine also has roots in military organizations [19].

Hospital disaster response

In disaster medicine there are four important phases which needs proper attention throughout the time. These four phases are preparation, mitigation, response and recovery [3]. Preparation is all about knowing the risk, build capacity and identify all necessary resources which we basically need during the incident. Therefore, all hospital should have hospital disaster planning which address these all issues. Mitigation is a harm reduction process. If we develop better system, and periodically check the effectiveness of this system through different exercises and drills, then we possibly minimize the severity, seriousness, or painfulness of the incident. Response involves any action a hospital undertakes in treating victims of the disaster incident. These include proper triaging, decontamination, resuscitation, surge capacity (maximizing the resource that we have), patient transfer and so on. Recovery can be any action to help hospitals resume the former activities after the disaster incident

Hospitals should always be prepared enough to deal with extreme events like disaster. To protect the health of people and prevent trauma to the health professionals, it needs good written planning and preparation for such incidents. Disasters has two major impacts for any hospitals [20]. The first one is its direct healthcare impact on the population and the other one is the ability of the hospital to function properly. When workload increases, it is true that the staff become ill and stressful

When we think of disaster preparedness, it is better to differentiate the term Multiple Casualty Incidents (MCIs) and a so called Mass Casualty Events (MCEs). Multiple casualty incidents occur when patient care resources are overextended but are not overwhelmed. Therefore, we can give priority for the most life-threatening injuries. Unlike to multiple casualty incidents, mass casualty events are incidents in which patient care resources are overwhelmed and cannot be immediately supplemented. Hence, giving priority for those patients who has the greatest probability of survival is mandatory [3].

Lack of good disaster plan leads to a situation where there are many sources of command, many leaders, and no concerted effort to solve the problem. Therefore, all hospitals should have a good disaster plan which defines the command structure and mention everyone's roles and responsibilities. Chaos during the first minutes of disaster incident is expected but it should not be prolonged. The aim of the hospital disaster response plan is to shorten such chaos and manage it accordingly [20].

Scope of the book

This reference book is intended for giving highlight regarding how to be prepared and give medical response for causalities that arrive to a hospital after an exposure to disaster. Even though our major objective in this book is external disaster medical response, internal disasters could also happen in the hospitals anytime. Therefore, each health institutions should design evacuation plan and how to respond accordingly. Though we also annexed some important considerations (hospital status check list) after the incident regarding the reestablishment of the regular activity of the hospitals, it is mandatory to prepare a detailed full recovery plan separately.

According to the structure and plan of the disaster preparedness and response office, we also strongly recommend for all departments to prepare their own detailed working document which elaborates the role and responsibilities of each department mentioned in this book.

Operational definitions

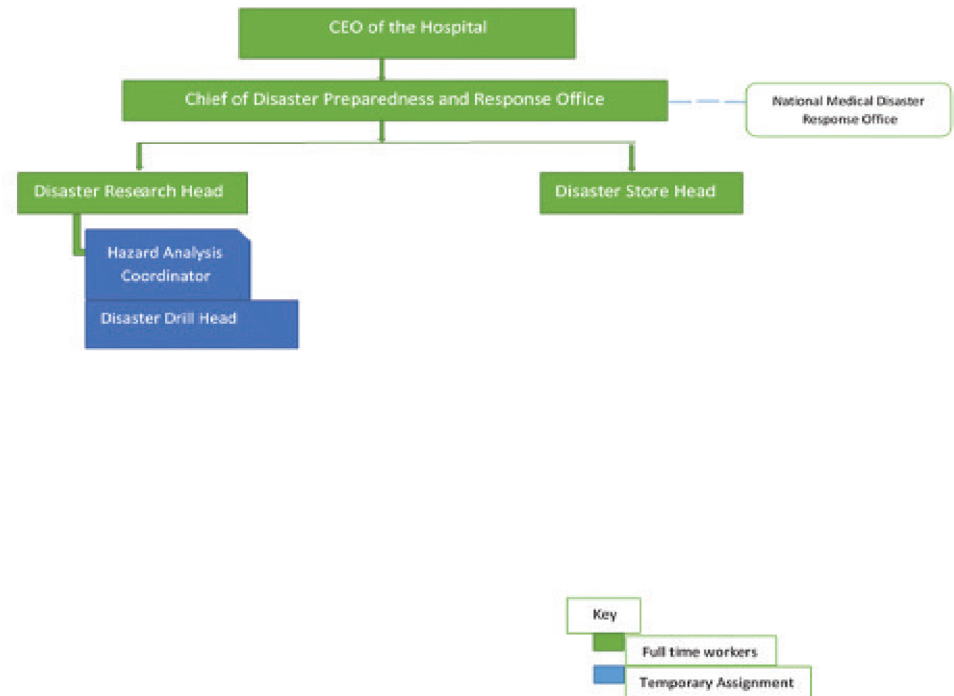
A. Disaster can be defined differently depending on the resource capacity of the respective institutions. For example, Disaster in AaBET hospital is defined as 50 victims arriving during day shift, 30 victims during night shift and single VIP victims (like prime minister of the country for instance) arriving at any time. Disaster can also be defined by the type of the injury. If few patients come to the hospital with unique types of injuries who need more resources for single patients and if it is beyond the capacity of the hospital, the settled criteria of disaster can be changed. For example, if 10 third-degree burn patients, 20 second-degree burn and 10 other minor injuries come at the same time, it could be a disaster for the hospital.

B. Disaster triage and different colors: We modified and used the START and JumpSTART disaster triage system. In this book there are seven triage color tags. Red (needs immediate resuscitation), Yellow (needs non-urgent care), Green (can wait), Black (death on arrival), Blue (not salvageable), Orange (needs isolation) and Purple (needs decontamination). Patients can be re-triaged with the regular hospital triage system if the resource and time permits.

C. Kits: It is a bag that has every necessary equipment and drugs for the respective care units. All kits have their own checklist for making it user friendly and refilling.

D. Incident Commander: The final authority and overall coordinator during the disaster response phase of the hospital.

1.Proposed structural frame work of hospitals’ disaster preparedness and response office



2. Roles and responsibilities of each leader of the office

2.1 Chief of disaster preparedness and response office

He/she is the chair of the disaster response office. The major tasks are listed here below:

- Facilitate the overall activities of the office and lead two heads of the office who has each own task
- Design/update the disaster preparedness and response plan of the hospital
- Plan and allocate annual budget of the office
- Monitor disaster store of the hospital
- Communicate with other institutions regarding hospital disaster response system and how to collaborate during disaster
- Delegate or be an incident commander during any disaster incidents
- Delegate or lead mobile team of the hospital during any external disaster incidents
- Organize press conference together with the CEO of the hospital regarding the overall activities of the hospital during the disaster phase

2.2 Disaster research head

He/she will lead any disaster-related researches and organize disaster drill. The major tasks are listed here below:

- Lead two coordinators, hazard analysis and disaster drill coordinators

- Plan annual-disaster related research areas and support similar research initiatives.

- Organize disaster workshops both for the staff and the community

- Plan annual disaster drill according to the required schedule set by the standard (biannually as basic minimum) and as per an emerging need

2.2.1 Hazard Analysis Coordinator

He/ she is responsible for assessing and reporting any disaster hazards of the hospital and nearby villages including additional possible hazards once the disaster has occurred. He/she has investigative teams that can facilitate these tasks. The major tasks are listed here below:

- Assess in-hospital and near hospital disaster hazards and report for the disaster research head for possible action and future disaster response plan
- Design evacuation plan for the anticipated accidents that can possibly occur in the hospital compound
- Prepare protocols for approaching specific contagious diseases
- During and after the disaster, he/she will observe the overall activities of the hospital and design recovery plan

2.2.2 Disaster Drill Coordinator

He/she is responsible to organize different types of disaster drills as per annual plan. He/she has two sub-leaders, drill documentation and drill setup head that can facilitate this task. The major tasks are listed here below:

- Lead two heads of disaster drill (drill setup head and drill documentation head)
- Propose which type of drill, type of incidence, number of victims, where and when the disaster drill will be performed
- Facilitate training for all actor/actress about the drill and their responsibility.
- Notify to all actual patients of the hospital about what disaster drill means and when it will be practiced
- After the drill is over, he/she will give full written report to the disaster research head about what the team performed during the disaster drill and what we have learned from it

2.2.2.1 Drill Setup head

- He/she will design the drill area
- Prepare and give specific disaster drill badge to all participants
- Monitor makeup artists performance as per written scripts
- Report the number of actor/actress who finished the makeup and ready to the drill every 30 minutes to the disaster drill coordinator
- After the drill is over, she/he will check re-makeup of the actor/actress
- Communicate with the disaster drill coordinator for any inconvenience

and limitation

- Assign team to monitor all actor/actress are safe during the disaster drill
- Immediately report any injury on the actor/actress to the drill coordinator

2.2.2.2 Drill documentation head

- He/she will assign documentation officers to the respective drill sites

- Train documentation officers regarding what to capture with photograph and video at the time of preparation, during the drill phase and after

- Monitor all activities of the documentation process and intervene accordingly

- Communicate with the disaster drill coordinator for any inconvenience and limitation

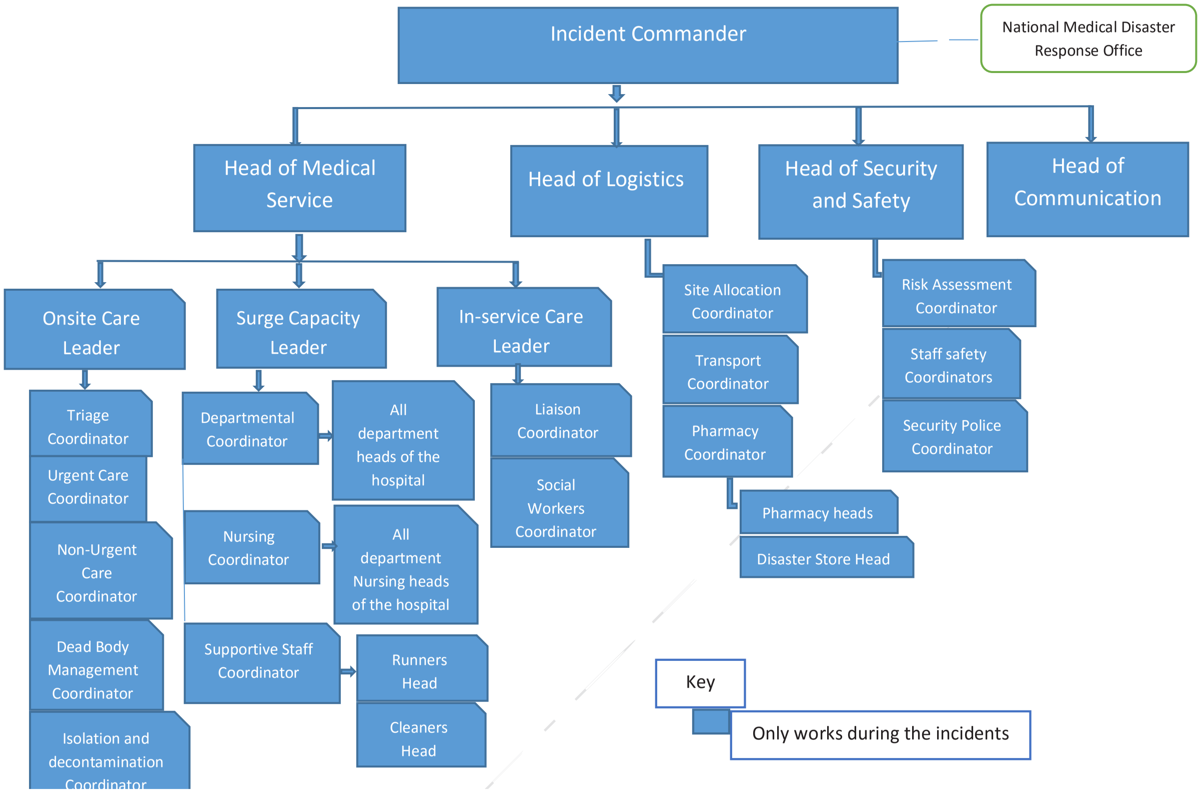
2.3 Disaster store head

He/she will manage disaster store of the hospital. The major tasks are listed here below:

- Organize urgent care kit, non-urgent care kit, dead body management kit, ambulance and other kits. Urgent care kit is one for one victim, non-urgent kit is one to ten victims, dead body management kit is one to fifteen victims and ambulance kit is one to one victim
- Refill all equipment and drugs of the disaster store according to the check list

- Check all equipment and drugs availability and expired date (if the expire time is close, he/she will substitute from the regular pharmacy) every one month
- Stock and manage the mobile disaster store of the hospital according to the type of incident and the number of causalities expected

3. Proposed structural frame work of the office (during disaster incidents)



4. Roles and responsibilities of incident commander and other coordinators (During disaster incidents)

4.1 Incident commander

Incident commander is the final authority of hospital disaster response. When disaster occurs, here below are the major tasks that he/she will accomplish:

- Immediately trigger the disaster response system by notifying the four disaster response heads (Head of medical service, logistics, security and safety, and communication) and CEO of the hospital. In the meantime, he/she will also inform other hospital incident commanders and different stakeholders
- Give command for all disaster response team through the respective heads and coordinators accordingly
- Make sure that all are working according to the plan of the office
- Communicate with other institutions for any additional support from outside the hospital
- Collect report from the four disaster response heads of the office and report to the CEO every 3 hour
- After the incident is over, he/she will give full written report to the CEO of the hospital about what the disaster response office performed during the disaster phase

4.2 Head of medical service

He/she is responsible for overall disaster emergency medical care related issues of the hospital. He/she has three leaders (onsite care,

surge capacity and in-service care leader) who facilitate this mission. The major tasks are listed here below:

- Immediately notify to the three leaders of his/her team
- Observe the overall medical service activities and intervene accordingly
- Communicate horizontally with other disaster response heads of the hospital when he/she needs any resource for the medical service
- Report to the incident commander for any resource needed from other institutions
- Report to the incident commander about the three leaders activities every 3 hour
- Report to the incident commander for any inconvenience and limitation during the disaster response phase
- After the incident is over, he/she will give full written report to the incident commander about what the team performed during the disaster phase

4.2.1 Onsite Care Leader

- Immediately notify to the five onsite care coordinators (triage, urgent care, non-urgent care, dead body management and isolation and decontamination coordinators)
- Observe the overall onsite care and intervene accordingly
- Report to the head of medical service for any resource needed from other institutions
- Report to the head of medical service about the five coordinators activities every 3 hour

- Report to the head of medical service for any inconvenience and limitation during the disaster response phase

4.2.1.1 Triage coordinator

- He/she will arrange the triage areas (The hospital should map triage areas before the incident occur-see annex 1), avail triage kits and assign triage officers to these stations according to the disaster job card of the hospital. He/she also give specific disaster response badges for his/her teammates.
- Assign one triage officer to five victims. This number can be changed according to the hospital resource and number of victims. The triage officers will be assigned according to the respective disaster triage colors. Walking (Green) patients will be triaged by designated green triage officers. All other triage officers (except Green) will carry red, yellow, black, orange and purple triage tag and label accordingly. If the red patients are not-salvageable victims (like brain evisceration but still breathing), the resuscitation team leader will decide not to start resuscitation and will change the red triage tag to blue (patients will receive comfort care until their death). All triage officers should register patient ID (patient ID can be the triage officer first letter of his and father name plus three digit numbers starting from 001. E.g YA001, YA002 and soon), triage color of the patient and date/time to their own registration logbook.
- Communicate with the onsite care leader for any inconvenience and limitation
- Report the number of victims, triage category and disposition every 3 hours to the onsite care leader

4.2.1.2 Urgent care (Red Patients) coordinator

- He/she will arrange the urgent care areas (The hospital should map red areas before the incident occur-see annex 1), avail resuscitation (urgent care) kits and assign resuscitation teams to these stations according to the disaster job card of the hospital.

- He/she also gives specific disaster response badges for his/her teammates. One resuscitation team will have 1 emergency physician/ emergency nurse practitioner, 1 general practitioner/resident/intern), 2 nurses, 2 runners and 1 cleaner. This number can be changed according to the hospital resource and number of victims. By having their own resuscitation kit, each team should immediately approach red tagged victims from triage floor and start the resuscitation. Then they should transfer the patient to urgent care tent/site.
- If the red patients are not-salvageable victims (like brain evisceration but still breathing), the resuscitation team leader will decide not to start resuscitation and will change the red triage tag to blue (patients who need peaceful death care at dead body management area)
- Admit red patients to different units of the hospital with communication to liaison coordinator.
- He/she could communicate to departmental coordinator and liaison coordinator for patient admission and consultation
- Communicate with the onsite care leader for any inconvenience and limitation
- Report the number of victims, disposition, death and additional support needed from other institutions every 3 hours to the onsite care leader

4.2.1.3 Non-urgent care (Yellow and Green patients) coordinator

- He/she will arrange the non-urgent care areas (The hospital should map yellow and green areas before the incident occur-see annex 1), avail non-urgent care kits and assign medical teams to these stations according to the disaster job card of the hospital.

- He/she also give specific disaster response badges for his/her teammates. Assign one physician, one nurse, one clinical pharmacist, two runners and one cleaner for ten victims. This number can be changed according to the hospital's resource and number of victims. The team could divide into two, yellow and green. Yellow teams should immediately approach yellow tagged victims from the triage floor and safely transfer a patient to non-urgent care tent/site. Green victims could go to non-urgent care tent/site by themselves or by having assistance from runners.
- He/she can communicate to departmental and liaison coordinators for patient admission and consultation
- Communicate with the onsite care leader for any inconvenience and limitation
- Report the number of victims, triage category, disposition and additional support needed from other institutions every 3 hours to the onsite care leader

4.2.1.4 Dead body management (Black/Blue patients) coordinator

- He/she will arrange the dead body management areas (The hospital should map dead body management areas before the incident occur-see annex 1), avail dead body management kits for keeping

dead bodies and assign teams to these stations according to the disaster job card of the hospital.

- He/she also give specific disaster response badges for his/her teammates. Assign one forensic medicine physician, two nurses, two runners and one cleaner for fifteen dead bodies. This number can be changed according to the hospital's resource and number of victims. The team should also give peaceful death care for not-salvageable victims (blue tagged victims). The runners should immediately transfer the dead body (black/blue tagged victims) from triage floor to the dead body management tent/site.
- Send dead bodies to the forensic unit with a communication to departmental and liaison coordinators
- Communicate with the onsite care leader for any inconvenience and limitation
- Report the number of dead bodies, disposition and additional support needed from other institutions every 3 hours to the onsite care leader

4.2.1.5 Isolation and decontamination (Orange and Purple patients) coordinator

- He/she will arrange tentative isolation and decontamination area (The hospital should map isolation and decontamination areas before the incident occur-see annex 1), avail kits and assign decontamination team according to the disaster job card of the hospital.

- He/she also give specific disaster response badges for his/her teammates. Assign one nurse, two runners and one cleaner for five victims. This number can be changed according to the hospital resource and number of victims. The runners should immediately transfer the contagious victims (Orange and Purple tagged victims)

from triage floor to the decontamination tent/site.

- He/she will lead a search team for any possible contagious diseases with the collaboration to environment officer/infection prevention team of the hospital
- He/she immediately notify any contagious diseases and start to distribute precaution devices for all staffs of the hospital
- Monitor whether all staffs of the hospital applying the contagious diseases precaution protocol or not
- Communicate with the onsite care leader for any inconvenience and limitation
- Report any hazards and additional support needed from other institutions every 3 hours to the onsite care leader

4.2.2 Surge Capacity Leader

- Immediately notify the three surge capacity coordinators (departmental, nursing and supportive staff coordinators)
- Observe the overall free space creation, staff allocation, and consultation process. And if there is any problem, intervene accordingly
- Report to the head of medical service for any resource needed from other institutions
- Report to the head of the medical service about the three coordinators activities every 3 hour
- Report to the head of medical service for any inconvenience and limitation during the disaster response phase

4.2.2.1 Departmental coordinator

- He/she, will immediately notify all department heads of the hospital and give specific disaster response badges to all department heads. The departments that can are general surgery, orthopedics, pediatrics, internal medicine, neurosurgery, maxillofacial, obs/ gynecology, laboratory, imaging, archives, finances etc.
- He/she will have frequent communication with department heads for better surge capacity
- Distribute physicians to different care units like urgent and non-urgent care depending on the need and request of specific coordinators
- Decide to have/create tentative Operating theatre and other unit depending on the need and request of specific coordinators and available resources
- Communicate with the nearby health centers and hospitals for better surge capacity
- Report the number of physicians, the number of additional physicians needed from other health institutions, created space and unit every 3 hours to the surge capacity leader

4.2.2.1.1 Department heads

- Before the disaster happens, he/she will display daily disaster response duty schedule for all physicians which can tent with the regular schedule (disaster duty can tent with “star” symbol from the regular schedule). During disaster he/she will:
- Immediately notify all department staffs
- Call to all physicians who are in duty-off

- Assign physician for routine patients
- Assign physician for consultation
- Cancel and reschedule all elective procedures
- Send physicians to the disaster response floor according to the request
  of departmental coordinator
- Create space for new admission (surge capacity)
- Report the number of physicians sent, created space and unit, canceled schedule, performed procedure, death, discharge every 3 hours to the departmental coordinator

4.2.2.2 Nursing coordinator

- He/she will immediately notify all nurse coordinators of the hospital and give specific disaster response badges to all nursing heads
- Distribute nurses to different care units like urgent and non-urgent care depending on the need and request of specific coordinators
- Together with departmental coordinator, he/she will create tentative operating theatre and other units depending on the need and request of specific coordinators and available resources
- Report the number of nurses that were sent to the floor and the number of additional nurses needed from other health institutions every 3 hours to the surge capacity leader

4.2.2.2.1 Nursing heads

- Before the disaster happens, he/she will display daily disaster response duty schedule for all nurses which can be aligned with the regular schedule (disaster duty can be noted with “star” symbol from the regular schedule). During disaster he/she will:

- Immediately notify to all nursing staffs of the unit
- Call to all nurses who are in duty-off
- Assign nurses for routine patients
- Cancel and reschedule all elective nursing procedures
- Send nurses to the disaster response floor according to the request of nursing coordinator
- Together with department heads, create space for new admission (surge capacity)
- Report the number of nurses sent and performed nursing procedure every 3 hours to the nursing coordinator

4.2.2.3 Supportive staff coordinator

- He/she will immediately notify to runners and cleaners head and give specific disaster response badges
- Distribute runners and cleaners to different care units like urgent and non-urgent care depending on the need and request of specific coordinators
- He/she will communicate with the surge capacity leader for any inconvenience and limitation
- Report the number of runners and cleaners that   to the floor and the number of additional runners and cleaners needed from other health institutions every 3 hours to the surge capacity leader

4.2.2.3.1 Runners head

- Before the disaster happens, he/she will display daily disaster response duty schedule for all runners which can be aligned with the regular schedule (disaster duty can with “star” symbol from the

regular schedule). During disaster he/she will:

- Immediately notify to all runners of the unit
- Call to all runners who are in duty-off
- Assign runners for routine patients
- Send runners to the disaster response floor according to the request of supportive staff coordinator
- Report the number of runners sent to the disaster response floor every 3 hours to the supportive staff coordinator

4.2.2.3.2 Cleaners head

- Before the disaster happens, he/she will display daily disaster response duty schedule for all cleaners which can be aligned with the regular schedule (disaster duty can be noted with "star" symbol from the regular schedule). During disaster he/she will:
- Immediately notify to all cleaners of the unit
- Call to all cleaners who are in duty-off
- Assign cleaners for routine patients
- Send cleaners to the disaster response floor according to the request of supportive staff coordinator
- Report the number of cleaners sent to the disaster response floor every 3 hours to the supportive staff coordinator

4.2.3 In-service Care Leader

- Immediately notify the two surge capacity coordinators (liaison and social workers coordinators)
- Observe the overall patient referrals, ambulance use, and humanitarian service. And if there is any problem, intervene

accordingly

- Report to the head of medical service for any resource needed from other institutions
- Report to the head of the medical service about the two coordinators activities every 3 hour
- Report to the head of medical service for any inconvenience and limitation during the disaster response phase

4.2.3.1 Liaison coordinator

- He/she will immediately notify his/her liaison team (including duty off) and give specific disaster response badges to his/her team meats.
- He/she will also immediately communicate with other hospital liaison heads regarding the expected bed numbers and service needed from other health institutions
- Her/his liaison officers will arrange ambulance service according to the request of the commander of medical service. One ambulance will have one nurse, one patient assistant/runner, and one driver. This number can be changed according to the hospital resource and number of victims. He/she also give specific disaster response badges for the ambulance team.
- The liaison officers will collect available bed numbers and make smooth admission, discharge and referral process. They will also notify the canceled elective procedures to the patient and family outside the hospital through phone calls
- He/she will communicate with the in-service care leader for any inconvenience and limitation
- Report the number of ambulance service, admitted, discharged,

referred and the number of additional ambulances needed from other institutions every 3 hours to the in-service care leader

4.2.3.2 Social workers coordinator

- He/she is responsible to facilitate the social need of the victims and the hospital community. The major tasks are listed here below:
- He/she will immediately notify all social workers and give specific disaster response badges to the teammates. The social workers will assess the need for social service during and after the disaster phase
- Assign social workers to different care units like urgent and non-urgent care depending on the need and request of specific coordinators
- Organize social mobilization to get additional help from the community and others
- Communicate with the in-service care leader for any inconvenience and limitation
- Report the number of patients who have got the service and type of social support given by the social workers, and the number and type of additional help needed from other institutions and individuals every 3 hours to the in-service care leader

4.3 Head of logistics

- Head of logistics is responsible for supplying any logistic need of emergency medical care teams. He/she has three coordinators who facilitate these tasks. The major tasks are listed here below:
- Immediately notify the three coordinators (site allocation, pharmacy and transport coordinators)

- Observe the overall logistic delivery and intervene accordingly
- Horizontally communicate with other disaster response heads of the hospital when he/she needs any assistance
- Report to the incident commander for any inconvenience and limitation during the disaster response phase
- Report to the incident commander about the three coordinators activities and any resource needed from other institutions every 3 hours
- After the incident is over, he/she will give full written report to the incident commander about what the team performed during the disaster phase

4.3.1 Site Allocation coordinator

- Immediately notify his/her site allocation team and give specific disaster response badges to his teammates. Tent team will have 5-10 individuals who have good skill to stand the tent within 10-15 minutes depending on the size of the tent. This number can be changed according to the hospital resource
- Immediately notify how many and which size of tent needed to the head of logistics depending on the number of victims and type of disaster
- Arrange different tents for triage, urgent care, non-urgent care and soon with communication to triage, urgent care, non-urgent care and other coordinators
- Communicate with the head of logistics for any inconvenience and limitation
- Report the number of tents which is giving service and the number of additional tents needed from other institutions every 3 hours to the head of logistics

4.3.2 Transport coordinator

- Immediately notify to his/her transport team and give specific disaster response badges to his team meats
- Arrange different transport means except ambulance according to the request of head of logistics
- Facilitate transportation to bring duty-off staffs to the hospital
- Communicate with the head of logistics for any inconvenience and limitation
- Report the number and type of transportation service and the number of additional transport means needed from other institutions every 3 hours to the head of logistics

4.3.3 Pharmacy coordinator

- Immediately notify to all pharmacy heads of the hospital and disaster store head. He/she will also give specific disaster response badges to the pharmacy heads
- Distribute pharmacists to different care units like urgent and non-urgent care depending on the need and request of specific coordinators
- Communicate with the head of logistics for any inconvenience and limitation
- Report the number of pharmacist and kits that were sent to the disaster response floor and the number of additional pharmacist and equipment needed from other health institutions every 3 hours to the head of logistics

4.3.3.1 Pharmacy heads

- Immediately notify all pharmacy staffs of the unit
- Call to all pharmacists who are off-duty
- Assign pharmacist for routine patient services
- Send disaster duty pharmacist to the disaster response floor according to the request of pharmacy coordinator
- Send different equipment and drugs to disaster store when the disaster store head request
- Report the number of pharmacist and equipment sent to the disaster response floor every 3 hours to the pharmacy coordinator

4.3.3.2 Disaster store head

- Send different kits to the disaster response floor according to the request of respective coordinators
- Refill different kits according to the request of respective coordinators
- Report the number of kits sent to the disaster response floor and additional support needed from other health institutions every 3 hours to the pharmacy coordinator

4.4 Head of security and safety

- He/she is responsible to make the area convenient and safe for the victims and the hospital community. He/she has three coordinators who facilitate these tasks. The major tasks are listed here below:
- Immediately notify to the three coordinators of his/her team
- Observe the overall security and safety activities and intervene accordingly

- Horizontally communicate with other disaster response commanders of the hospital when he/she needs any assistance
- Report to the incident commander for any inconvenience and limitation during the disaster response phase
- Report to the incident commander about the two coordinators activities and any resource needed from other institutions every 3 hours
- After the incident is over, he/she will give full written report to the incident commander about what the team performed during the disaster phase

4.4.1 Risk assessment coordinator

- Immediately notify to his/her risk assessment team and give specific disaster response badges for his teammates
- Organize and command search team for any hazards like explosion/ terrorist attack on every units and disaster response floor before, during and after the disaster response phase
- Immediately notify any warning signs and start to evacuate all hospital communities with collaboration to security police coordinator
- Communicate with the head of security and safety for any inconvenience and limitation
- Report any hazards and the number of additional support needed from other institutions every 3 hours to the head of security and safety

4.4.2 Staff Safety Coordinator

- Immediately notify to food service department and general service director of the hospital

- Satisfy basic human need of the staff during duty time
- Communicate with the head of security and safety for any inconvenience and limitation
- Report the number and type of service that the staff got, and the number of additional support needed from other institutions every 3 hours to the head of security and safety

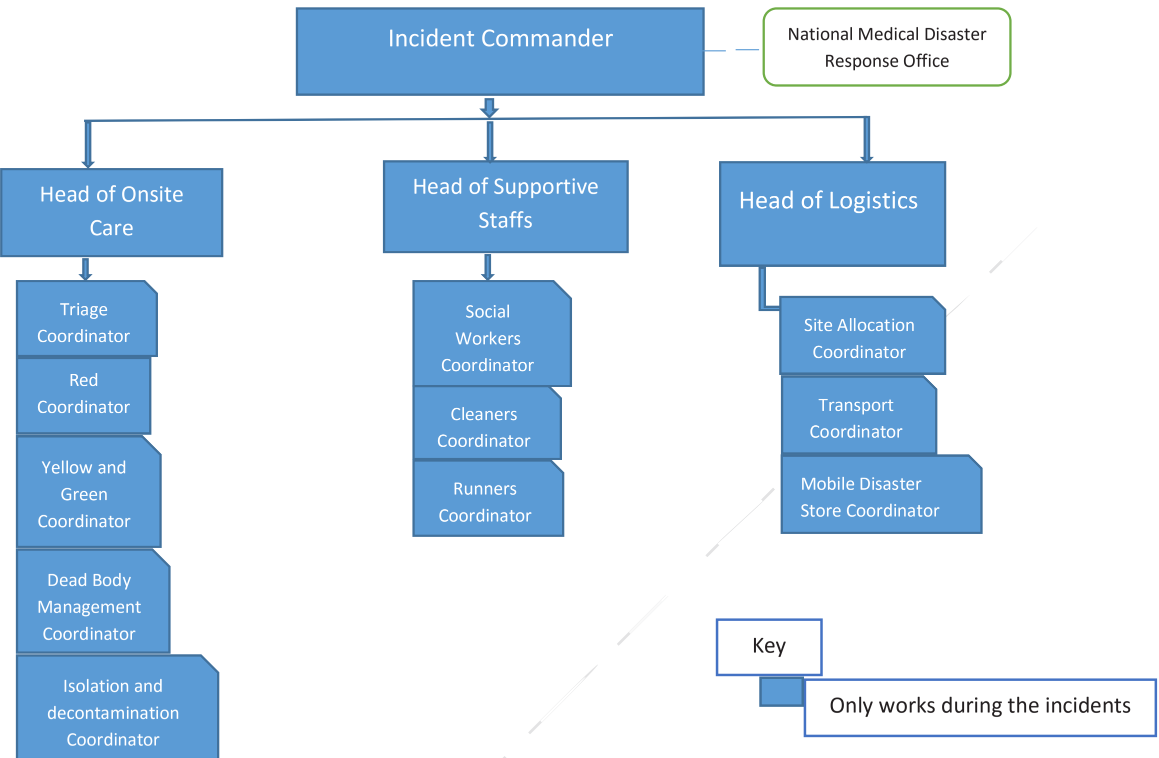
4.4.3 Security Polices Coordinator

- Immediately notify to the security police officers and give specific disaster response badges
- Call to all security polices who are an off-duty
- Assign security polices to different care units like urgent and non-urgent care depending on the need and request of specific coordinators
- Assign the remaining security polices for routine patient care services
- Assign polices who can work as traffic police to regulate ambulances and other vehicle flow
- Manage crowd by giving waiting area for families and relatives till the head of security and safety allows family visit
- Monitor badge usage among all disaster response teams of the hospital
- Communicate with the head of security and safety for any inconvenience and limitation
- Report the number of polices who are giving the service and incidents happened, and the number of additional polices needed from other institutions every 3 hours to the head of security and safety

4.5 Head of communication

- He/she is responsible to disseminate any information needed for the public and different stakeholders. He/she has reporter teams that can facilitate these tasks. The major tasks are listed here below:
- Immediately notify his/her reporter team and give specific disaster response badges for his teammates
- Observe the overall activities of the disaster response team
- His/her reporters team will communicate, collect and organize information from other disaster response heads and coordinators of the hospital about the incident and how the disaster team are responding
- After discussion with incident commander, he/she will give information for any institution, individuals and Medias
- Report to the incident commander for any inconvenience and limitation during the disaster response phase
- Report to the incident commander about the reporters activities every 3 hours
- After the incident is over, he/she will give full written report to the incident commander about what the team performed during the disaster phase

5. Proposed structural frame work of hospitals' mobile team for scene disaster medical response



N.B. The roles and responsibilities of each commander and heads are the same with the above hospital disaster response chain

6. Who has the authority to declare a disaster and activate this disaster response plan?

There are three major scenarios that could suggest we should trigger the disaster response system. The first one is when multiple causalities arriving at the hospital and if the duty emergency physician/ emergency nurse practitioner believes that this incident is fulfilled the settled criteria of disaster (see the operational definition), then he/she will press the disaster alarm of the hospital and immediately notify to the chief of disaster preparedness and response office of the hospital.

The second one is few patients arriving at the hospital but informing that there will be mass causalities because of the seriousness of the incident. At this time, the duty physician immediately notifies to the chief of the disaster preparedness and response office so that he/she will decide after validating the situation.

The last one is when the incident happened somewhere in the country and directly notified to the chief of the disaster preparedness and response office by the external officials.

N.B If the disaster happens in our own institution, any survivor/ chief of the disaster preparedness and response office will immediately notify the nearby hospital disaster preparedness and response office and other higher officials.

7. What to do during the disaster response phase

Disaster is a catastrophic incident that will make most of the individuals out of their mind, including higher officials of the institution. Therefore, knowing what to do and having good preparation prior to the incident helps more to work efficiently.

When there is disaster incident, you may hear the disaster alarm of the hospital. This tells you that you should calm yourself and if you are on duty for disaster response (have 'star' sign in your regular schedule), go immediately to the disaster response area which has different units called triage, urgent, non-urgent care and soon. For instance, in AaBET hospital, if you are regularly working in the orange area, then go directly to the disaster response triage area. If you are in red side or ICU, go to the disaster response urgent area. If you are in different wards of the hospital, go to the disaster response non-urgent area. If you are in forensic medicine, go to the disaster response dead body management area. Then each respective coordinators of the disaster response unit will assign you to the specific job and also give you a job card accordingly.

If you are not on duty for disaster response, then you should stay in your regular working area and do as usual unless your head says so. If you were in off-duty and called by your head, try to come immediately and start to work according to the respective coordinator's assignment. Always don't forget to have specific disaster response badge from the respective coordinators.

As you saw in the above organogram, all individuals have their own roles and responsibilities. Depending on your profession, you may be assigned in one of this structure so that it is better to know who works

what and for whom I should be responsible and contact.

The hospital should display all the respective coordinators and heads of disaster response on the notice board monthly so that all staff knows them. If the assigned individual is not present for days, the chief of disaster preparedness and response office should replace him/her and display on the board. The office should also prepare orientation program for all staffs regarding the disaster response system of the hospital.

8. Hospital-based disaster drill

One of the major problems that brought by disaster is disruption of the existing system. Therefore, there should be black and white system/ plan to respond such a mess. The plan/system should also be tested to be very effective and identify the institution gap. The drill is an exercise, or demonstration, that tests the readiness and capacity of a hospital, a community, or another system to respond to a public health emergency or another disaster [21]. The drill can be organized based on the anticipated internal and/or external accidents of the institution. The drill can be also organized depending on the location where medical service starts. That means, we can do drill starting from the accident site/scene till the hospital (prehospital) and/or in the hospital.

There are two types of a disaster drill. One is pre-known drill and the other is a surprise drill. During the known one, all the hospital communities will get full information about what will be done, when and how. Contrary, during the surprise drill, only selected hospital leaders or individuals will know it. Unlike the first one, the surprise drill gives much incite about the institutions' preparedness level but it is hard and expensive to organize it.

The hospitals should plan disaster drill accordingly. Based on the hospital capacity, it can be done once a year, twice or more. To do this effectively, it should have its own budget.

9. Stakeholders of hospital disaster preparedness and response office

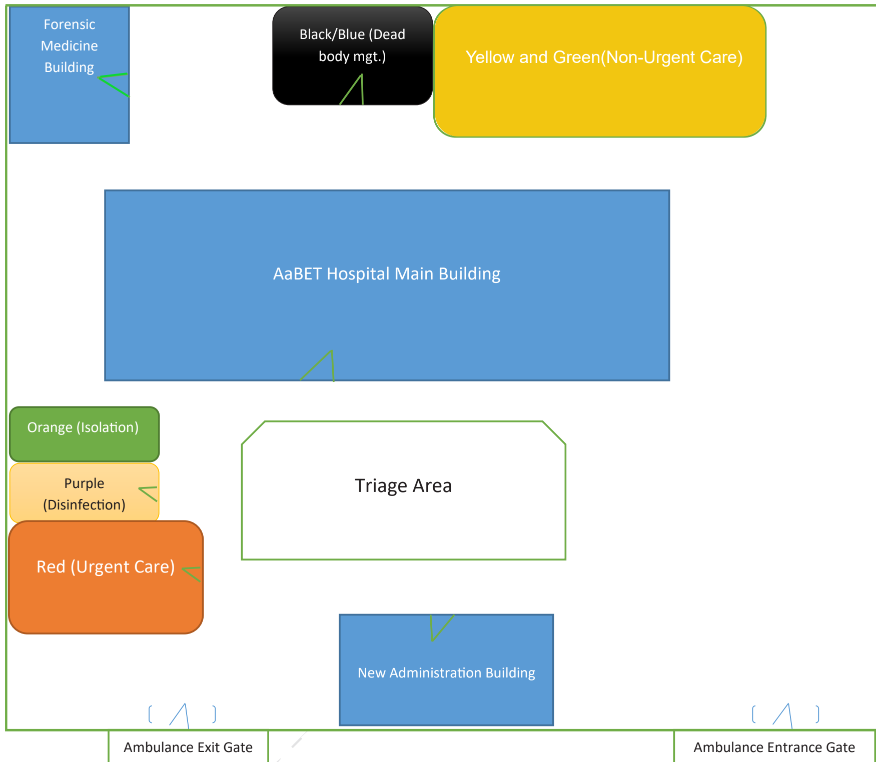
Depending on the geographical location of the hospital, service given in the hospital and many other differences, stakeholders can vary from one institution to the others. Though there is some difference, many stakeholders are the same for all hospitals. It is really important to have formal agreement between these stakeholders which can clearly mention each own responsibilities before, during and after the incident. These are some of the important stakeholders for disaster prevention and response in the hospital.

- Federal Ministry of Health and Regional Health Bureau
- Ethiopian Public Health Institution
- Fire and Emergency prevention and response authority
- Ethiopian Red Cross Society
- Ethiopian Society of Emergency Medicine Professionals
- Private Ambulance Companies
- Nearby health centers and hospitals
- Federal and regional police officers
- Ethiopian Electric Utility
- Ethiopian Tele Communication
- Different Medias
- Regional city administration offices/ Mayer office
- The community leaders including public figures

10. Communication means

One of the major anticipated challenges during disaster response phase is discontinuation of routine communication devices. So it is mandatory to be prepared and have backup plan for our routine communication means like landline and cell phone. Even if it is not yet common to use radio communication in our country hospitals', it is a better means of communication. Pagers are also the other devices which can be used at inter-facility level. For report collection, disaster response commanders of the hospital can fix contact place and time.

Annex 1. Site-allocation map of AaBET hospital (Sample)



N.B

- In addition to such new site formation, we can also use the regular emergency floor of the hospital. If the hospital emergency floor is not classified into different zones like red and soon, we should also plan how to classify it into different zones during the disaster incident.

- Regular triage area of the hospital can be used as meeting point of all disaster response heads in case of any communication device failure.

Annex 2. Job cards (Sample)

Triage Job Card

- When you are assigned to green, tag patients who can move according to the triage protocol
- When you are assigned on yellow, tag yellow for patients who are conscious and RR<30, tag red if they are conscious but RR>30
- When you are assigned black and red, tag both red and black according to the protocol
- Stop any bleeding till the other team handover
- Register triaged patients on your own logbook and give your report for triage coordinator when you finish your task
- Don't forget to write ID on triage tag. Use the first letter of yours and father name for the beginning and add a three-digit number. E.g YA001, YA002 and soon
- Communicate triage coordinator for any inconvenience

Urgent Care Job Card-Airway and breathing

General Information:

- Team Allocation- two physician, two nurses, cleaners, security police and runners
- Go to triage area with a team and start resuscitation for red patients
- All needed equipment is on urgent care kit and miscellaneous kit
- Communicate urgent care coordinator for any inconvenience
- Document your activity on checklists

Airway and breathing:

- Your task is to assess and manage airway and breathing
- Communicate with team leader during resuscitation

Urgent Care Job Card-Circulation

General Information:

- Team Allocation- two physician, two nurses, cleaners, security police and runners
- Go to triage area with a team and start resuscitation for red patients
- All needed equipment is on urgent care kit and miscellaneous kit
- Communicate urgent care coordinator for any inconvenience
- Document your activity on checklists

Circulation:

- Your task is to secure IV line, give medication, stop bleeding, do CPR
- Communicate with team leader during resuscitation

Urgent Care Job Card-Procedure

General Information:

- Team Allocation- two physician, two nurses, cleaners, security police and runners
- Go to triage area with a team and start resuscitation for red patients
- All needed equipment is on urgent care kit and miscellaneous kit
- Communicate urgent care coordinator for any inconvenience
- Document your activity on checklists

Procedure:

- Your task is to assess all parts of the body, do procedures like CPR, chest tube insertion, defibrillation
- Communicate with team leader during resuscitation

Urgent Care Job Card-Team leader

General Information:

- Team Allocation- two physician, two nurses, cleaners, security police and runners
- Go to triage area with a team and start resuscitation for red patients
- All needed equipment is on urgent care kit and miscellaneous kit
- Communicate urgent care coordinator for any inconvenience
- Document your activity on checklists

Team leader:

- Your task is to lead the resuscitation, help on procedure if necessary

N.B you can work as team leader and procedure if there is scarcity of human resource

Non-urgent Care Job Card

- Team Allocation- one physician and one nurse for 10 victims, cleaners, security police and runners
- Runners will direct victims to the non-urgent site
- All needed equipment is on non-urgent care kit and miscellaneous kit
- Communicate non-urgent care coordinator for any inconvenience
- Document your activity on checklists

Dead Body Management Job Card

- Team Allocation- one physician and one nurse for 15 victims, cleaners, security police and runners
- Runners will direct victims to the dead body management site
- All needed equipment is on dead body management kit
- If the patient has blue triage tag, give strong analgesics and facilitate peaceful death
- Communicate dead body management coordinator for any inconvenience
- Document your activity on checklists

Annex 3. Triage tags [modified from START triage score (16)]

Disaster Triage Tag Stop- Tag- Move on	Reminder R-30, P-2, M-can do	ID NO._______ Date________ Rec.Time_____
Move walking wounded to safety		Non Urgent Care
Can't move, conscious, RR <30 min and have radial pulse		
Breathing but unconscious, or Respirations > 30/min (Adult), <15 or >45/min (Pedi) or Perfusion-No radial pulse, capillary refill > 2 sec *Control any bleeding		Urgent Care
No respirations after airway opening maneuver (Adult) or after giving 5 ventilation (Pedi)		Dead Body Mgt.
Needs Isolation	Re-triage: Urgent Non-urgent	Isolation
Needs Decontamination	Re-triage: Urgent Non-urgent	Decontamin.

Disaster Triage Tag **Stop - Tag Move on**	**Remamber** **R-30, P-2, M-can do**	**ID No. ________** **Date _________** **Rec. Time _____**
Move walking wounded to safety		**Non Urgent care**
Can't move, coscious, RR<30 min and have radial pulse		
Breathing but unconscious, or Respirations > 30/min (Adult), <15 or >45/min (Pedi) or Perfusion-No radial pulse, capillary refill > 2 sec *Control any bleeding		Urgent Care
No respirations after airway opening maneuver		Dead Body Mgt.
Needs Isolation	Re-triage: Urgent Non-urgent	Isolation
Needs Decontamination	Re-triage: Urgent Non-urgent	Decontamin.

Disaster Triage Tag

Stop- Tag- Move on

Reminder

R-30, P-2, M-can do

ID NO._______

Date________

Rec.Time_____

Move walking wounded to safety — Non Urgent Care

Can't move, conscious, RR <30 min and have radial pulse

Breathing but unconscious, or

Respirations > 30/min (Adult), <15 or >45/min (Pedi) or

Perfusion-No radial pulse, capillary refill > 2 sec

***Control any bleeding**

— **Urgent Care**

No respirations after airway opening maneuver — Dead Body Mgt.

Needs Isolation — Isolation

Re-triage: Urgent Non-urgent

Needs Decontamination — Decontamin.

Re-triage: Urgent Non-urgent

Disaster Triage Tag

Stop- Tag- Move on

Reminder

R-30, P-2, M-can do

ID NO._______

Date________

Rec.Time_____

Move walking wounded to safety — Non Urgent Care

Can't move, conscious, RR <30 min and have radial pulse

Breathing but unconscious, or

Respirations > 30/min (Adult), <15 or >45/min (Pedi) or

Perfusion-No radial pulse, capillary refill > 2 sec

*Control any bleeding

— Urgent Care

No respirations after airway opening maneuver — Dead Body Mgt.

Needs Isolation — Isolation

Re-triage: Urgent Non-urgent

Needs Decontamination — Decontamin.

Re-triage: Urgent Non-urgent

Disaster Triage Tag

Reminder

Not Salvageable

ID NO.______

Date________

Rec.Time_____

Team leader short note:

………………………………………………………………………………

………………………………………………………………………………

……………………………………………………………

Peaceful death → Dead Body Mgt.

Disaster Triage Tag

Stop- Tag- Move on

Reminder

R-30, P-2, M-can do

ID NO.______

Date________

Rec.Time_____

Condition	Category
Move walking wounded to safety Can't move, conscious, RR <30 min and have radial pulse	Non Urgent Care
Breathing but unconscious, or Respirations > 30/min (Adult), <15 or >45/min (Pedi) or Perfusion-No radial pulse, capillary refill > 2 sec *Control any bleeding	Urgent Care
No respirations after airway opening maneuver	Dead Body Mgt.
Has contagious diseases/problem Re-triage: Urgent Non-urgent	→ Isolation
Has chemical exposure Re-triage: Urgent Non-urgent	Decontamin.

Disaster Triage Tag **Reminder** **R-30, P-2, M-can do**	**ID NO.________** **Date_________** **Rec.Time______**
Move walking wounded to safety Can't move, conscious, RR <30 min and have radial pulse	Non Urgent Care
Breathing but unconscious, or Respirations > 30/min (Adult), <15 or >45/min (Pedi) or Perfusion-No radial pulse, capillary refill > 2 sec *Control any bleeding	Urgent Care
No respirations after airway opening maneuver	Dead Body Mgt.
Has contagious diseases/problem Re-triage: Urgent Non-urgent	Isolation
Has chemical exposure **Re-triage: Urgent Non-urgent**	**Decontamin.**

Annex 4. Disaster response badge (Sample)

A. **Staff badge**

Logo of the hospital

(Name of the hospital)Hospital Disaster Response Team

Commander of Hazard Analysis

ID No……..

B. **Drill players badge**

የልምምዱ ተዋናይ/ት ነኝ

I am Drill Player

C. **Reflective vest for the incident commander, heads and coordinato**

Annex 5. Badge list for all personnels (Sample)

S.No	Personnel	Quantity
	Triage officer	
	Urgent Care Nurse	
	Urgent Care Physician	
	Urgent Care Runner	
	Urgent Care Cleaner	
	Urgent Care Security Police	
	Non-Urgent Care Nurse	
	Non-Urgent Care Physician	
	Non-Urgent Care Runner	
	Non-Urgent Care Cleaner	
	Non-Urgent Care Security Police	
	Dead Body Management Nurse	
	Dead Body Management Physician	
	Dead Body Management Cleaner	
	Dead Body Management Runner	
	Dead Body Management Security Police	
	Isolation Tent Officer	
	Decontamination Officer	
	Neuro Surgery Consultant	
	General Surgery Consultant	
	Orthopedic surgery Consultant	
	Pediatrics Consultant	
	Emergency Physician	
	Emergency Nurse Practitioner	
	Department Head	
	Liaison Officers	
	Ambulance Nurses	
	Ambulance Driver	

	Physical Worker	
	Transport Officers	
	Pharmacist	
	Risk Assessment Officer	
	Security Police	
	Social Worker	
	Hazard Analysis Officer	
	Makeup Designer	
	Total	

Annex 6. Human resource checklist (Sample)

A. List of disaster response commanders and coordinators

S.No	Name	Role	Home Address	Cell phone	Email

B. List of Triage officers

S.No	Name	Home Address	Cell phone	Email

C. List of physicians for urgent care

S.No	Name	Role	Home Address	Cell phone	Email
Team one					
Team two					
Team three					

D. List of nurses for urgent care

S.No	Name	Role	Home Address	Cell phone	Email
Team one					
Team two					
Team three					

E. List of runners, cleaners and laborers for urgent care

S.No	Name	Home Address	Cell phone	Email
Runners				
Cleaners				
Laborer				

F. List of physicians for non-urgent care

S.No	Name	Home Address	Cell phone	Email

G. List of nurses for non-urgent care

S.No	Name	Home Address	Cell phone	Email

H. List of Runners, cleaners and laborers for non-urgent care

S.No	Name	Home Address	Cell phone	Email
Runners				
Cleaners				
Laborers				

I. List of physician for dead body management

S.No	Name	Home Address	Cell phone	Email

J. List of nurses for dead body management

S.No	Name	Home Address	Cell phone	Email

K. List of runners, cleaners and laborers for dead body management

S.No	Name	Home Address	Cell phone	Email
Runners				

L. List of professionals for decontamination and isolation

S.No	Name	Role	Home Address	Cell phone	Email

M. List of security polices for respective units

S.No	Name	Home Address	Cell phone	Email
Triage area				
Urgent care area				
Non-urgent care area				
Dead body management area				
Gates				

N. List of consultant physicians

S.No	Name	Specialty	Home Address	Cell phone	Email

O. List of members in each commanders

S.No	Name	Specialty	Home Address	Cell phone	Email

P. List of players for each triage colors (If it is drill)

S.No	Name	Specialty	Home Address	Cell phone	Email

Annex 7. Reporting formats (Sample)

A. Admission, Discharge and Referral Reporting Form

S.No.	Date / Time	Name	Age	Sex	Card No.	Ad-dress	Dx.	Ad-mis-sion Ward	Dis-charge	Re-ferred To	Name of Li-aison off.

B. Recovery phase visit summary sheet

Date	Visit de-partment	Identified gaps	Action taken	Possible planned solution	Remark

C. Dead body reporting format

Date &Time________

S.N	Name	Age	Sex	Card No.	Name of physi-cian	Name of nurse	No of run-ner	Body han-dover to	Sign.

Summary of ______ dead body reporting format

M	F	Total

D. Ambulance Service Reporting Form

S.No	Date	Name	Age	Sex	Card No	Dx.	From	To	Standing time	Arrival time	Name of Liaison

Annex 8. Recovery checklist for all departments (Sample)

Name of the facility ____________________

Visit date _____________________________

Visit time _____________________________

Administration

Is the hospital management functional? Yes ☐ No ☐ If no describe

____

Triage

Is the triage flow quick and efficient? Yes ☐ No ☐ If no describe

____

Emergency

Is the patient prioritize/examined and get initial care? Yes ☐ No ☐

If no describe ____

Is there routine activities/care compromised? Yes ☐ No ☐ If yes describe ____

Liaison

Does the liaison office functional? Yes ☐ No ☐ If no describe

____

In-patient and out-patient

Are admitted pts treated properly? Yes ☐ No ☐ If no describe

____

Is there routine activities/care compromised? Yes ☐ No ☐

If yes describe____

Is out-patient clients get appropriate management/service? Yes ☐

No ☐ If no describe ____

Is there routine activities/care compromised? Yes ☐ No ☐

If yes describe ______________________________

Pharmacy

Does the pharmacy (in pt, free and leyu) functional? Yes ☐ No ☐

If no describe ______________________________

Is there any interruption of the service? Yes ☐ No ☐

If no describe ______________________________

Laboratory

Does chemistry machine functional? Yes ☐ No ☐

If no describe ______________________________

Does hematology machine functional? Yes ☐ No ☐

If no describe ______________________________

Is there a shortage of reagents? Yes ☐ No ☐

If no describe ______________________________

Is there any interruption of service? Yes ☐ No ☐

If no describe ______________________________

Imaging

Does the imaging functional? Yes ☐ No ☐

If no describe ______________________________

Is there any interruption of service? Yes ☐ No ☐

If no describe ______________________________

Social worker

Is there social support for the patient/family as existing? Yes ☐ No ☐

If not describe ______________________________

Logistic

What is the status of electricity? Functional ☐ Not functional ☐

If not functional describe ____

What is the status of water? Functional ☐ Not functional ☐

if not describe ____

What is the status of toilet? Functional ☐ Not functional ☐

If not describe ____

What is the status of telephone/ internet? Functional ☐

Not functional ☐ If not describe ____

Does the facility secure? Yes ☐ No ☐

If no describe ____

Is there any structural problem? Yes ☐ No ☐

If yes describe ____

Do wastes segregated as infectious and non-infectious? Yes ☐ No ☐

If no describe ____

Are they using an appropriate sharp container? Yes ☐ No ☐

If no describe ____

Morgue

Does the autopsy room functional? Yes ☐ No ☐

If no describe ____

Does the number (dead body) exceed beyond the capacity? Yes ☐

No ☐ If yes describe ____

____

Annex 9. Disaster kits checklist (Sample)

A. Ambulance kit List of drugs and equipment for two patient resuscitation

List	Size	Quantity	Expire date	Remark
Diazepam		05 ampoule		
40% glucose		4 ampoule		
Gauze-drum		01		
IV fluid		04 bag		
Tramadol / diclofenac		02 vial		
Role ban-dage		06		
C-collar	moderate	02		
Manual Suc-tion		02		
Triangular bandage		02		
Ambubag with mask		02		
Nasal pronge		02		
Syringe	5 cc,10,cc	Each 02		
Iv cannula	14 G,18G,22G	02		
Surgical blade		03		
Oral airway	moderate	02		
Plaster		01		
Cotton		01 roll		
Splint		02		
Delivery set		01		

B. Personal protective equipment kit

List	Size	Quantity	Expire date	Remark
Apron	d/t	No of staff		
Cover shoe	d/t	No of staff		
Surgical glove	d/t	No of staff		
Disposable glove	d/t	No of staff		
Eye goggle	d/t	No of staff		
Face Mask	d/t	No of staff		
Head cover	d/t	No of staff		

C. Dead body management kit for 10 dead bodies

List	Size	Quantity	Expire date	Remark
Formalin		10		
Dead body bag		10		
Syringe	10 cc,20 cc	10		
Surgical glove		10		

D. Kit List of drugs and equipment for single urgent patient resuscitation

List	Size	Quantity	Expire date	Remark
Epinephrine		10 amp		
Atropine		05 amp		
Dexamethasone		05 amp		
Hydrocortisone		02 amp		
Diazepam		05 amp		
Distilled water		05 amp		
40% glucose		04 amp		
ceftraxone		02 vial		
TAT		01 vial		Placed in refrig-erator alone
Petidine		02 amp		
Tramadole		02 amp		
Diclofenac		02 amp		

IV fluid		02 bag		
Oral airway	moderate	01		
Suction tube	moderate	01		
Oxygen face mask	moderate	01		
Syringe	5 cc,10,cc	Each 03		
IV cannula	14 G,18G,22G	03		
Lab test tube		02		
C-collar		01		
Tourniquet		01		
Surgical blade		02		
Chest tube	moderate	01		
NG tube	moderate	01		
Urine catheter	moderate	01		
Urine bag		01		

E. Kit list of drugs and equipment for five none-urgent patient resuscitation

List	Size	Quantity	Expire date	Remark
Epinephrine		10 amp		
Diazepam		05 amp		
Distilled water		10 amp		
40% glucose		10 amp		
Petidine		10 amp		
IV fluid		10 bag		
Tramadol		10 amp		
Diclofenac		05		
Suction tube		05		
Ceftraxone		05		
TAT		05		Placed in refrigerator alone
Triangular bandage		05		
Role bandage		05		
Nasal pronge		05		
Syringe	5 cc,10,cc	Each 10		
IV cannula	14 G,18G,22G	10		
Lab test tube		10		
Tourniquet		05		
Surgical blade		05		
NG tube	d/t	05		
Urine catheter	d/t	05		
Urine bag		05		

F. Miscellaneous kit for urgent patient resuscitation, for 10 patients

List	Size	Quantity	Expire date	Remark
Gauze drum	02			
Bandage scissor	05			
Adhesive plaster	05			
Triangular bandage	05			
Safety box	05			
Waste disposal	03			
Roll bandage	20			
Cotton	10 roll			
Alcohol	02 bottle			
Ambubag with mask	10			
POP	25			
IV set	20			
Suturing set	20			
Suturing material	20			
Back board	05			
Splint (arm /leg)	20			
BP cuff	05			
Thermometer	05			
Pulse oxyometry	05			
Survival blanket	10			
Intubation set				
Ketamine				
Succinylcholine				
Propofole				
ETT				
Stylet				
Laryngoscope with blade				

moderate				
02 vial				
02 vial				
02 vial				
12				
10				
05				
Chest tube set	05			

G. Miscellaneous kit for none-urgent patient resuscitation, for 30 patients

List	Size	Quantity	Expire date	Remark
Gauze drum		02		
Bandage scissor		05		
Adhesive plaster		05		
Triangular bandage		05		
Safety box		05		
Waste disposal		03		
Roll bandage	Small and large	20		
Cotton		15 roll		
Alcohol		03 bottle		
Ambubag		10		
POP		25		
IV set		20		
Suturing set		20		
Suturing material		20		
c- collar	Small, moderate and large	20		
Back board		05		
Splint (arm /leg)		30		
Triage tag	Red, yellow, green, and soon	50		
BP cuff		05		

Thermometer		05		
Pulseoximetry		05		
Survival blanket		40		

H. Internal Facility Report for Disaster Kit

Urgent kit ☐ non-urgent kit ☐ ambulance kit ☐ miscellaneous kit ☐
Dead body kit ☐

No.	Date	Time	Beginning balance	Is-sued Qty.	Bal-ance	Loss/ adj	Re-mark	Issued to

Issued By ___________________ Received By ________________

Sig. _________________________ Sig. ________________________

Date _________________________ Date _____________________

Annex 10. Drill case scenario (Sample)

Case ID-Red 1A:

A 20-year-old male Patient who was involved in electric, burn which breaks out during land slide, Patient is in pain shouting for help. The paramedic is reassuring him.

Airway- Crying and shouting for help no sign of air way obstruction
Breathing-. Chest raising symmetrically, RR 38 sat 82 % with room air
Circulation- warm extremity central pulse 98
Disability- responds to voice, equal pupils
Exposure- patient undressed and had inlet wound at the chest and out let wound in his leg
Adjuncts- FAST not available

Secondary survey

History

Allergies	None
Medications	None
Past illnesses	None
Last meal	Unknown
Events	landslide and electric burn and 100 people in volved and 2 died

Head and neck examination

No abnormality detected

Chest

He has 10*5m wound on his chest not sucking. Good air entry bilateral

Abdomen

No bruise, flanks are free and soft, no perineum or urethral bleeding

Pelvis and extremity

No leg length discrepancy has 5*5 cm wound on left lower limb medial side

Neurologic: Brain and spinal cord

GCS 13/15 normal sized pupil reactive bilaterally, no swelling on spine

N.B Further development of the cases are to be decided by the disaster drill organizing team

References:

1. Etymology of disaster, English words of (unexpected) Greek origin, https://ewonago.wordpress.com/2011/02/19/845/

2. UNISDR (United Nations International Strategy for Disaster Reduction), 2009. UNISDR terminology on disaster risk reduction. Geneva, http://www.preventionweb.net/files/7817_UNISDRTerminologyEnglish.pdf

3. Advanced Trauma Life Support (ATLS), student course manual, American College of Surgeons, 9th edition

4. Damon P.Coppola, Introduction to international disaster management, second edition, 2011

5. U.S. Department of Veterans Affairs, PTSD: National Center for PTSD, https://www.ptsd.va.gov/public/types/disasters/effects_of_disasters_risk_and_resilience_factors.asp)

6. Disaster- https://en.wikipedia.org/wiki/Disaster

7. Fagan, B. (1999). Floods, famines, and empires. New York: Basic Books

8. Community Based Early Warning System Establishment as climate change impact mitigation: Success story from Cordaid/ Farm Africa South omo risk management project in Ethiopia, http://www.fao.org/fileadmin/user_upload/drought/docs/090817%20Community%20success%20story%20Cordaid%20Ethiopia.pdf)

9. Ethiopia: Dire Dawa Floods - OCHA Situation Report No. 4, 11 Aug 2006, https://reliefweb.int/report/ethiopia/ethiopia-dire-dawa-floods-ocha-situation-report-no-4

10. Ethiopia: Dozens killed in Oromia festival stampede, 2 Oct 2016, http://www.aljazeera.com/news/2016/10/ethiopia-killed-oromia-festival-stampede-161002100716026.html

11. Addis Ababa: Death toll hits 113 in rubbish landslide, 15 Mar 2017, http://www.aljazeera.com/news/2017/03/addis-ababa-death-toll-hits-113-rubbish-landslide-170315165759540.html

12. Lelisa Sena, Kifle W/Micheal. Disaster prevention and Preparedness. Jimma Universty, 2006

13. Dewald Van Niekerk. USAID-Introduction to disaster risk reduction. August 2011

14. Nesibu Y, Mesganaw T, Tesfahun K, Tewodros M, Mebrat S. Addis Ababa City Risk Profile Program Report.2015

15. Twigg,J. Corporate social responsibility and disaster reduction: a global overview. Report to the Department for International Development, 2001

16. UNISDR (United Nations International Strategy for Disaster Reduction), 2002. ISDR background paper for WSSD, Geneva, UN

17. Disaster medicine, https://en.wikipedia.org/wiki/Disaster_medicine

18. Disaster medicine, https://medical-dictionary.thefreedictionary.com/disaster+medicine

19. Selim SUNER, History of Disaster Medicine, Turkish Journal of Emergency Medicine, 2015

20. ADVISEN, Hospital disaster preparedness: worker safety, October 2014

21. Disaster drill,www. Definedterm.com, by US Department of Health and Human Services, offices of the assistant secretary for planning and evaluation

22. START triage category, https://www.google.com/search?q=START+triage+manual&rlz=1C1JZAP_ enET749ET749&tbm=isch&tbo=u&source=univ&sa=X&ved=0ahUKEwi3uq2A2ovYAhUJp6QKHfQrACoQsAQINw&biw=1366&bih=588#imgrc=QV69C13h_8JfdM:

❖ AaBET disaster drill (done at July 2017) used as a reference for the estimation of some specific numbers like definition of disaster for AaBET hospital, team allocation, kit preparation and so on.