

## Disaster Preparedness among Government Hospitals in Addis Ababa City, Ethiopia

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### Abstract

**Background:** Globally the incidences of disaster phenomenon become increasing. The occurrence of disastrous events will cause massive loss of life, physical injuries, as well as social and economic damages. During disaster events, hospitals play key roles by provisions of essential emergency care to the community. Studies regarding hospital disaster preparedness lacked in Ethiopia.

**Objective:** To assess status of disaster preparedness program among public government hospitals in Addis Ababa city of Ethiopia.

**Methods:** A cross sectional study involving both quantitative and qualitative methods conducted from May 9-27, 2016, on available eight among 11 public government hospitals in Addis Ababa city. Fourteen key informants from hospital's administrative and emergency department staffs purposively selected for interview. Structured checklists and interview guides used to collect data through plan review, physical observations of facilities, and interview of key informants. Descriptive analysis was done for quantitative data using SPSS V. 20.0. A qualitative data transcribed, fully explored, and organized into themes and summaries of the views of the respondents based on the objectives of the study.

**Results:** Six of the eight hospitals have approved major incident plan. A lower preparedness observed in human resources (13.3%), continuity of essential service (13.9%), and Post-disaster recovery plan (23.3%). An average total preparedness score for all hospitals was 44.2%. Key informant interviews reveals, failure to integrate preparedness protocol with facility preparedness and administrative tasks were challenges to hospitals preparedness program.

**Conclusion:** The present study identified government hospitals in Addis Ababa city lack the strategic and infrastructural preparedness for disasters. There are important barriers to implementing effective disaster preparedness in Ethiopia. Administrative measures should commence to strengthen the hospitals preparedness program.

**Keywords:** Barriers; Disaster; Mortality

### Introduction

The Earth is experiencing a rapid ecological changes as a results of fast growing of human population [1,2]. Because of disruptions in environmental conditions and habits, globally the incidence of disastrous phenomenon become increasing in an alarming rate [3]. Intensive technological innovations and other systems made by human being itself certainly becoming out of controls and triggering human induced hazards as well [4]. Nevertheless, the occurrence of disaster phenomenon will have negative consequences on human population [5,6] According to an International Federation of Red Cross and Red Crescent in 2014, disaster affected about 107 million people, and a damage of \$99.2 billion USD recorded globally [7].

Africa is an exceptional continent that shares a major proportion of the universal growing burden of disaster events [8-10]. None of the parts of Africa not is prone to a recurrent climatological disasters and conflicts as a horn of Africa [8,11]. A wide range of recurrent drought, flooding and conflicts have been occurring in Ethiopia [8,12], and has often resulted to a massive mortality and population displacement [8,13].

An occurrence of disaster incident is unpredictable, being prepared strategically can helps to lessen the possible mortalities and damages on top of confronting and tackling of disaster incident [14,15]. Health care facilities, particularly hospitals are key organizations which provide an essential relief operation of emergency care to the community at the events of a disaster [16].

When disaster strikes, hospitals' may overburdened and service demands will increase dramatically, though hospital itself often damaged by the incident [17-19]. Therefore, hospitals should have a

planned set of actions and processes that designed to address thus additional health burdens [19-21]. Despite this, studies reporting an existing gaps of preparedness so far among developed world hospitals [22-25]. Up till now studies regarding hospital disaster preparedness is lacked in Ethiopia. Thus, a present study which is first in its kinds locally is expected to plug gap of information regarding status of disaster preparedness, among governmental public hospitals in Addis Ababa, city of Ethiopia.

The main aims of this study are to assess disaster preparedness program among public government hospitals in Addis Ababa city. The specific objectives are;

1. To describe key components of preparedness covered in the major incident action plan among public government hospitals in the Addis Ababa city.
2. To identify the availability of essential supplies across emergency department among public government hospitals in the Addis Ababa city.
3. To identify barriers to the disaster preparedness program among public government hospitals in the Addis Ababa city.

## Methods

A cross sectional study including both a quantitative and qualitative methods conducted from May 9-27, 2016, on public government hospitals in the Addis Ababa city. Among eleven public governmental hospitals in the city, available eight hospitals were involved in the study.

Fourteen key informants, eight among administrative group and emergency service coordinators and six key staffs working in emergency department purposively selected and interviewed from all hospitals. Key areas of preparedness including availability of leadership and management; methods disaster surveillance (risks, hazards and vulnerability analysis); components of major incident plan; evaluation and monitoring methods; and essential supplies across emergency room, as well as barriers and challenges to hospitals preparedness program were evaluated.

Structured checklists composed of 143 items that categorized under 11 key components of preparedness used to collect quantitative data through plan review and physical observations of facilities. Focused and in-depth, face-to-face interview of key informants conducted to elicit gaps and barriers to the foremost areas of preparedness program. All key informants interview were audio-recorded, and two kinds of locally translated interview guides used.

Quantitative data coded and processed for descriptive analysis using SPSS V. 20.0. Total percentage of the preparedness score has drawn from summation of all items of each component. Qualitatively collected notes and tape records from interviewee were transcribed to verbatim and translated back into English. Then, data was fully explored, and organized into themes and summaries of the views of the respondents, which have direct bearing with the objectives of the study. Finally, all results presented using tables and narrations.

Pilot study was conducted to assess feasibility and reliability of data collection tools at one of the 11 government hospitals that has excluded form final study. Moreover, to ascertain validity of tools, checklists and interview guides presented to experts. Training offered for data collectors on tools and procedures, and onsite close supervisions carried out during data collection period. So far, principal

investigator conducted all in-depth interviews of key informants. Filled checklists, and audio records and notes from interviews checked for a completeness, and consistency on daily basis.

An official support letter and ethical clearance obtained from both Addis Ababa University and Institutional review board of hospitals' prior to starting for data collection. An informed written consent obtained from key informants; hence, a short information sheet attached to the first page of all interview guides. Confidentiality and anonymity of information has maintained.

## Results

### Quantitative results

Among 11 public government hospitals in the city, available 8 involved in this study and one excluded as a results of pilot study. Study findings shows 6 of 8 hospitals have approved major incident operation plan, whereas none has mechanisms to conduct surveillance on disasters risk, hazards and vulnerability analysis. Table 1 shows a summary of scores of all components of the preparedness which; higher total preparedness score observed in leadership and disaster surveillance, information and communication, and command and control system with, 63.5%, 69.7% and 83.3% respectively. Whereas a lower preparedness score observed in human resources (13.3%), continuity of essential service (13.9%), and Post-disaster recovery plan (23.3%) On an average, total preparedness across all hospitals was 44.2% (Table 1).

| Components of preparedness   | Yes N (%) | No N (%)  | Total N (%) |
|--|-----------|-----------|-------------|
| Leadership and disaster surveillance*  | 40 (63.5) | 23(36.5)  | 63(100)     |
| Command and control system   | 30(83.3)  | 6(16.7)   | 36(100)     |
| Information and communication  | 46(69.7)  | 20(30.3)  | 66(100)     |
| Safety and security  | 31(30.4)  | 71(69.6)  | 102(100)    |
| Emergency response and triage  | 14(38.9)  | 22(61.1)  | 36(100)     |
| Surge capacity and emergency coordination  | 41(52.6)  | 37(47.4)  | 78(100)     |
| Continuity of essential services   | 5(13.9)   | 31(86.1)  | 36(100)     |
| Human resources  | 8(13.3)   | 52(86.7)  | 60(100)     |
| Supply and logistics management  | 30(62.5)  | 18(37.5)  | 48(100)     |
| Post-disaster recovery plan  | 14(23.3)  | 46(76.7)  | 60(100)     |
| Training and education   | 21(43.8)  | 27(56.3)  | 48(100)     |
| Total  | 280(44.2) | 353(55.8) | 633(100)    |
| *the component shows data from eight hospitals<br>-Scores higher on yes are better |           |           |             |

**Table 1:** Summary of scores for each components of disaster preparedness among government hospitals in Addis Ababa, City of Ethiopia.

Detail results of the components of the major incident plan shows, none of the hospitals planned alternative as well as back up communication systems during disaster incidents (Table 2). Only one

hospital has a clearly defined security measures for safe evacuations, and strategies to respond to a large influx of patients (Table 3). Further, only one hospital has mentioned an emergency coordination with other health care facilities, nevertheless none has signed Memorandum of understanding (Table 4). Yet, none of the hospitals' plan identified, an essential hospital services that need to be available at all times, as well as also a plan for appropriate back-up arrangements for essential lifelines, such as water, power and oxygen (Table 5).

| Information and Communication system  | Yes  | No   | Total |
|---|------|------|-------|
| Established streamlined mechanism of information exchange between hospital administration, department head and facility staff | 6    | 0    | 6     |
| Indicated communication system to be used during disaster events  | 6    | 0    | 6     |
| Alternative communication system plan   | 0    | 6    | 6     |
| Back up communication system plan   | 0    | 6    | 6     |
| Any arrangement with Telecommunication provider during disaster   | 0    | 6    | 6     |
| Standardized messages for alerting hospitals staff  | 4    | 2    | 6     |
| Staff notification system   | 6    | 0    | 6     |
| Assigned responsibility to recall staff back on duty  | 6    | 0    | 6     |
| Methods for communication with public such as Public service announcements (PSAs)   | 6    | 0    | 6     |
| Internal spokesperson or media contact designed   | 6    | 0    | 6     |
| System in place to communicate with other HC facilities capabilities and patient load   | 6    | 0    | 6     |
| Total N   | 46   | 20   | 66    |
| %   | 69.7 | 30.3 | 100   |

**Table 2:** Information and communication system among government hospitals in Addis Ababa, City of Ethiopia (n=6).

| Safety and security   | Yes | No | Total |
|---|-----|----|-------|
| Responsibility for security operations during an event assigned                 | 2   | 4  | 6     |
| Clearly defined security measures   | 1   | 5  | 6     |
| Ambulance entry and exit indicated  | 1   | 5  | 6     |
| Control measures for pedestrian and vehicles                                    | 2   | 4  | 6     |
| Details for PPE and precaution for possible outbreak or during decontaminations | 1   | 5  | 6     |
| Rules for engagement for crowd control  | 2   | 4  | 6     |
| Procedures to collect, store and report confidential information                | 4   | 2  | 6     |
| Selection of key areas  |     |    |       |
| Staff Reporting area  | 4   | 2  | 6     |
| Discharge or reunion area   | 3   | 3  | 6     |
| Body holding area   | 0   | 6  | 6     |

|  |      |      |     |
|--|------|------|-----|
| Command Control Room   | 4    | 2    | 6   |
| Press Area   | 0    | 6    | 6   |
| Relative's area  | 2    | 4    | 6   |
| Triage area  | 2    | 4    | 6   |
| Treatment area   | 2    | 4    | 6   |
| Decontamination area   | 1    | 5    | 6   |
| Indicated satellite locations for accommodation of staff and patients in the event of evacuation of the hospital | 0    | 6    | 6   |
| Total N  | 31   | 71   | 102 |
| %  | 30.4 | 69.6 | 100 |

**Table 3:** Safety and security planning among government hospitals in Addis Ababa, City of Ethiopia (n=6).

| Surge capacity and emergency coordination   | Yes  | No   | Total |
|---|------|------|-------|
| Plan anticipated increasing demand for hospital services during emergency           | 6    | 0    | 6     |
| Calculated maximal bed capacity required for patient admission and care indicated   | 1    | 5    | 6     |
| Methods of expanding hospital in patient capacity                                   |      |      |       |
| Creation of extra beds when there are mass casualties at emergency service          | 6    | 0    | 6     |
| Clearance of non-emergency cases and visitors                                       | 5    | 1    | 6     |
| Cancellation/prioritization of elective admissions and surgery                      | 4    | 2    | 6     |
| Determination of space that can be used to accommodate patients overflow            | 6    | 0    | 6     |
| Determination of patients that can be transferred or discharged                     | 5    | 1    | 6     |
| Strategies for shifting healthcare delivery outside the hospital                    | 2    | 4    | 6     |
| Vehicles and resources required for patient transportation                          | 2    | 4    | 6     |
| Provisions for calling in extra staff in the event of mass casualties               | 3    | 3    | 6     |
| System for pre-registration of volunteers indicated                                 | 0    | 6    | 6     |
| Emergency coordination with the authorities and other network hospitals             | 1    | 5    | 6     |
| Signed Memorandum of understanding or agreements with other organizations indicated | 0    | 6    | 6     |
| Total N   | 41   | 37   | 78    |
| %   | 52.6 | 47.4 | 100   |

**Table 4:** Surge capacity and emergency coordination planning among government hospitals in Addis Ababa, City of Ethiopia (n=6).

| Continuity of essential services | Yes | No | Total |
|----------------------------------|-----|----|-------|
|----------------------------------|-----|----|-------|

|   |      |      |     |
|---|------|------|-----|
| Plan identified the essential hospital services   | 0    | 6    | 6   |
| Resources needed to ensure the continuity of essential hospital services indicated                    | 0    | 6    | 6   |
| Deployable evacuation plan that seeks to safeguard the continuity of critical care                    | 1    | 5    | 6   |
| Plan for appropriate back-up arrangements for essential life lines, such as water, power and oxygen   | 0    | 6    | 6   |
| Anticipate the impact of the likely disaster events on hospital supplies such as food and water       | 3    | 3    | 6   |
| Mechanisms for the hospital waste collection and disposal /human, hazardous and other hospital waste/ | 1    | 5    | 6   |
| Total N   | 5    | 31   | 36  |
| %   | 13.9 | 86.1 | 100 |

**Table 5:** Continuity of essential services planning among government hospitals in Addis Ababa, City of Ethiopia (n=6).

Observations of emergency department for essential emergency supplies shows, the mean number of beds at emergency room per hospital was 16.50+18.996, while a total number of emergency room bed for all eight hospitals was 132 beds (Table 6).

| Emergency room observation*  | Yes* | No | Total |
|--|------|----|-------|
| Triage room observation  |      |    |       |
| Presence of designated reception, and waiting areas                    | 8    | 0  | 8     |
| Hospital triage area is in close to essential key care services area   | 8    | 0  | 8     |
| Triage room have clearly identified entrance and exit routes           | 8    | 0  | 8     |
| Established standard mass-casualty triage protocol presented at triage | 1    | 7  | 8     |
| Triage tags/method of patient triage identification supply presented   | 3    | 5  | 8     |
| Availability of basic emergency supplies and drugs*                    |      |    |       |
| Atropine   | 7    | 1  | 8     |
| IV fluids  | 8    | 0  | 8     |
| Morphine   | 5    | 3  | 8     |
| Adrenaline   | 8    | 0  | 8     |
| Salbutamol Puff  | 6    | 2  | 8     |
| Laryngoscopes  | 7    | 1  | 8     |
| Endotracheal tubes of all sizes  | 6    | 2  | 8     |
| Bag-mask resuscitator  | 8    | 0  | 8     |
| Pocket masks   | 8    | 0  | 8     |
| Oxygen   | 8    | 0  | 8     |
| Pulse oximetry   | 8    | 0  | 8     |
| End-tidal CO <sub>2</sub> determination                                | 1    | 7  | 8     |

|  |   |   |   |
|--|---|---|---|
| Electrocardiograph                                       | 8 | 0 | 8 |
| Defibrillator  | 6 | 2 | 8 |
| Standard IV fluids administration devices                | 4 | 4 | 8 |
| Apparatus to establish central venous catheter           | 0 | 8 | 8 |
| Cricothyrotomy Set                                       | 0 | 8 | 8 |
| Thoracotomy set  | 0 | 8 | 8 |
| Vascular access set                                      | 8 | 0 | 8 |
| Suturing set   | 8 | 0 | 8 |
| *Emergency room attributed to adult emergency department |   |   |   |
| **Scores higher on yes are better                        |   |   |   |

**Table 6:** Availability of basic emergency supplies and Triage room observation among government hospitals in Addis Ababa, City of Ethiopia (n=8).

### Qualitative results

A qualitative findings support our quantitative results. Findings shows, all of the hospitals did not conduct vulnerability assessment ever, nor have strategies to conduct. Moreover, none of the hospitals involved stakeholders from local community and health authority department during planning process and none tried to integrate preparedness plan with local community plan. There was a failure to integrate preparedness protocol with training of staffs among the hospitals. Moreover, findings show hospitals facing threat on safety and security preparedness. All of the Key informants reported, hospitals essentially lacked certain security operations that reserved for disasters response. All the same, one of the preparedness committee coordinator at one of national hospital informed,

“We have fear particularly concerning safety and security. Our hospital has not well secured complex, nor have sewerage system. Among all, but quality of the hospital’s building that rated as poor”.

Barriers including poor administration support, poor resource allocations to the program, absence of coordination from other local hospitals, and absences of national guidelines on hospital preparedness identified. According to a preparedness committee coordinator, at another of national hospital,

“The hospital management body is not considering a preparedness program, as a part of the hospital administrative task. In the absences of sense of ownership from hospital administrations, the emergency department trying to run this program alone. The administration is reluctant to allocate logistics and to financial support”.

Furthermore, according to emergency service coordinator at one of national hospital opinion,

“There is difficulty of administrative preparedness than actual facility and staff preparedness”.

The results also showed none of the Key informants reassured that their respective hospital preparedness status was sound good. According to the emergency department nursing service coordinator at one of the regional hospital reply,

“Among all what I concerned is a problem of space that able to accommodate large number of the emergency patients. Most of the



hospitals in the city including ours were too old. Most of them were constructed on a very confined area, a long time ago. Getting prepared in such environment is too challenging, as space available is very limited. Though it may possible to get materials from everywhere else at a time of incidents, arranging a small space for temporary treatment area that could be able to occupy large influx of emergency patients is quite difficult. Therefore, I don't believe that the hospitals could be able to serve a large influx of the patients during disasters".

In order to assess whether hospitals informed an existing preparedness protocol to their staffs, key informants working in emergency department were enquired. Most of the respondents clarified they did not aware of the existence of disaster preparedness program at the hospitals they currently working. The key informant working in emergency department of a national hospital expressed,

"I didn't received any trainings nor orientations regarding disaster preparedness, I don't whether it existed or not".

Moreover, another Key informant who had been working in emergency department of a regional hospital for more than six years also informed,

"I never informed anything about any job descriptions for me during disasters response from the hospital I working".

## Discussion

None predicts the occurrence of disaster and its impacts on population, it will cause loss of several life and damages unless the preparedness measures secured in place certainly. It is expected that hospitals should prepared structurally and functionally in order to counterattack disaster incidents [21,26]. However, standard indicators that consistently applied to assess preparedness across different levels of hospitals at different corners of the world for diverse types of disasters are still lacked [1,18,20]. Nevertheless, hospitals should have to anticipate disaster risks and hazards, organize a material and human resources, and formulate and practice broad plan that enables to utilize these resources, and grab experiences from events and consume the lessons learned for future preparedness [21,27]. Despite the fact, disaster preparedness among the government hospitals involved in the present study observed to be unsound. Findings of this study show none of the eight hospitals has surveillance procedures for disaster risks, hazards and vulnerability analysis. In contrary to this, survey from china reported about 55.5% of the hospitals had developed surveillance system [28]. Perhaps this may relate to variations in the advancement of the health care system; in fact, that in Ethiopia initiatives to hospital disaster preparedness occurred recently that still there might be shortcomings.

Six of eight hospitals in present study have major incident emergency operation plan in place. Higher findings from developed countries, as of studies from China, and South Africa reported about 85.2%, and 92.5% of hospitals has preparedness plans in place respectively [22,28]. But the study from Uganda reported none of the 10 hospitals involved in study had preparedness plan [29]. Perhaps, the difference is due to a recent government initiation urging hospitals on emergency preparedness particularly in study area.

Clear, accurate and timely communication is necessary to ensure informed decision-making, and public awareness and trust during disaster situations [20,30]. The present study identified a total preparedness score for information and communication is 69.7%, which is comparable with result (67.3%) of study from Iran [25]. The

reality is that, none of the hospitals planned alternative as well as backup communication systems during disaster states. Whereas, study from South Africa reported, about half of hospitals have contingency plans if a communication system failure occurred [22], but study from Tanzania tells 12%, of hospitals had backup communication plan [31]. The reality is that plans for crisis communication among hospital in present study is still poor, despite communication have decisive role during a disaster. Thus, certain procedures should instigate to reinforce hospitals crisis communication dimensions.

The current study identified a total score for Surge capacity and emergency coordination is 52.6%, comparable finding reported by study from Iran 49.0% [25]. Despite this, only one hospital has indicated emergency coordination with other health care facilities, yet none has signed Memorandum of understanding. Further, study from South Africa, reported 50% have a collaborative relationship with other health services [22]. Whereas study from Tanzania reported, 70.8% of the hospitals had contingency agreement for supplies [31]. This shows much is still remaining, adequate emphasis need to be given to set down firm system in place to bring emergency coordination between hospitals to address the hospitals surge capacity.

Further, none of the hospitals' plan identified an essential hospital services that need to be available at all times, whereas a total preparedness score for continuity is 13.9%. However, study from Yemen reported 23% of hospitals scored above average on continuity [32]. Further, none of the hospitals under the study has a plan for appropriate back-up arrangements for essential lifelines such as water, power and oxygen, while this is 91.7% for study from Iran [25]. In fact, these amenities possibly interrupted because of disruptions of the disasters on local infrastructure. Yet the present study identified planning for continuity of essential hospital services, and estimation of contingency supplies required was underestimated. Emphasis should be given to secure guidelines to ensure a continuity of these essential services and supplies.

Among all, the least preparedness score observed in human resources planning (13.3%), conversely higher findings observed in study from Iran which is 52.6% [25]. Further, only one hospital has planned to recruit and train additional staff in case of shortage during disaster. A successful handling of increased service demand during incidents and continuity of operations requires an effective crisis human resources planning. The reality is that most hospitals in present study lack crisis human resource planning. Therefore, certain strategies should be applied to enable a hospital to boost a poor crisis human resource planning among our hospitals.

Though plenty focus employed to the disaster response phase, post-disaster recovery planning is also very essential component because at the end of incident hospital service should return to its predisaster functioning. In present study total score for post-disaster recovery plan is also observed to be low (23.3%), also finding from study conducted in Yemen shows only 7.6% have scored above mean score [32]. The difference may attribute to methods of ranking questions. Nevertheless, this shows there is a big gap in post-disaster recovery plan that definitely needs to be addressed.

It is recommended that, hospital should have to exercise hospital disaster plan, eventually this will helps a process for monitoring and evaluating all components of the plan. Four of the six hospitals in the present study indicated to measures for monitoring and evaluation in their plan, whereas three of hospitals could conduct disaster drills and exercise. As to study from Tanzania, 20% of hospitals had planned to

conduct drills [31]. Whereas study from Yemen reported staff trainings on programs among 30% of the hospitals [32], study from South Africa reported 59% of hospitals make aware their plan to key staffs [22]. This shows that there are initiations to secure monitoring and evaluation process among the hospitals under the study.

Observation of emergency departments across all eight hospital shows, a total number of emergency room bed for all hospitals is 132 beds. This is low compared to overall Cape Town provincial emergency centres which can handle a total number of 1004 patients at any one time according to study from South Africa [22]. This shows that hospitals in the present study lack enough beds and other emergency equipment, perhaps the variation is due to level advancement of health care setting, and difference in sample size between these two studies.

Finding also shows there is a shortage of basic emergency supplies and drugs such as morphine, salbutamol puff, and atropine among the hospitals. However, study from South Africa show, all of the hospitals has adequate stocks of basic emergency drugs (Atropine, Morphine, Adrenaline and bronchodilators) [22]. On the other hand study from Uganda reveal, most of the hospitals studied were lacked basic essential equipment [29]. This calls for action to secure arrangement in place to address scarcity of emergency bed, drug stock, and supplies in the hospitals.

An average preparedness score of hospitals for all components of major incident plan was 44.2%, which is lower compared with a result of the study from Iran (59.5%) [25]. The difference possibly attributed to items used and methods of ranking questions, perhaps a lower score in the present study is may attributed to absence of national guidelines on the hospital disaster preparedness in Ethiopia.

Qualitative findings this study shows, among the hospitals there is a failure to integrate preparedness protocol with facility preparedness, including staffs orientation and trainings. However, study from Uganda reported, most of the hospitals held internal staff training [29]. Further, Interviewee complains limited spaces in hospitals to receive large influx of patients similar findings observed in study from Uganda [29]. According to interviewee, the biggest challenge facing the hospitals on preparedness program is poor of administrative support to allocate financial and logistic resources. Furthermore, none of the interviewee comforted that their hospitals adequately prepared, similar finding was reported by study from Namibia [33].

## Conclusion

The present study identified disaster preparedness among public government hospitals in the Addis Ababa city was identified poor. Most of the preparedness components covered in major incident plan not sound, so far an average score of all preparedness components for all hospitals identified low. Least preparedness observed in components such as leadership and disaster surveillance, information and communication, human resource, and post-disaster recovery plan. Important barriers such as poor administrative support, poor financial and logistic resources allocation, failure to incorporate staff in the preparedness program, and absence of national guideline were identified.

Federal Ministry of health should have to secure national hospitals disaster preparedness guideline in place. Moreover, in collaboration with regional health bureau the ministry should provide a technical and financial support to the hospitals on disaster preparedness program. Hospitals should have to strengthen ongoing initiations, by

instituting sound disaster surveillance strategies, all hazard approach based preparedness plan, and monitoring and evaluation progress. Administrative supports including adequate resources allocation, and trainings for staff should invest.

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