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Jordanian Public Hospital Disaster Preparedness based on WHO and ECHO Safety Index

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Abstract

Objective: To determine the degree of hospital readiness for disasters in Jordan, the present study evaluated hospital employee knowledge linked to the implementation of the World Health Organization (WHO) and European Commission Humanitarian Aid department (ECHO) functional standards. *Methods*: A qualitative was conducted in four main public Jordanian hospitals on 24 participants in four focus group (FG) interviews in 2016–2017. *Results*: The data analyses found that: (a) In general, all hospitals are not ready for the necessary responses to disaster, (b) This means that there is no clear and logical thinking regarding such significant issues related to crisis management, (c) there were weaknesses in the frequency of safety system inspections and corrections, and (d) there was a weakness in continuing education and training programs. *Conclusions*: Jordanian public hospitals are ill-prepared for disasters. A number of recommendations to assist hospital administrators improve Hospital Disaster Preparedness (HDP) are given.
Key words: Functional standards, Hospital Disaster Preparedness, focus group, Jordan.

1. Introduction

Disaster is one of the most difficult cases for health institutions that can severely disrupt healthcare functions (Collander B., Green B., Shamloo C., 2008; Gillman L., Widder S., Blaivas M., 2016). However, as the basis of care within the society and the primary care providers in disasters and emergencies, health institutions and particularly hospitals must be prepared for hazards and unusual events (Kollek D. 2013; Wæraas A. & Maor M., 2015). It is essential for Hospital Disaster Preparedness (HDP) to continue to offer lifeline services, which minimizes the disaster's impact (Zhong S., Clark M., Hou X., 2012), saves patients during the disaster, and is important for the stricken community. When threatened with disaster, it is difficult to determine solutions to deal with the many unexpected difficulties, so reducing their potential impact requires sound planning and preparation (Top M., Gider O., & Tas Y., 2010; Mississippi State Department of Health, 2013).

Many initiatives were released, such as the Disaster and Emergency Management and Business Continuity Programs in the USA (National Fire Protection Association, 2013), Humanitarian Charter and Minimum Standards for Disaster Response in Europe (Sphere Project, 2011), and, in Asia, Safe Hospital: The Key to delivering effective Emergency Medical Services (Asian Disaster Prepardness Center. 2015) to improve the HDP. Accordingly, the World Health Organization (WHO) and European Commission Humanitarian Aid department (ECHO) developed assessment instruments, which have been used in previous studies (Bajow N. & Alkhalil S., 2014; Saleh A., 2015) to assist hospitals in assessing their preparedness to avoid them falling victim to the disaster's effects (WHO & ECHO,2010).

Jordan is a small countries located in the Middle East with an area of 89.000 km2 and a population of 6.92 million, most of whom live in the central region of Jordan. The main hazards in Jordan are floods, earthquakes, droughts, and man-made disasters (General Directorate of Civil Defense, 2010). The Accreditation Council for Health Care (Ministry of Health, 2009), Jordan's Public Health Law (Ministry of Health, 2012), and Ministry of Health (Jordanian Ministry of Health, 2013) demands instruct Jordanian hospitals to pick actions that ensure their ability to function effectively in disaster and emergency situations.

2. Study Aim

Though the main focus of HDP studies has been on international preparedness, there is little evidence of HDP in Jordan. Therefore, this study primarily explores Jordanian HDP's current state from the employee perspective with the WHO and ECHO assessment instrument to answer the question: Have Jordan's public hospitals applied the functional readiness standards as stated by the WHO and ECHO? This study adds to the research regarding the current HDP situation, the results from which could provide hospital administrators the information to improve HDP.

3.Literature Review

3:1 Disaster

Disasters have negatively affected people since the beginning of our existence (Etkin D., 2015). Though disaster occurrences have low probability (Geng H., 2015), they can kill or injure thousands of people and destroy property in minutes (Heidaranlu E., Ebadi A., Khankeh H., 2015; Quarantelli E., 2005). WHO defines disaster as a threat or disruption affecting the community's capability and disrupting vital institutions such as hospitals because of extensive damage and the number of injured people (Fernando L. & Ha H., 2015). Generally, disasters can be divided into two groups: man-made disasters, and natural disasters caused by unavoidable situations usually related to environmental forces, (Lee C., Robinson K, Wendt K., 2009).

3:2 Hospital Disaster Preparedness (HDP)

HDP minimizes the interruptions caused by disaster, thus allowing for the earliest possible resumption of regular activities (Shaw R. & Izumi T., 2014). HDP recommends actions hospitals should be prepared to take when faced with a disaster (Fagel M.,2014), such as hospital location and design planning, necessary equipment and material provisions, protocols and guidelines development to deal with the large numbers of people requiring immediate attention (Beach M., 2010) necessary equipment and infrastructure to provide triage services or additional treatment areas (Glarum J., Birou D. & Cetaruk E., 2010), relevant emergency skills and capability training for workers and volunteers, and application of the necessary safety and security standards and tests to cope with disasters (Joint *Commission Resources, 2007).*

3:3 WHO and ECHO assessment instrument

Disasters occur every year in different regions of the world, with varying degrees of severity (Gupta H., 2003). Affected countries can sometimes control the negative effects of disaster, but at times the major disruptions cause chaos and disorganization in the delivery of basic services, exacerbating the disaster's effects (Hyndman D. & Hyndman D., 2015; Coppola D., 2015). The WHO and ECHO instruments aim to assess HDP toward structural standards which reflect their interest in building the hospital, nonstructural standards concerned with the architectural elements of hospital building, and functional standards to ensure that the hospital will keep to supply services through and after the disaster. This study was limited to assessing only the functional standards of the HDP as the following (WHO & ECHO, 1010):

3:3:1 *Location site, accessibility and internal circulation*: With respect to location, the hospital should be located near the main road. While internal circulation standards focus on the interrelationship between the various parts of the hospital, they must also support the freedom of movement and demonstrate the best level of operation in normal situations and disasters; furthermore, various specifications that relate to stairs and wide corridors, availability of separate entrances and exits, area to expand the service zone and positioning of the heavy equipment must be *adhered to.*

3:3:2 Supplies and equipment: It also takes into account the availability of critical supplies and equipment, including medicines, medical gases and life-support equipment, to ensure continued operation of the hospital.

3:3:3 Emergency protocols and guidelines: The hospital must plan and coordinate care during emergency situations. They must ensure appropriate guidelines to cope with providing care, limit the spread of infection, improve the communication between employee and volunteer, organize referral procedure and triage process to determine priority. Moreover, the hospital must ensure that the hospital has its needs of blood and compounds.

3:3:4 Utilities systems: The emergency water, electricity, and medical gas supply need to be safe, and hospital needs to be confident regarding the availability of alternative resources for these vital resources.

3:3:5Safety and security Plans: The hospital must manage general safety and security and fire and smoke emergency response. It should also continue inspecting the fire detection and suppression systems and train the relevant staff. Further, HDP toward management of hazardous materials ensures that employee alertness and cooperation with other stakeholders are essential.

3:3:6 Communications and Information Systems: Communication is critical for the efforts to be successful and to coordinate among all stakeholders. During disasters, the hospital needs to establish centers coordinated by a trained social worker where people can go for information about family members. The hospital needs to make sure of their ability to communicate with partners in all situations. Those who have adequate training in public

relation can give a *briefing to the public, media and help families of disaster victims.*

3:3:7Emergency and Disaster Plans: Human resource continues to be one of the most important resources available in the hospital. An employee should have sufficient preparedness for a disaster, which is through effective command and availability of a well-defined disaster response and evacuation plan. Further, employees should be appropriately trained for fire drills and simulation exercises once annually.

4. Method

This field study adopted a qualitative, descriptive design using the focus group (FG) as one phase. FG is a face-to-face informal deep discussion protocol on a specific issue that is useful for exploring viewpoints, assessing knowledge, accumulating details from a range of employees and allowing an exchange of ideas and experience about HDP implementation (Liamputtong P., 2011). The FG gives the author the ability to go into the issues related to the HDP in certain circumstances, particularly Jordanian public hospitals. The study focused on the central region of Jordan, comprising 62.9% of the country's population. It is a main Economic area and has the four main and largest public hospitals in Jordan with 1940 beds 43% of Ministry of Health (MoH) beds (Ministry of Health, 2016) deliver complete health care services and joining in the Jordanian accreditation program.

5. Participants

Data were gathered from four semi-structured FG interviews conducted between November 2016 and January 2017. Each FG included six participants (n = 24), which is the acceptable size for FG interviews (David W. & Shamdasani P., 2015). Participants selected from those people in the hospitals who had knowledge about the study's focus and represented the quality, safety, engineering, medical, and administrative departments in each hospital. After obtaining the approval of the MoH Committee of Scientific Research, an approval and invitation letter was presented to the manager of each hospital. Participants were full-time workers selected randomly. A guide for the semi-structured FG discussion was settled to assure consistency at each FG meeting. To ensure that participants understand the interest of study, for the first 15 minutes, the participants were given a brief explanation of the study's objectives, shown the functional WHO and ECHO instruments after the welcome, and were allowed to question regarding any part of the study tool they found confusing. The participant's verbal consent was obtained. Participation was voluntary and all information gathered was confidential. The FGs were conducted at suitable sites in each hospital to ensure privacy and provide adequate personal space; further, the role of the author as a facilitator directed the discussion towards particular partitions to ensure that all the study aims were addressed. The participants were mostly Jordanian men (n = 14) with an average age of 41 years and an average experience of 8 years. They all held a minimum of a bachelor's degree. Participants were not paid to participate, but they created a welcoming atmosphere and received soft drinks during the meetings and were gifted a pen.

6. Data Collection

At the first meeting, the participants' Demographic information was collected. FG questions related to the variables presented in Tables 1–7 were asked. Example questions were as follows: What do you think about the hospital site? Is it placed near a main road? What is your knowledge about the protocols hospitals use to manage HDP? Discussions were voluble, so there were no difficulties in collecting the study data. The relationship between the group participants was characterized by satisfaction and cohesiveness.

7. Data Analysis

The 100–120 minute FG discussions and quotes were written and recorded in Arabic. The content analysis method was used. Data were anonymously coded by hospital (H1–H4), group (G1–G4), and participant (P1–P6), in the final transcript, after which they were read several times and irrelevant data was removed (Creswell J., 2008). Subsequently, data was organized and placed according to the theme following the key elements identification in the data, the ideas, concepts, and common experiences across the participants were extracted and grouped (David W. & Shamdasani P.,2015).

8. FG Findings

The FG comments related to hospital sites, accessibility and internal circulation are shown in Table 1. All target hospitals were located on the main road, had separate entrances and exits with each sectors' entrance and

corridors not less than 2.4m and concrete stairways not less than 1.12m. One hospital had a ramp serving all floors; however, a staff member from an engineering department said that although there was a ramp at H1, it was not a compulsory requirement or formal safety guideline for hospital construction in Jordan.

Participants reported that all hospitals had controlled entrances and exits and reception areas near to the main doors. Heavy equipment, such as that found in radiology and laboratory departments, were on the ground or basement floors in H2, H3, and H4. Although H1 was the newest hospital, the laboratory department was located on the top floor. No hospital had zones with adequate infrastructure that could be used for triage or as extra parts for treatment in a disaster. A participant from the safety department said that while there were appropriate areas in their hospital, these areas were not prepared with the necessary infrastructure. Hospitals must have suitable spaces that can be converted to treatment areas to add service capacity.

Table 1. Hospital Site, Accessibility and Internal Circulation

≠	Item 1: The hospital is/has	FG1	FG2	FG3	FG4
1	located close to main roads	√	√	√	√
2	an independent entry and exit	√	√	√	√
3	sector entrances and corridors not less than 2.4–2.6m wide	√	√	√	√
4	ramps connecting all floors	√	×	×	×
5	concrete stairways not less than 112–120 cm wide	√	√	√	√
6	secure entrances and exits	√	√	√	√
7	departments having heavy equipment on the ground floor	×	√	√	√
8	departments dealing with the public close to the main entrances	√	√	√	√
9	spaces with adequate infrastructure to be used during disasters	×	×	×	×

Table 2 shows the results of the FG questions on availability of emergency supplies and equipment in hospitals. All hospitals had available resources to deal with disasters, such as emergency medicine, life-support equipment's sustainability, and medical gases. It was noted by a physician that there was no problem in providing hospitals with emergency supplies as all hospitals (H1–H4) were close to the strategic MoH warehouses and each hospital also had a private inventory adequate for the needs of an ordinary working day.

Table 2. Supplies and Equipment

≠	Item 2: The hospital has supplies and equipment for an emergency, including	FG1	FG2	FG3	FG4
1	emergency medicines	√	√	√	√
2	adequate instruments	√	√	√	√
3	medical gases	√	√	√	√
4	life-support equipment	√	√	√	√

Table 3 presents the brief comments connected to the availability of emergency protocols and guidelines. The findings indicated that there was a general absence of written rules to deal with infection control and patient referrals to ensure the health services continued to receive emergencies. A nurse remarked that in the hospital, there was a department to manage infection control activities, but this department was based on day-to-day protocols rather than focusing on potential disaster situations. A physician further commented that in emergency situations, the call center at the hospital can request the presence of more employees, but there was no written protocol for contacting these employees and ensuring their arrival to the hospital. The results indicated that all hospitals provided psychological services, there were medical guidelines for a number of essential diseases such as heart attacks and asthma, easy access to blood banks, and the availability of protocols for the safe transfer of blood during emergencies. However, there were no triage processes in place to determine care priority and a clear plan to organize volunteer activities in emergency conditions.

Table 3. Emergency Protocols and Medical Guidelines

≠	Item 3: The hospital has protocols for an emergency, including	FG1	FG2	FG3	FG4
1	infection control protocol	×	×	×	×
2	referral policy	×	×	×	×
3	logistics support and transport plans	×	×	×	×
4	recall sufficient medical staff	×	×	×	×
5	treatment guidelines	√	√	√	√
6	psychosocial support	√	√	√	√
7	organization of volunteer activities	×	×	×	×
8	a triage system	×	×	×	×
9	proper storage and transportation of blood and its compounds, and an easily accessible stockpile for emergencies	√	√	√	√

Table 4 shows the participants' notes linked to HDP and utility facilities. There was consensus in terms of the availability of alternative sources of water, pumping systems, and water equipment transportation. Furthermore, all hospitals had adequate backup generators to run vital hospital facilities. Medical gases were also available at all hospitals through a centralized network for gas distribution in all parts of the hospital and cylinders that could be used in emergencies. A staff member from the engineering department commented that there were adequate maintenance staff to attend to sudden malfunctions but there were no inspection or preventive maintenance schedules.

Table 4. Utilities Systems

≠	Item 4: The hospital has	FG1	FG2	FG3	FG4
1	a standby water source when the main provision is cut	√	√	√	√
2	transport and water pumping systems in the event of a failure in the routine system	√	√	√	√
3	backup electricity generators capable of running the basic hospital functions	√	√	√	√
4	a medical gas distribution system with regular preventive inspections	×	×	×	×
5	portable medical gas cylinders	√	√	√	√

Regarding safety and security systems, Table 5 shows that all hospitals across their width had appropriate emergency exits and fire, smoke, and suppression systems. However, participants commented about the general lack of administrator's education and understanding on the importance of training on how these emergency systems worked. They also commented that there were no regularly scheduled inspections for safety instruments, or a personnel recall system. A staff member from the engineering department commented that fire prevention devices were often not functioning due to damage caused by patients and visitors. All hospitals had departments responsible for providing protection and security throughout the hospital. All hospitals indicated that there was support from local authorities, but there was no written policy for the organization of such cooperation. A quality department employee commented that there was no drill training from the hospital safety department or from the government authorities. Many employees commented that a majority of the security staff were older, military retirees from a private security firm and not qualified or trained to protect the hospitals.

Table 5. Safety and Security Systems

≠	Item 5: The hospital has	FG1	FG2	FG3	FG4
1	emergency exits with emergency lighting equipment	√	√	√	√
2	smoke and fire detection and suppression systems	√	√	√	√
3	regular maintenance and testing of its fire protection system	×	×	×	×
4	regular training of staff on fire response and evacuation	×	×	×	×
5	a personnel recall system and location for potential emergency responders	×	×	×	×
6	a security section	√	√	√	√
7	plans for the protection of high-risk areas such as entrances and exits and hazardous material storage during an emergency	√	√	√	√
8	a clear policy to ensure cooperation with the local authorities during disasters	×	×	×	×
9	a security personnel recall system to ensure duty guards in an emergency system	×	×	×	×

Participants rated their hospital's preparedness in relation to communications and information systems, the results of which are shown in Table 6. All hospitals had alternative communication systems in the hospital call center and between the hospital staff; moreover, each hospital had a public relations office. The hospitals were very committed to the accurate documentation of patient information regarding admittances and transfers. Only H2 had trained its public relations workers in dealing with the public during disasters. A quality department employee commented that medical records and hospital documents and archives were in unprotected areas and therefore prone to deterioration or damage.

Table 6. Communications and Information Systems

≠	Item 6: The hospital has	FG1	FG2	FG3	FG4
1	backup communications instruments	√	√	√	√
2	A public relations office to provide the public with information	√	√	√	√
3	personnel training for the public relations office to deal with the public during disasters	×	√	×	×
4	statistical records to document patient admissions and transfers	√	√	√	√

The availability of emergency and disaster plans are shown in Table 7. To look after the hospital issues the MoH appointed a hospital director from 8 am to 5 pm and an alternate manager for the night session from 5 pm to 8 am. They provided an oversight of the day-to-day hospital operations and ensured the appropriate response to normal and emergency events. Results show that employees recognize that there is no overall disaster response and evacuation plan for the implementation when needed.

Table 7. Emergency and Disaster Plans

≠	Item 7: The hospital has disaster plans related to	FG1	FG2	FG3	FG4
1	command of the hospital administration center during a disaster	√	√	√	√
2	evacuation during a disaster	×	×	×	×
3	hazardous materials and waste	×	×	×	×
4	plan implementation	×	×	×	×

9. Discussion

Hospitals have to be resilient, resourceful, and sufficiently linked and positioned to support a wider response to emergency situations or disasters (Timmins M., Bone E. & Hiller M., 2014). This study investigated HDP through a theoretical framework related to the study question: Have Jordan's public hospitals applied the functional readiness standards outlined by the WHO and ECHO instrument? FGs gathered knowledge of HDP in Jordan.

9:1 Hospital Sites, Accessibility and Internal Circulation:

All four hospitals were judged to be safe with adequate accessibility, confirming Saleh's (Saleh A., 2015)

findings that Jordanian public hospitals have a safe location. The fact that hospitals were designed according to accessibility and safety standards is indicated by the availability of suitable road networks linking the major areas between Jordanian cities. However, there appeared to be some non-compliance with safety details related to the provision of a ramp to reach all hospital floors, which may have been due to a lack of knowledge and an absence of formal guidelines for safety standards. The lack of ramps impedes the rapid evacuation of patients and is a weakness in the hospital's building code.

The results indicate that all hospitals were committed to internal circulation standards which facilitated internal movements in hospitals, secured by ensuring that the size and functions of the internal parts of the hospital are enough, control of entrance and exit and a reception area near the main entrance. HDP's important aspect missing in all hospitals was the lack of adequate backup infrastructure to deal with triage situations or receive many patients over a short span. Another study (Timmins M., Bone E. & Hiller M., 2014) states that such areas play a key role in saving lives indicating that there was poor initial planning before the hospitals were constructed (Sobhani G., Khammarnia M., Hayati R.,2014).

9:2 Availability of Emergency Supplies and Equipment:

Proper preparation before disaster strikes is vital and it was found in all four hospitals that there was adequate provision of emergency medicine, tools, and equipment. These four hospitals are the largest in Jordan; therefore, the inventories at these hospitals are part of the strategic reserves of the MoH and are under its direct supervision to provide for other Jordanian hospitals further from the capital, Amman.

9:3Emergency Protocols and Medical Guidelines:

None of the four hospitals had written emergency protocols related to infection control during disasters, the transfer of patients in times of emergency, or effective emergency logistical support. This means that there is no clear and logical thinking regarding these significant issues related to crisis management. This can refer to the weakness in the application of accreditation standards. There were no communication alternatives to the linked land telephone lines and mobile phones, meaning that people would not be able to communicate with hospital staff in the event of a disaster. It was clear that most personnel did not know what their roles were in a disaster situation.

The services required for daily work were available in all four hospitals. Blood bank services were always available and there were sufficient plans in place to ensure the provision of blood for daily needs. All hospitals had social services departments that integrated with the services provided by other hospital departments. However, general preparation for disaster and the preparedness to deal with large numbers of patients was poor and there were no triage guidelines or plans for volunteer activities when needed. It is essential to have triage protocols and guidelines for volunteers in order to ensure effective service management.

9:4Utilities Systems:

The MoH was highly committed to providing hospitals with the basic utilities required for normal and emergency situations, so each hospital had access to electricity, water, and medical gases to ensure their effective operation. All hospitals had adequate stocks of water, standby generators, and a supply of medical gases when needed. These results were consistent with Saleh's (Saleh A., 2015) findings.

9:5 Safety and Security Systems:

The hospital is committed to providing fire-fighting equipment, devices for the early detection of smoke and fire, and water sprinklers for fire control. Unfortunately, due to a general lack of regular maintenance and inspection, there was no guarantee that these systems would operate when needed. Further, there was a lack of staff training in occupational health hazards and safety. These findings were also consistent with those reported by Saleh (Saleh A. , 2015), who highlighted the weaknesses of emergency training in Jordanian hospitals.

It was found that the MoH was strongly committed to hospital security issues. However, security at the four hospitals varied. In general, hospital security was provided by outsourcing contracts. However, it was found that these companies had relatively untrained staff and did not have reliable proven plans for coordination with formal security authorities. A previous study (Orlando S., Danna D., Giarratano G., Prepas R. & Johnson, C., 2010) found that practice drills were essential for effective HDP.

9:10Communications and Information Systems:

All four hospitals had backup communications instruments but, as was noted, these alternative methods are

within the framework of the means of landlines and cell phones that can be lost in a disaster (Meissner A., Luckenbach T., Risse T., 2002). The study results highlight a major weakness in the continuous training of a public relation employee.

9:11Emergency and Disaster Plans:

All four hospitals had clear organizational structures with clear lines of authority. This authority was responsible for issuing orders in disasters and for ensuring coordination of the flow of necessary resources for the hospital to continue its work. Timmins M, Bone E & Hiller M. (2014) has been found that emergency response functions are effective only when hospitals have clear lines of managerial responsibility. Therefore, the authority must develop and update plans to adequately respond to disasters and ensure disaster readiness (Sobhani G., Khammarnia M., Hayati R., 2014) to integrate all health care providers (Gomez D, Haas B, Ahmed N., 2011). In general, all hospitals are not ready for the necessary responses to disaster. These results were consistent with a previous study from Saudi Arabia (Bajow N & Alkhalil S., 2014), which also found poor internal disaster planning in that region.

10. Conclusion and Recommendations

The four major Jordanian public hospitals investigated in this study met only some of the HDP requirements outlined in the WHO and ECHO instrument. The hospitals were safe, had easy internal and external access, had adequate emergency equipment and materials, utilities systems, and clear lines of authority for the issuing of orders.

However, Jordanian public hospitals remain ill-prepared for disaster as a number of key HDP issues need to be addressed. There is a need to adhere to specific standards for the design and construction of a safe hospital and consider risk-reduction indicators. There is also a pressing need for an accurate inspection program of its physical facilities; it must include priorities for correction of identified deficiencies. There is a necessity to make an overall plan or plans to deal with disaster situations; this must include having an emergency communications system to alert and recall workers, contact local emergency official authorities and significant parties. Moreover, it must have various ways to deliver information in an emergency if one fails. Hospitals need to test an evacuation plan; this plan should be clear in command, routes, exits, care sites and should be tested at least once a year when the confusion during the evacuation could lead to increased injuries. The plan for emergencies must include a referral policy; further, each hospital needs to define the scope of providing care in emergency, arrangement for a surge of patients coming to the hospital, provide triage for adequate care, details regarding which patients should be referred and how and where should they be referred. One important aspect of preparedness is managing logistics, competent and efficient provision of necessary items when they need it most, public hospitals need to understand what, where, and how can they receive materials which are needed the most. All hospitals require a program for infection–prevention control and hazardous materials management. The hospital needs to identify the procedures and processes associated with these issues in disaster situations. For each plan or component of a plan, relevant workers, outsourced personnel, and volunteers must be trained. Hospitals need to ensure that components of the preparedness plan are monitored and can be implemented.

This study had a number of limitations as it relied on a qualitative FG technique, which meant that the perceptions of most workers regarding their knowledge of the WHO and ECHO standards were limited. Further, opinions were only gathered from one geographic area, thus limiting the generalizability of the results. Further studies based on both quantitative and qualitative methods that include all the WHO and ECHO standards should be conducted to gain a full picture of adherence to the structural, nonstructural, and functional HDP standards.

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