

HOSPITAL STRATEGIC MANAGEMENT ACTIVITIES WHEN THE DISASTER STRIKES: AN EMPIRICAL EVIDENCE AT KING ABDULAZIZ HOSPITAL-AL-HASSA, KSA

Dhuha Abdullah Bin-Ashwan, MBA, King Abdulaziz Hospital, Ministry of National Guards, Al-Hassa, P.O. Box 2477, Hofuf 31982, Eastern Region- Saudi Arabia, Bantabdullah00@hotmail.com , +966534966035

ABSTRACT

This study aims to look closely at the existing disaster response systems in place at King Abdulaziz Hospital (KAH) for national guards: Al-Hassa and to improve the effective management strategic activities of responding when the disaster strikes. The main goals of the study are to determine the demographical information and to assess the knowledge, attitudes and practices towards emergency/disaster preparedness plan.

The researcher demonstrated an empirical evidence at KAH to validate that the reliability of the concept that disaster preparedness among the employees wither was applied effectively and efficiently at emergency/disaster situation or not .The sample consists of 210 respondents which have been distributed randomly to KAH's categories. Data were treated statistically by using (online Survey Monkey software program, after that all the responses were downloaded, collected, analyzed, and graphed into Excel). The researcher applied T-test, Correlation coefficient and ANOVA test. The result showed that there is a significant relationship between respondent' knowledge / awareness, and attitude towards emergency disaster preparedness practices at KAH' personnel. Most of the respondents are aware about the hospital disaster preparedness issues and they know also that there are departmental procedures and policies that governed emergency and disaster. Besides that, majority of the respondents still need a better understanding of the inputs for emergency/disaster preparedness plan models and components. Researcher reached that the hypothesis "KAH's staff are functioning efficiently and effectively in their assigned disaster roles" is accepted. In conclusion; disaster management should carefully address the disasters aspects from all the sides that might influence on decision making and try to prevent or at least minimize the effects to the extent that organizations can overcome adversity.

Keywords: Disaster, Emergency Management, Disaster Management, The Cycle of Disaster Management, Disaster Response, Strategic management, Strike, Preparedness, Disaster Preparedness, Vulnerability, Risk, Policy, Hospital Emergency incident command system(HEICS)

1. INTRODUCTION

The light of the global trend is disturbing and of mounting losses disasters, increasing the inclusion of disaster risk management and climate change at the top of the World Bank's business. The investment will help to protect millions of lives and livelihoods and support growth in key social and economic sectors. The foundations of the World Bank in conjunction with the United Nations and some bilateral donors, the Global

Fund for Disaster Reduction and recovery (GFDRR) in 2006 to mobilize new investments and to generate knowledge and expertise and build a global partnership for the promotion of disaster risk management. However, historical patterns will not only represent a good basis for planning but it help effective strategies for risk management in disaster reduction in the short and medium term and reduce the likelihood of exposure to risk in the long term. Rarely countries monitor disaster losses, data collection and risk assessment regularly. Therefore, they are unable to direct the necessary resources to protect their investments and reduce their vulnerability to the effects of future disasters. Solutions could be by possible prevention are often less expensive than disaster relief and response. It can reduce the risk of disasters by strengthening the capacity of communities to cope with shocks and adaptation and recovery. Also, to take sufficient action to be better prepared to face the risk of disasters is essential because the risk cannot be completely removed. Nevertheless, the success of the work plan in conjunction of warning systems to save lives and protect livelihoods, are one of the most efficient in terms of cost to reduce the impact of disasters. As a significant example;

Japan International Cooperation Agency (JICA) Strategy on disaster management in the next three years.

That says in response to this unprecedented catastrophe, plans for disaster management, crisis management and emergency response will be reviewed based on concrete investigation of the disaster. Also, such a review process will draw attention from the whole world because Japan has advanced technology in the field of earthquake and tsunami disaster management. Global Environment Department, JICA, has considered a strategy on Disaster management toward 2015, the year of which will be a big turn of Hyogo Framework for Action (HFA). (1)

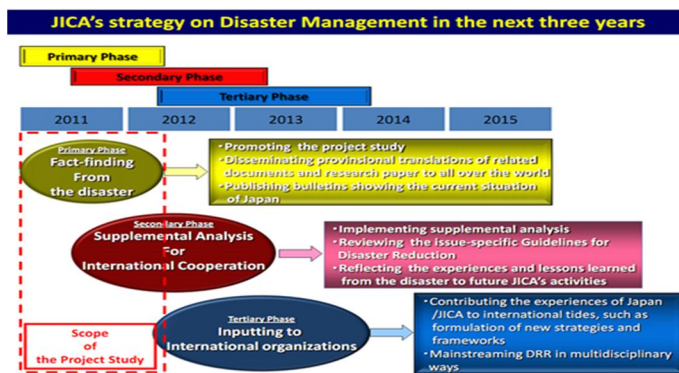


Fig 1: JICA'S Strategy on disaster management in the next three years.

Source: JICA website

Time for Global Action

"The opportunities that 2015 presents for bringing the countries and people of the world together to decide and embark on new pathways forward are historic and unprecedented. These decisions will determine the global course of action to end poverty, promote prosperity and well-being for all, protect the environment and address climate change. The actions made in 2015 are expected to result in new sustainable development goals to follow the eight Millennium Development Goals (MDGs). The UN is working with governments, civil society and other partners to build on the momentum generated by the MDGs and carry on with an ambitious post-2015 development agenda. From this site, explore the efforts of the UN and its partners for building a better world". (2)

"Those who cannot remember the past are condemned to repeat it"

George Santayana'.⁽³⁾Andrew I. Bern

As one of the richest and fastest growing countries in the Middle East, Saudi Arabia has seen many advances in health, both in terms of care and facilities. However, one aspect of healthcare that is not fully appreciated is that of the response to a disaster. The manner an organization responds to a disaster may adversely influence the reputation and the overall health provisions in the country. In response to any unprecedented catastrophe, an organization such National Guard Health Affairs may need to adequately review their emergency response systems and processes on disaster management.

With this in real world events increase awareness of the need to prepare and impel businesses to take action. This study will examine the effects of severe weather, major accidents, conflict and other internal and external emergencies that are detailing appropriate strategic responses to ensure efficient and effective action. It is hoped that this research may highlight attention from the whole world to the importance of disaster preparedness. This research will focus on King Abdulaziz Hospital which may equally allow other NGHHA hospital to reflect and even adopt suggested strategies at disaster preparedness for implementation.

PURPOSE OF STUDY

Business preparedness, often referred to as business continuity, encompasses a variety of elements, including employee and workplace disaster plans (e.g., evacuation protocols, communication capabilities and administration policies and procedures), environmental security, information technology security, and redundancy plans. To ensure business continuity and examine the importance of applying competencies to hospital personnel, business leaders must consider all of the resources needed to keep their businesses running smoothly. In the simplest sense, these resources/stockpiles include the health and safety of their human resources, the integrity and stability of their product or commodity resources, the security of the hospital and the physical environment, and the functioning of their information technology system that helps the organization recover quicker. Because the hospitals are particularly vulnerable to emergencies, as a site of first response, there is possible need for efficient and effective actions in case of a disaster care that possess evidence-based patient safety programs. However, some facilities that do not have such programs in place, so they might get benefit from this research to implement it in their area. To align with joint commission emergency management accreditation categories: general, communication, resources & assets, security & safety, staff, utilities, and patient support and sustain critical infrastructure & maintain perfect medical treatment & services for the patients. So, this study may help King Abdulaziz hospital for national guards and other national guards hospital located at different areas of kingdom of Saudi Arabia, and private or public hospitals, and society as well.

Limitations:

This study's data are quantitative.

1-The contributors have not been able to be tested through observation in mock drill to see if the health care workers improved their performance on this "lesson" or not. The researcher would improve the awareness and knowledge of the KAH's personnel since the researcher is working at this hospital which is the study topic, she noted that many of lessons had been previously reported by hospital 'department, that she was involved in it like fire drill and its evacuations plan or disaster drill. Following this experience the researcher had been able to identify many things that worked well, but also a number of areas where further improvement is needed.

- 2- Some of the questionnaires were incomplete and so they were discarded.
- 3-Also this research found a significant gap in distributing the questionnaires as soft copy via technological application local network (intranet)to reach the maximum number of employees, because there are some restrictions from nursing management that prohibit the staffs of using internet during working hours ,it was an obstacle for the researcher to send the questionnaire's link via email.
- 4-The study used a sample of staff that was available on the day of data collection and in the process; some of respondents who could have useful information were excluded from the study.
- 5-Some of the employees are so busy and apologize to respond to the questionnaire, the rest of them either on leave or do not like to answer the questionnaire.
- 6- Another limitation is that the researcher could not access to post drill evaluation documents, she was depending on her experience of working at the hospital.
- 7-Not all the questionnaires were returned.

Ethical Considerations:

- 1- The purpose of the research was explained to the participants.
- 2- All the information gathered from the respondents was kept confidential, and their names did not appear on the questionnaires.
- 3-Participation in the study was voluntary and that was explained to the participants

Statement of The study:

"There is an increased awareness of the need to prepare, but awareness does not always translate into action"

Despite a general increase in the importance of preparedness, many workers from different areas of the hospital's sections still do not know how to take an action during disaster situation.

Objectives:

1-Purpose of the Study:

To look closely at the existing disaster response systems in place at King Abdulaziz hospital, and to improve the effective management strategic activities of responding to a disaster.

2-Specific Objectives: These objectives will finally lead to achievement of the goals following:

- 1- To determine the demographical information.
- 2- To assess the knowledge, attitudes and practices.

3-Secondary Objectives:

- 1- To emphasize key emergency response aspects of hospital preparedness for disasters including hospital-based incident command, and strategies for operational continuity,
- 2- To identify main themes and patterns of quantitative insights that was used to provide a clearer picture of hospital preparedness and to foster credibility and dependability of key results.

3- This highlights the need for adequate and exercised hospital evacuation plans; the need for clear command and control with identified decision-makers and having good communication systems with redundancy; ensuring that patients are adequately identified and tracked; ensuring adequate staff.

4- To catch the attention to improve the level of surveillance of hospital disaster protocol.

5-Need to apply strategies, policies and procedures underlying engagement across multiple scales, that can enable the organization as a whole throughout its hierarchy to respond effectively and efficiently during the crisis communication process.

Questions of the study:

The following research questions frame the analysis:

- What is the current state of emergency/disaster preparedness plan at KAH?
- What is the overall level of disaster preparedness of the KAH'S health care providers?
- How the communication system condition during the real disaster functioning in a way to help the success of the emergency plan?
- What are the influencing factors for disaster preparedness?
- What are the perceived barriers that might influence on the success of the plan?

Hypotheses:

"KAH is well prepared to respond effectively and efficiently to any disaster situation."

LITERATURE REVIEW

Although there are many similarities between disasters caused by natural hazards, and those caused by unnatural hazards they are both present some unique problems for healthcare providers. Based on the findings of previous studies, it was apparent that not all officials at the hospital have adequate guidelines in place for disaster preparedness. Systems, in particular for example for dealing with critical situations during an ongoing disaster are lacking especially with defined roles for the key staff in the organizations. There also appears to be a lack of experienced decision makers in key positions to coordinate system implementation by key stakeholders, such as the Hospital officials and external government or civilian organizations.

The literature illustrates the conflict of purpose, methods and goals of these stakeholders, with some being unable to ensure continuity of operation, which ultimately represents a failure of the disaster plan. Assessing these separate entities within the tight constraints of the focus of this research proved problematic and the limitation of this study is presented below.

Initially there appears to be convergence in the research, and this has enabled some conclusions to be drawn regarding the research question and reasoning, which revealed further limitations that will be outlined here. (There are sufficient references noted through the research that provides updated evidences to support the main subject of the project. One may not be able to fully ascertain the validity and reliability of these evidences due the possibility of biases and prefer to leave this judgment to the reader.

1-Agreed with a study conducted by Louise K. Comfort and YesimSungu (2001)(4) studied The Organizational learning from Seismic risk: The 1999 marmara and duzce TURKEY earthquakes. It suggested

that more extensive and systematic research will be needed to fully understand the dynamics of inter-organizational learning in disaster environments.

1-Agreed with a study conducted by Carl H. Schultz, Kristi L. Koenig, and Roger J. Lewis,(2003)(5) " *A systematic analysis of the evacuation of inpatients from multiple hospitals*. Evacuation after the Northridge, California, earthquake 1994. It was noticed that the decision to evacuate patients at other institutions was based on the delayed identification of serious structural damage to safer areas of the hospital or outdoors, using available equipment were associated with an effective strategy.

3- Agreed with a study of *Russell L. Bennett* (2006)(6) who conducted a study about "An Analysis of the Preparedness of Hospitals for Managing Victims Affected by Chemical or Biological Weapons of Mass Destruction" included in the report were that specific preparedness equipment, supplies, and facilities needed during and after an attack. It also suggested that the demand for healthcare services could quickly outweigh the ability and capacity of hospitals to effectively and efficiently respond to the needs of attack victims.

4-Agreed with a study "Definition and Functions of Health Unified Command and Emergency Operations Centers for Large-scale Bioevent Disasters Within the Existing ICS;"conducted by *Frederick M. Burkle Jr, Edbert B. Hsu, M Michael Loehr*,2007(7) A successful health United Command and health emergency operation center engenders an atmosphere of leadership, trust, and cooperation in which the public health and health care partnership aspects of emergency response can be efficiently organized and conducted.

5- Agreed with a study "Management of resources at major incidents and disasters in relation to patient outcome": a pilot study of an educational model studied by *Hele'ne Nilsson and Anders Ru' ter*2008. (8)

They found the participants also had earlier experience of disaster simulation exercises and they all had theoretical and practical knowledge of management structure (doctrine), as well as the use of performance indicators as an evaluation tool .This emphasizes the importance of making decisions regarding resources that should be sent to the scene at an early phase.

6-Agreed with a study "The Strategic Management of Organizational Knowledge Exchange Related to Hospital Quality Measurement and Reporting. "Pavani Rangachari, 2008(9) suggest that hospital leaders may need to understand that quality improvement to apply the science of measurement to the health care context to identify areas for improvement. In addition to investment in training and education, hospital leaders need to understand the intricacies in the HIM Health information management /coding function.

7-Agreed with" *Disaster Preparedness and Disaster Management: The Development and Piloting of a Self-Assessment Survey to Judge the Adequacy of Community- based Physician Knowledge*" Bruce R. Guerdan, MD, MPH(2009)(10) found the huge need for addressing physician competency on this issue and producing a five-minute video entitled, "Disaster Preparedness"

8-Agreed with" *The effectiveness of training with an emergency department simulator on medical student performance in a simulated disaster*" Jeffrey Michael Franc-Law, Pier Luigi 2010(11), and Participants indicated that the simulation-based curriculum in disaster medicine is preferable to a lecture-based curriculum. Overall student satisfaction with the simulation-based curriculum was high.

9-Agreed with " *Al-Zahrani* from department of computer information systems in Al imam Muhammad bi n Saud university conducted a study in 2010(12)about "Management Information Systems Role in Decision-Making During Crises": Case Study Riyadh, Saudi Arabia. That investigated the importance of MIS management information system in decision-making can be realized from its aim which is to develop a good system to maximize the effective use of data to management practices.

10-Agreed with a study" The Evacuation of Cairns Hospitals Due to Severe Tropical Cyclone Yas" conducted by. Mark Little, FACEM, MPH&TM 2012(13). All health facilities need to have plans for evacuation of their facility and establishment of alternative care facilities.

11- Agreed with a study(2012)(14) "Management roadmap of I.R.Iran's Disaster Health" conducted by Mohammad Hossein Rajaei, , Gholam Reza Masoumi, , Ali Azin that was emphasizing on the importance of the organizational skills and training of relevant personnel to integrate timely information into action effectively.

12-This study disagreed with a study "An Exploratory Study Knowledge Management for Disaster Scenario" which was conducted by Farhan Shafiq and Kamran Ahsan on the October 2013(15),this study found a significant gap for technological applications in disaster situations. This study does not fully explain the method and there appears to be gaps in knowledge development even though the outline suggests that this is good piece of research. This study would have been valuable if the (simulation model) were employed to prove its reliability and more attention was focused on the need of collaboration of different domain researchers to contribute in furthering in disaster management research.

The researcher's comments on the previous literature review:

- These cases show that there no specific set formulas to be used to measure the performance. In disaster medicine, where randomized controlled studies are necessary, it does show that there are protocols and guidelines to be followed by the officials that are transferable across methods during the research period.
- In some of these cases their purpose and the research question are closely related, others having some important and significant evidences were used in studies as qualitative and quantitative measurement of performance of staffs during disaster like chi square test that might be beneficial to show different views of the audiences for the management in taking decisions during disaster but, there are always incident events that may influence scores on research instruments and other tests could be used to analyze the result (e.g. ANOVA, t-TEST,ANCOVA) which are always used to mathematically determine the probability and the different between two scores.
- These studies serves as a resource for diverse emergency planners to identify gaps in healthcare service delivery systems preparedness, systematically set priorities, and develop plans and action for building and sustaining healthcare specific capabilities. The Healthcare Preparedness plan Guidance, in conjunction with the other policies and procedures documented in the organization web site could be used as a references for the health care providers to learn from it to improve the performance and to reinforce decision makers' capabilities to face the disaster.
- The researchers and program coordinators were able to plan, study, and act as respondent when the disaster strikes. Thus a program evaluation of strategic management based on collaboration, communication, participation, support, empowerment and change in decision at critical times between all the stakeholders is needed. This evaluation, added to knowledge about the associated advantages and disadvantages, strengths and weaknesses of using participatory action research models discovered in previous literatures and guided by experts and practitioners in different departments working collaboratively.

Methodology

This chapter describes the methodology had been used in the study, sample of the study population, as well as study tool, methods used in the preparation of this study, and the validity and reliability. Also, it includes a description of the procedures carried out by the researcher in Legalization of the study ,application tools, and finally statistical treatments that adopted by the researcher in the analysis. This will be achieved through research of the current plans, and with data collection from all levels of the organizational structure of the hospital' workers who would be implementing any developed strategies.

Study Area/Setting:

Researcher is working at king Abdulaziz hospital for national guards-Al-Hassa as Medical Unit Assistant I /Interpreter and encountered some of the disaster events in the working daily base. Because of that, researcher found that it could be beneficial if use it as case study for the research topic.

Study Subjects:

The inclusion criteria of the study was intended for a business audience segmented into several broad categories: such as (medical officer, registered nurse, pharmacist , laboratory worker, enrolled nurse, specialist, administrator IT personnel, business continuity professionals, and human resources (HR) personnel. Those who are in KAH's categories or any staff from different departments that have major or minor roles in disaster situation at king Abdulaziz hospital.

Exclusion criteria of the study subjects are anyone who is not included in these categories.

Study Design:

The main aim of this study is to look closely at the existing disaster response systems in place at King Abdulaziz hospital and to improve the effective management strategic activities of responding to a disaster. Therefore, the researcher used a descriptive quantitative design that describe and summarized the quantitative information from the survey about the targeted sample

Data Collection methods, instruments used and measurements

The following research instruments were used to collect data:

- Questionnaires with different responses.

researcher collected quantitative data with closed questions to enable the researcher to elicit unprompted opinions. This also enabled the researcher to obtain a variety of responses and opinions of the study problem. In addition, these responses had predetermined responses that restricted the answer set, and made them easier to administer and analyzed using the statistical software ,these responses include more information about their knowledge, attitudes / understanding and their practices toward hospital disaster and emergency preparedness plan.

The questionnaires were self-administered and this enabled the respondents to answer the questions freely and at their own time without the influence of the researcher. Discussion with the participants took place at KAH in order to determine their understanding of the questionnaires. The survey was adjusted and finalized based on the instructor and some specialized doctors at KAH.

The researcher was unable to get the list of staff members at the hospital from human resources department because of privacy issues and confidentiality. This led to the survey being distributed to the members of staff who were available at work on the day of data collection. The data was collected during the various shifts of

the hospital targeting both day and night duty staff. The purpose of the study as well as confidentiality issues were explained to the participants and informed consent was obtained from the participants.

The survey had between 100 and 210 respondents. The highest response rate were among (others) who returned 120 copies out of 332, while the lowest response rate was from the enrolled nurse who returned 2 copies only. Five questionnaire were returned by laboratory workers, four questionnaires were discarded because it was incomplete.

Sample Size:

The researcher used a sample size of 332 out of 2393 based on calculation from sample size (The Survey System, 2007).

Most survey respondents, were working in (Emergency Room (ER), Wards, Intensive care Unit (ICU) , Operating Theatre (OR), Pharmacy, Laboratory, Administration, Outpatients Department (OPD), and others areas, and Survey respondents also represented a range of roles within their organizations from high to low level (non-managers). Many surveys were directed to IT or other professionals tasked with disaster preparedness /business continuity planning,

Population& sample size:

Population number is 2393personnel at KAH.

Sampling Technique: The researcher choose a stratified random sample from most KAH's departments in order to obtain a representative sample for the target population.

Statistical procedures:

Data Management and Analysis Plan: The researcher is describing the analysis plan, tests used for data analysis and statistical package(s) used.

Data analysis:

Quantitative data from the questionnaire was coded and then analyzed using descriptive statistics with Microsoft Excel. Also, researcher was administered paper surveys, and then manually entered responses into online Survey Monkey software program. After that, all responses were downloaded, collected, analyzed, and graphed into Excel. The data has been exported into Excel's functions to do the analysis such as calculating averages and frequency of the responses (the pie chart is an example of frequency distributions).

The researcher analyzed data by using one sample T-test, Correlation Coefficient, and ANOVA test. The data analyzed were based on the number of people who answered that particular question, not the number of people who responded to the survey.

Business Survey:

The title of the survey was "Hospital strategic management activities when the disaster strikes KAH health care workers' knowledge, attitude and practice towards disaster/emergency situations survey". It contains four sections and each section measure one variable which they are (demographical information ,knowledge ,attitude ,and practices) of the KAH health care workers, by using Likert scale answers; to assess the effectiveness of the implementation of hospital policies in this area and aid in solving any problems that are

associated with preparedness for disaster situations. These questionnaires were distributed to majority of KAH department.

The questionnaires identified a diverse range of perceptions of the impact of education and training /simulation that presented for all the hospital members towards responding to emergency disaster. Survey included in this analysis took place on 03/12/ 2014. In the survey were noted in its introduction that the rate of variables that cause significant effect in disaster activities are increasing, and the survey's questions attribute this rise to some significant factors.

The most common question asked among the survey was "How well would you rate your knowledge of KAH disaster preparedness plan? how you feel about disaster management in your hospital ? How you assess disaster preparedness practices at your hospital?"

332 questionnaires have been distributed randomly .210 questionnaires had been returned back to the researcher after being responded, four of which were excluded because of being incomplete.

The survey was divided into four sections:

Section 1: Demographics

This section looks at the gender, age, education level, duty station, work experiences, and the current position held by the respondents.

a. What is your gender?		
Answer Options	Response Percent	Response Count
male	44.3%	93
female	55.7%	117
<i>answered question</i>		210
<i>skipped question</i>		0

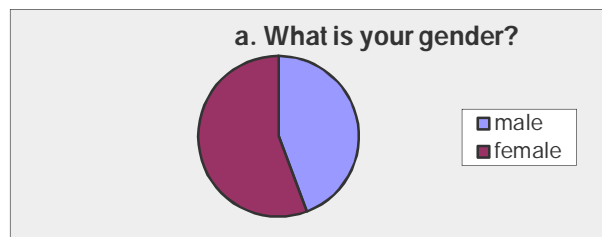


Table1: Percentage of respondents by gender.

Figure2: Distribution of respondents by gender

Most of the respondents were female (55.7%) while 44.3% of the respondents were male as shown in Table 2 and Figure 6.

Age at next birthday?		
Answer Options	Response Percent	Response Count
Below 20	1.4%	3
20-30	41.4%	87
31-40	43.8%	92
41-50	9.5%	20
51-60	3.3%	7
Over 60	0.5%	1
<i>answered question</i>		210
<i>skipped question</i>		0

Table2: Percentage of the respondents by age at next of birth.

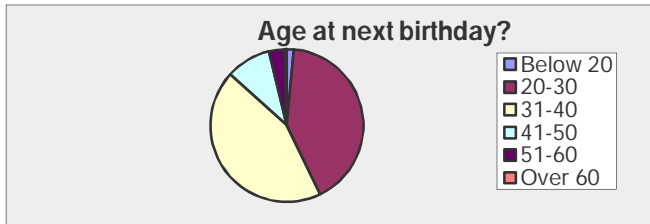


Figure3: Distribution of respondents by age.

As shown in the figure 7 and table 3, only 41.4%-43.8% of the staff who answered the questionnaire were between 20-40 years old, while, (1.4%) were below 20years old.

Indicate your duty station?		
Answer Options	Response Percent	Response Count
1. Emergency Room (ER)	2.9%	6
2. Wards	24.3%	51
3. Intensive care Unit (ICU)	7.6%	16
4. Operating Theatre (OR)	3.3%	7
5. Pharmacy	5.7%	12
6. Laboratory	2.4%	5
7. Administration	6.2%	13
8. Outpatients Department (OPD)	6.2%	13
Other (please specify)	41.4%	87
<i>answered question</i>		210
<i>skipped question</i>		0

Table 3: Summary statistics of respondents by duty station.

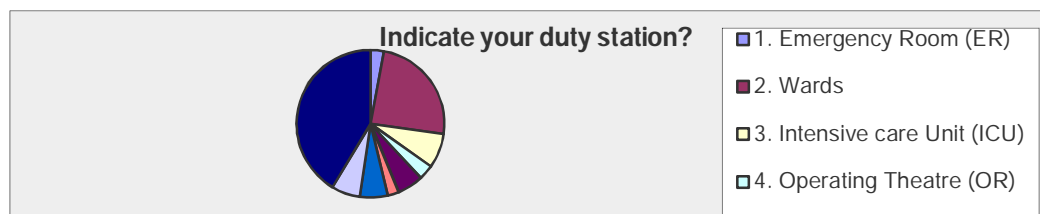


Figure4: Distribution of respondents by duty station.

Table 4 provides a summary of statistics of the KAH personnel according to their duty working stations. Most of the respondents were from others area 41.4%, these areas such as (medical imaging, HIM, ISID, Material management, Environment services, Security, communication, Business center, CCU, U&M, Food services, Rehabilitation, RT..etc.).

d. What is your current position?		
Answer Options	Response Percent	Response Count
1. Medical officer	3.8%	8
2. Registered Nurse	16.2%	34
3. Pharmacist	3.8%	8
4. Laboratory worker	2.4%	5
5. Enrolled Nurse	1.0%	2
6. Specialist (specify)	4.8%	10
7. Administrator(specify)	11.0%	23
8.Other (specify)	57.1%	120
Other (please specify)		94
<i>answered question</i>		210
<i>skipped question</i>		0

Table 4 : summary percentages of the respondents based on their position at the hospital.

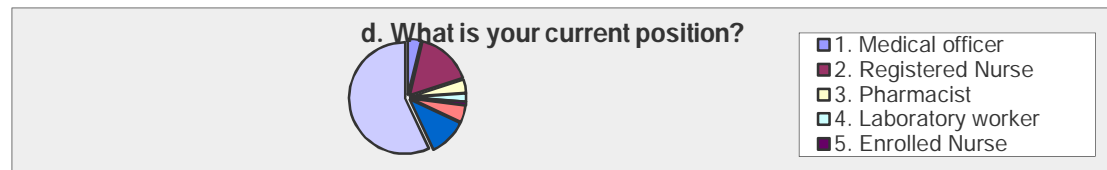


Figure5: Distribution of respondents by duty station.

For the purpose of the study, the healthcare workers were divided into eight categories based on their current position. The categories used were as follows:

The hospital had a total number of 2393 personnel (1. Medical officer 2. Registered Nurse 3. Pharmacist 4. Laboratory worker 5. Enrolled Nurse 6. Specialist (specify) 6. Specialist (specify) 7. Administrator (specify) 8. Other (specify). All of these were included in the study.

- ✓ The registered nurses contributed approximately 16.2% of the staff compliment and so 34 were participated in the study.
- ✓ The enrolled nurses contributed 1.0% of the staff compliment and so 2 were participated in the study.
- ✓ The category, other, contributed about 120 (57.1% of sample) were participated in the study.
- ✓ The administrators, were included in the study contributed about 23 (11.0%).

How many years have you worked in your current position?		
Answer Options	Response Percent	Response Count
1. 1-3 years	38.6%	81
2. 4-9 years	44.8%	94
3. 10 years and more	16.7%	35
<i>answered question</i>		210
<i>skipped question</i>		0

Table 5 : summary percentages of the respondents based on their working years.

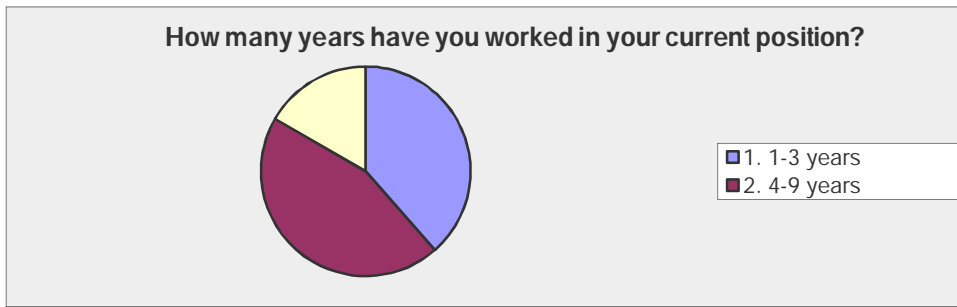


Figure6: Distribution of all the statistics of KAH respondents based on their working years.

As shown in the table 6, only (44.8%) of the employees who had been working from 4-9 at the hospital .While, others who spend from1-3 years rated (38.6%) .

What is the highest level of education that you have completed?		
Answer Options	Response Percent	Response Count
1. Less than high school	0.0%	0
2. high school	9.0%	19
3. Diploma	23.8%	50
4- Bachelor degree	57.1%	120
5. Master degree and above	10.0%	21
answered question		210
skipped question		0

Table 6 : summary percentages of the respondents based on their level of education.

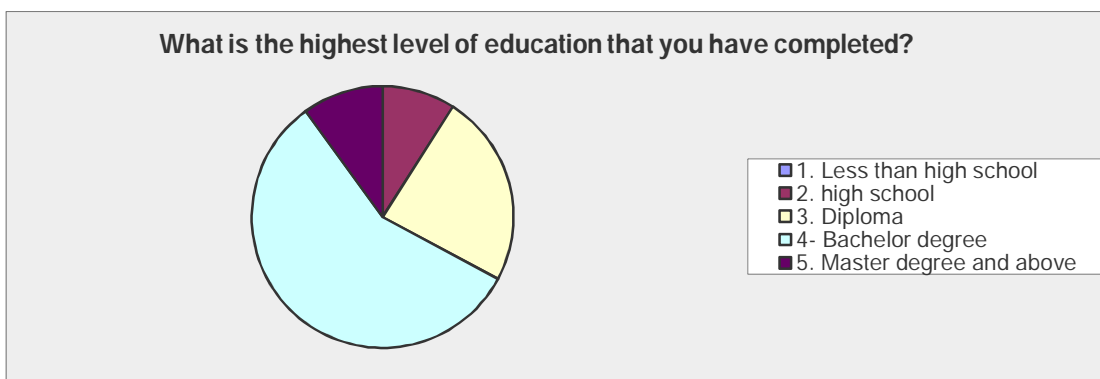


Figure 7: Distribution of all the statistics of KAH respondents based on their level of education.

The results in table 7 indicate that most of the staff (57.1%) had Bachelor degree. Only (10.0%) had Master degree and above. While (9.0%) who had high school.

Section 2: Disaster knowledge

In this section of the survey, researcher investigates what percentage of respondents checked for each response. The question is "How well would you rate your knowledge of KAH disaster preparedness plan? By using one response for each of the following: ten items(1-10) below using a scale of 1-5 as defined in the box below

1. I have no knowledge =Not heard of it
2.I have very little knowledge =Heard of it but vague knowledge
3. I have some knowledge= Know some aspects of the plan but not details
4. I have good knowledge =Know the overall plan & its components
5. I have very good knowledge =Know of plan details/ how to access it/who's responsible for it?

How well would you rate your knowledge of KAH disaster preparedness plan?Please circle one response for each of the following ten items							
Answer Options	(1)	(2)	(3)	(4)	(5)	Rating Average	Response Count
I have knowledge of KAH'S disaster preparedness plan	8	25	70	75	32	3.47	210
The critical activities in any hospital disaster	5	41	81	63	20	3.25	210
I know how to access the KAH disaster preparedness	13	47	65	67	18	3.14	210
Do you know that hospital disaster preparedness plan at	17	35	49	72	35	3.35	208
All departments (medical and non-medical) are involved	12	23	58	69	46	3.55	208
The KAH disaster preparedness plan is regularly	19	30	53	62	46	3.41	210
The KAH will designate a command and control area at	14	34	53	74	35	3.39	210
The function of the command and control center is	10	33	61	69	37	3.43	210
The hospital staff have access to additional medical and	24	36	62	56	28	3.14	206
The plan includes education and training component	10	30	59	69	37	3.45	205
<i>answered question</i>							210
<i>skipped question</i>							0

Table 7: list all the statistics of KAH respondents' knowledge toward disaster preparedness plan.

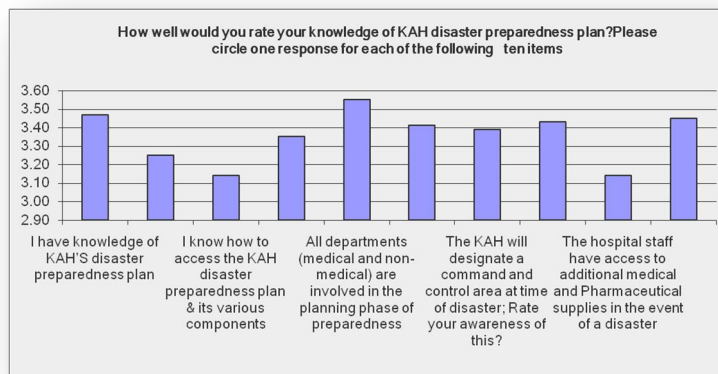


Figure 8: Distribution of all the statistics of KAH respondents' knowledge toward disaster preparedness plan.

The results in the knowledge section indicate that the respondents knew about the role of hospitals in disasters. Most of them, however, have good knowledge of KAH'S disaster preparedness plan which answer question two in question of study. Other respondents had a fair amount of knowledge/knew some aspects of the plan but not details on how to access the KAH disaster preparedness plan & its various components. All

this indicated the need for training and education on hospital emergency and disaster preparedness. More than a half of respondents knew the overall plan & its components and 24 was recorded for the staffs who had no knowledge or not heard about if the hospital staff have access to additional medical and Pharmaceutical supplies in the event of a disaster which answer question five in question of study .

Section 3: Attitudes:

Respondents were presented with various statements to respond to. This section examines how they feel about disaster management in KAH. ,to circle one response for each of the following ten items (1-10) using a scale of (1-5) explained as follows: 1= strongly agree; 2=Agree; 3= Neutral; 4= Disagree; 5= strongly disagree:

This section examines how you feel about disaster management in your hospital. Please Circle one response for each of the following ten items (1-10) using a scale of (1-5) explained as follows: 1= strongly agree; 2=Agree; 3= Neutral; 4= Disagree; 5= strongly disagree

Answer Options	1	2	3	4	5	Rating Average	Response Count
1. I need to know about the hospital disaster plans	109	66	20	10	4	1.73	209
2. Disasters are likely to happen in healthcare settings	59	86	48	15	1	2.11	209
3. Potential hazards likely to cause disaster should be	96	69	37	5	2	1.79	209
4. Management should be adequately prepared should a	96	74	28	7	2	1.77	207
5. Disaster planning is for all people in the healthcare	94	58	35	15	6	1.95	208
6. Training is necessary only for front line healthcare	38	29	39	59	42	3.18	207
7. Disaster management should be limited to nurses and	9	24	38	64	73	3.81	208
8. Disaster simulations or drills should take place	65	83	40	15	5	2.10	208
9. I believe that KAH has sufficient resources to	45	89	53	14	7	2.27	208
10. I consider overall hospital disaster preparedness	45	87	64	8	5	2.24	209
						answered question	209
						skipped question	1

Table 8: list all the statistics of KAH respondents' attitude toward disaster preparedness plan.

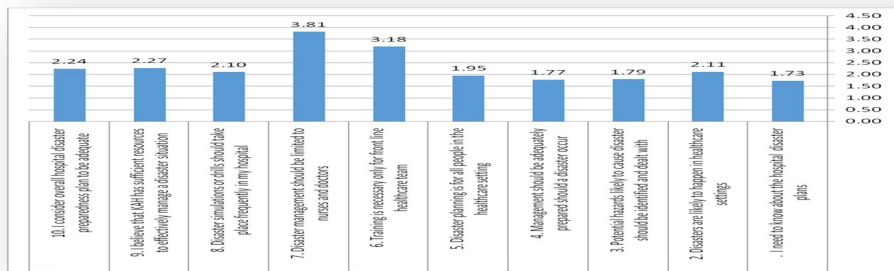


Figure 9: Distribution of all the statistics of KAH respondents' attitude toward disaster preparedness plan.

The results in Table 9 which answer the question four in question of study indicate a positive attitude towards the disaster preparedness. Majority of the respondents (109) strongly agreed with the response" I need to know about the hospital disaster plans" and 65 also ,strongly agreed to response number 8, average rate=2.10 " Disaster simulations or drills should take place frequently in my hospital"

The respondents also agreed with :

- Training is necessary only for front line healthcare team.
- Disaster simulations or drills should take place frequently in my hospital
- That KAH has sufficient resources to effectively manage a disaster situation.

Section 4: Practices

This section assesses disaster preparedness practices at your hospital, five items (1-3)

Using scale of 1 to 3, explained as follows:

This section assesses disaster preparedness practices at your hospital. Please Circle one response for each of the following five items (1-3) Using a scale of 1 to 3, explained as follows: (1. Yes; 2. No; 3. Not sure)

Answer Options				Rating Average	Response Count
1. I was orientated to the hospital disaster	144	40	25	1.43	209
2. Regular training and periodic drills regarding disaster	148	25	36	1.46	209
3. External agencies are involved in the training or drill	68	41	100	2.15	209
4. In the event of a major disaster, would you be confident in your role	135	29	45	1.57	209
5. Are other emergency drills such as fire & chemical done at your hospital?	155	24	30	1.40	209
<i>answered question</i>					209
<i>skipped question</i>					1

Table 9: list all the statistics of KAH respondents' assessment toward disaster preparedness practice

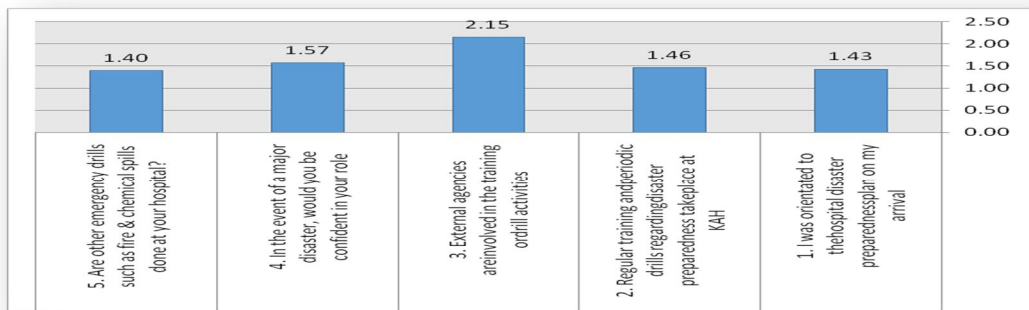


Figure 10: Distribution of all the statistics of KAH respondents' assessment toward disaster preparedness practices.

As suggested in table 10 :144 respondents checked (Yes) to the response number 1 " I was orientated to the hospital disaster preparedness plan on my arrival" and only 40 respondents answered (No) and the rest 25 answered (Not sure) which answer question three in the question of study.

For Q:7 Knowledge of the respondents towards disaster preparedness plan.

Researcher was u **T-Test**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Disaster knowledge Average	10	3.3580	.13887	.04391

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Disaster knowledge Average	76.468	9	.000	3.35800	3.2587	3.4573

Table 10: T-test statistics for Disaster knowledge.

Disaster Knowledge Average: in the one-sample statistics box, the Mean for practice is 3.3580 ,the standard deviation is .13887.

For Q:8 Attitude of the respondents towards disaster preparedness .

T-Test

One-Sample Statistics						
	N	Mean	Std. Deviation	Std. Error Mean		
Attitudes Average	10	2.2950	.67686	.21404		

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Attitudes Average	10.722	9	.000	2.29500	1.8108	2.7792

Table 11: T-test statistics for Disaster Attitude.

Attitude Average: In the one-sample statistics box, the Mean for practice is 2.2950 ,the standard deviation is .67686.

For Q:9 Practices .

T-Test

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Practices Average	5	1.6020	.31300	.13998

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Practices Average	11.445	4	.000	1.60200	1.2134	1.9906

Table 12: T-test statistics for Disaster practices.

Practice Average: In the one-sample statistics box, the mean for practice is 5 ,the standard deviation is .31300.

One sample T-Test is a test that determines if the two conditions have about the same or different amounts of variability between scores. The researcher looked at the smaller columns labeled t and Sig, the Sig. (2-tailed) value is less than .05, we conclude that there is a statistically significant difference between two conditions, we conclude that the differences between condition Means are not likely due to change and probably due to IV manipulation.

Then, one way (ANOVA) test was used to test equality of three variables

Knowledge	Attitude	Practice
210	209	209
210	209	209
210	209	209
208	207	209
208	208	209
210	207	
210	208	
210	208	
206	208	
205	209	

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Knowledge	10	2087	208.7	3.566667
Attitude	10	2082	208.2	0.622222
Practice	5	1045	209	0

ANOVA

Source of Variatio	SS	df	MS	F	P-value	F crit
Between Groups	2.46	2	1.23	0.717772	0.498912	3.443357
Within Groups	37.7	22	1.713636			
Total	40.16	24				

Table 13:ANOVA test.

Excel gives an information source of variation, it divided into two groups: between group and within groups. It gives us the value of the source square and the value of the freedom, value of means square for both groups, total for some square and degree of freedom

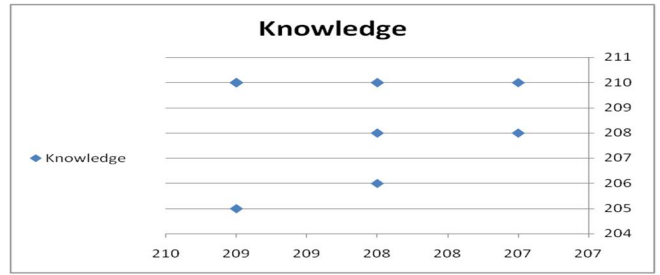
We compare F to Fcrit

$F = 0.717772 < F_{crit} = 3.443357$, it tells us that we can accept the hypothesis and carry on with it.

$P\text{-value} = 0.498912 > 0.5$.

Based on excel result still researcher doesn't not know the result and in order to know we need to use further tests.

Knowledge	Attitude	
210	209	
210	209	
210	209	
208	207	
208	208	
210	207	
210	208	
210	208	
206	208	
205	209	
		Correlation Coefficient -0.02983



Knowledge	Practice	
210	209	
210	209	
210	209	
208	209	
208	209	
210	0	
210	0	
210	0	
206	0	
205	0	
		Correlation Coefficient 0.279073

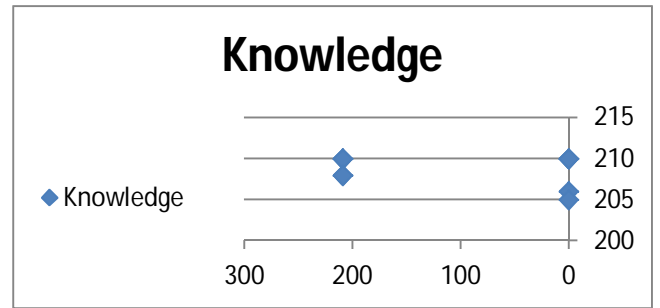


Table 14: Correlation coefficient

The researcher used correlation coefficient between Knowledge and Attitude = -0.029834136 and between Knowledge and Practice= 0.279072786.

Researcher used scatter plot for the data in the tables to get clear picture of results.

Findings and Discussion

In this chapter the results of the study were presented in tables and graphs. The results were based on the key questionnaires administered. It showed that:

Most of the respondents are aware about the hospital disaster preparedness issues; training and education; and monitoring and evaluation of the emergency/disaster preparedness process. They know also that there are departmental procedures and policies that governed emergency and disaster preparedness available at king Abdulaziz hospital website which answer question one in the question of study. Besides on that ,majority of the respondents still need a better understanding of the inputs for emergency/disaster preparedness plan models and components , specific event characteristics like (disaster codes list as code **black** for disaster, code **red** for fire, code **orange** for hazardous and chemical materials spill...etc) which answer question four in the question of study ,and how the development of new solution methods and technologies has been used before, during, and after disaster has occurred. Also, they demonstrated good attitude toward preparedness activities as shown from the statistics; apparently, they have a self- confidence of having all the required disaster core competencies as it is obvious from analysis result of the attitude section. They agreed that the disasters require good planning and should leave room for improvisation due to the unusual challenges created.

It is recommended that the hospital should continue with this process for it is important to be prepared because we do not know when disasters will occur. All we can do is to prepare!

After analyzing, interpreting, researcher reached that KAH's staff are functioning efficiently and effectively in their assigned disaster roles with available resources.

It concluded that there is a significant relationship between respondent' knowledge, their awareness, and attitude towards emergency disaster preparedness practices at KAH as indicated from the result of the statistics.

So, the hypothesis " *KAH is well prepared to respond effectively and efficiently to any disaster situation.*" is accepted.

Conclusion:

The researcher demonstrated an empirical evidence at KAH to validate that the reliability of the concept that disaster preparedness among the employees was applied effectively and efficiently at emergency situation or not which, together with application of the healthcare preparedness plan guidance, in conjunction with the other policies and procedures documented in the hospital to achieve international joint commission standards of health and patient safety within the KAH

During the research process of the above, the researcher inquiry into emergency/ disaster preparedness processes following disaster identified four major variables that contribute to organizational development that supports the capacity of communities to learn from these experiences. These factors are mentioned previously

The researcher looked closely to the question of whether the king Abdulaziz hospital for national guards-Al-Hassa would be the case of an emergency, whether disaster or crisis, Actually, this is no longer the right question, but rather the KAH moving in at the present time to ask questions, which are the most important questions: how long would be the hospital organized and prepared in case of any emergencies? and how the likelihood of exposure to risk will last? how will this affect the main objectives of king Abdulaziz hospital? What principles should be followed? and what precautions must be taken to avoid these effects? it is worth mentioning the third question risky event represent what is known as a comprehensive concept of disaster , and embodies the fifth question the role of disaster management , Furthermore , this research , highlights the leadership role of strategic management and the importance of exploiting all required stockpile/resources are available at the location when the disaster strikes .

This disaster management is being the only an assessment tool by which to determine and evaluate the strength and the power of risks impact and the way they can effect on the continuity of work plan , therefore, management should carefully address the disasters situation aspects from all the sides(capabilities ,resources ,communication and coordination..etc).that might influence on decision making and try to prevent or at least minimize the effects to the extent that organizations can overcome adversity.

Recommendations

Based on the findings of this study and in view of the growing role assigned to the activities of quality at this time and it has issued a number of important recommendations to achieve its objectives:

1. Education should be conducted frequently for all the health care givers to assure the importance of using emergency/disaster preparedness plan document, could be used to discuss what happened regarding staff's experience, areas of concern, and what worked well or did not, and then document all comments to officially end the exercise.

2. Preparing an action stations for disaster management in the various educational institutions, in order to graduate people specialists in this field.
3. Conducting specialized courses for workers to explain the disaster management concepts to them, and remove the haze around.
4. Reviewing the disaster preparedness plans, and conduct mock drills frequently.
5. Need more work to make planning for disaster management an integral part of the planning strategic, where disaster management was able to deal with emergency situation, to avoid it or reduce the negatives when it occurs.
6. Strengthen the interaction between management and workers, through the rule of the spirit of teamwork and cooperation between the various departments and divisions, as well as the development of social relations between workers in the hospital.
7. Disclosure for the problems that hinder the progress of work, and encourage all ideas and proposals made by the managers and employees of all levels of management,
8. And encourage employees to participate in solving work problems, enabling them to the appropriate authority that help them carry out their responsibilities to encourage constructive criticism on the part of workers and managers at various administrative levels, as long as the goal is to reform and guidance.
9. Determine the next steps and assign staff to those tasks to follow-up.
10. Improve the surveillance level to make sure all the staffs are reading the disaster plan carefully.
11. There should be an action Case Study video downloaded on the website of the hospital available to all the staff and easily access it
12. Emphasizing on the importance of the exchange of experiences and expertise in the business area to improve quality and functionality and be guided by them and benefit from them.
13. Encouraging and supporting scientific research projects in the areas of planning, quality improvement, and placed among the priorities of health research.
14. Continuing the hospital work plans to hold workshops in the field of quality to review the progress of the GCC countries, and to benefit from the exchange of scientific expertise gained in this area..
15. Publishing concepts and culture of patient safety and health through the education (nursing and medical curriculums), which is practically at future stage that should paint the outlines of an executive program can be applied through the following theme,: the preparation, implementation and monitoring of basic indicators of health care program. Such as (Sigma-6) course is used to develop health curriculum for continuous improvement of the quality of health care by identifying the problems and ways of solving them, and choose to exploit the most appropriate opportunities to develop performance

Assumption:

In conclusion the researcher assumed that "KAH personnel are having all the core competencies to work effectively and efficiently when the disaster strikes", these competencies are: recognize unique capabilities needed for response, better prepare for all-hazards, establish a baseline of knowledge regarding disaster plan and its components ,increase consistency of training and education, help to meet national standards, determining need for mutual aid agreements to meet gaps.

Future prospects:

These research approaches should provide additional insights into disasters helping the hospital to understand changes. Hopefully this will allow the KAH to embrace these incidents as an everyday part of life and begin to plan and manage them in a strategic and holistic way, potentially reducing their impacts on business and society.

This could possibly lead to improvement of disaster management. The future implication of this study may also be a tool for the future enhancements to use it as a valuable reference for further studies

Titles of the proposed studies to come:

1.The impact of the hospital culture on the effectiveness of disaster preparedness plan in a healthcare system.

REFERNCES :

1-JICA.(2014) .The Study on the Effective Countermeasures Against Earthquake and Tsunami Disasters.[Online]

Availableat:http://www.jica.go.jp/english/our_work/thematic_issues/water/earthquake/purpose.html

(

2-UN.End Poverty.().Millennium development goals and beyond 2015[Online].Available at: <http://www.un.org/millenniumgoals/beyond2015-news.shtml>

3-Gregory R. Ciottone (2006). *Disaster Medicine*.(3rd ed.). Philadelphia: Mosby Inc, (Chapter 5).

4- Louise K. Comfort and YesimSungu .(2001).”*The Organizational learning from Seismic risk: The 1999 marmara and duzce TURKEY earthquakes*”. Institute of Governmental Studies .

5- Carl H. Schultz, Kristi L. Koenig, and Roger J. Lewis.(2003).”*A systematic analysis of the evacuation of*

inpatients from multiple hospitals". *N Engl J Med* 2003;348:1349-55.

6-Russell L. Bennett. (2006). "*Chemical or Biological Terrorist Attacks: An Analysis of the preparedness of hospitals for managing victims affected by chemical or biological weapons of mass destruction*". *Int J Environ Res Public Health*.; 3(1): 67–75.

7-Burkle FM Jr, Hsu EB, Loehr M, Christian MD, Markenson D, Rubinson L, & Archer FL (2007). "*Definition and Functions of Health Unified Command and Emergency Operations Centers for Large-scale Bioevent Disasters Within the Existing ICS*". *PubMed*, *Disaster Med Public Health Prep*, Vol.1 No. 2 :135-41.

8-Helene Nilsson and Anders Ruter (2008). "*Management of resources at major incidents and disasters in relation to patient outcome*". *Eur J Emerg Med*. 2008 Jun;15(3):162-5. doi: 10.1097/MEJ.

9-Rangachari P1 (2008). "*The Strategic Management of Organizational Knowledge Exchange Related to Hospital Quality Measurement and Reporting*". *PubMed*, *QualManag Health Care*. Vol. 17 No. 3: 252-69.

10-Bruce R. Guerdan.(2009) "*Disaster Preparedness and Disaster Management: The Development and Piloting of a Self-Assessment Survey to Judge the Adequacy of Community- based Physician Knowledge*". *American Journal of 32 Clinical Medicine® • Volume Six, Number Three*.

11-Franc-Law JM1, Ingrassia PL, Ragazzoni L, Della Corte F(2010) "*The effectiveness of training with an emergency department simulator on medical student performance in a simulated disaster*". *PubMed*, *CJEM*. 12(1):27-32.

12-Saleh Al-Zhrani (2010). "*Management Information Systems Role in Decision-Making During Crises: Case Study*

Riyadh, Saudi Arabia”.Journal of Computer Science Vol. 6 No. 11: 1247-1251.

13- Mark Little, Theona Stone, .et.L(2012). “*The evacuation of Cairns hospitals due to severe tropical cyclone yasi evacuation of cairns hospital*”.PubMed ,AcadEmerg Med. E1088-98. doi: 10.1111 .

14-Mohammad Hossein Rajaei, GholamrezaMasoumi, & Ali Azin (2012).“*Management roadmap of I.R.Iran's Disaster Health*”. PMC Journal,Version 1. PLoSCurr.

15-FarhanShafiq and Kamran Ahsan(2013). “*An Exploratory Study Knowledge Management for Disaster Scenario*”. Research Journal of Recent Sciences, Vol. 2 No. 10: 61-66