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Strategic Goals Analysis for Action Plan Against Unexpected Disaster in Shahid Beheshti Hospital, Shiraz, Iran

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Study Area: Shiraz, Iran

Coordinates: 29°37'N; 52°32'E

Key words: Disaster management, Hospital readiness, Emergency, Earthquake.

Abstract

Hospitals as organizations with increasing demands in critical situations are always needed for strong management and skills. Therefore, it becomes necessary for every hospital to have a specific disaster management plan or emergency preparedness plan according to their resources, facilities, risks and special features to guarantee their self-sufficiency. This study aims to investigate the strategic goals for developing a plan of action against the crisis in one of our country's hospital based on a descriptive methodology. A customized observational checklist including 34 parts and 638 items was developed to assess different aspects of the Hospital readiness against disaster. The level of the Hospital readiness against disaster was evaluated using the checklist and then its content validity and reliability was validated. The assessment evidenced the lowest level of safety against the adapted partition status. The highest safety level was reported in favour of lighting system, installation unit, health, and safety education status, vaccination and infection control status, ICU-CCU sectors, obstetrics, and gynecology sectors and corpses maintenance status. Further, our findings showed that the degree of the hospital readiness is excellent. However, due to the requirement of more awareness towards the unexpected disasters, the more efforts on proper training and planning for the managers and authorities feel to be necessary in order to increase the readiness in a confrontation.

Introduction:

In order to manage treatment of injuries caused by natural and/or man-made disasters, it is necessary to organize and coordinate various organizations such as hospitals, fire station, police services, etc. (Drabek, 1985; Koenig *et al.*, 1996). Hospitals should be prepared for all sorts of expected/unexpected crises (internal-external). Internal crises are an emergency that can lead to discontinuance of services, endanger the lives of personnel, patients and visitors, and sometimes require a rapid evacuation of the hospital (Koenig & Schultz, 1994; Perry & Lindell, 2003; A.C.E.P., 2001). Nevertheless, the external crises occur due to the natural causes or human activities outside the hospital and many victims outside of the hospital need help. To deal with such emergency situation(s), there should exist various facilities, equipment, and personnel with mobility (Koenig *et al.*, 1996; Waeckerle, 1991). As

compared to the maximum chances of natural disasters in Iran (Iran ranks sixth among countries of the world) with respect to the appropriate therapeutic facilities available in the Iranian hospitals, lack of hospital-specific protocol against the crisis leads to increase of complications-induced probable events, the available funding and requirements in the hospital program to deal with the crisis of local hospitals is very less while compared with the hospitals of overseas. Hospital Disaster Planning (HDP) needs to be developed according to the existing conditions and the type of natural disaster the country Iran face. There are four steps involved in HDP which includes Prevention, Preparation, Reaction, and Return to Primary (Drabek, 1985; Irwin, 1989; Waeckerle, 1991). Development of HDP is not necessarily a costly plan. While justifying the imposition of high costs, financial losses, and physical injuries induced by the lack of hospital

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planning in dealing with natural or manmade disasters, the allocation of funds in this regard is completely reasonable and logical. Maneuvering is a common method for evaluating and monitoring the operating program for various crises and events in a community. Maneuvers can be run to evaluate different parts of a program such as telecommunications, command, rescue, etc.

Since the main objective of the disaster management program is to provide the most optimal and suitable services to the high number of injuries, the establishment of a specific plan must possess a scientific and precise management for all the stages (before, during and after unexpected events). It must be through preventive measures in the form of predicting the type and timing of the disaster, necessary to form different groups and committees of accidents including medical and paramedical teams to take responsibility and monitor the precise implementation of relief activities, training the staff, and running different maneuvers to be prepared for dealing with disasters, evaluating and analyzing the improvements after these unforeseen events (Daneshmandi et al., 2014). The ultimate purpose of this study is to examine the various sources based on scientific shreds of evidence to develop an HDP in the domestic hospitals as per the local needs in order to prevent the confusion of crisis managers, loss of resources and the decrease of injuries as well as proper hospital management in dealing with disasters.

Methodology:

This is a descriptive, cross-sectional study performed in Shahid Beheshti Hospital of Shiraz, Iran. The researcher has attempted to assess the degree of readiness of this Hospital. First of all a disaster, Operational Development notebook of Shahid Beheshti Hospital was prepared and the corresponding checklists were defined as primary standards of the hospital and the triage maneuver was run with a hypothetical patient scenario. The instrument tool used in this study was an observational checklist, whose reliability and validity was thoroughly reviewed. The checklist consisted of 638 items covering 34 domains with "Yes/No" options. It assessed the readiness of the facilities and human resources. The researchers completed the checklist as an observer. Scoring was done by assigning the score of 2 for Yes answer and 1 for No answer. Thereafter, the data were imported into IBM SPSS 21 and the descriptive tests (relative and absolute frequency) were used to analyze the results. The rate of positive responses to the survey questions reflects the hospital readiness. Table 1 shows how to score the readiness: we defined five levels with 20 scales to determine each of the domains.

Table-1: The category of scoring of readiness of the Hospital

Very weak	Weak	Medium	Good	Excellent
0-20	21-40	41-60	61-80	81-100

Results:

As shown in Table-2, the readiness and safety of different parts were investigated in terms of the positive responses. The lowest amount of safety belonged to the partition status whereas lighting system, installation unit, health, and safety education status, vaccination and infection control status, ICU-CCU sectors, Obstetrics and Gynecology sector and corpses maintenance status are in satisfactory status (Fig.-1).

Table-2: The absolute and relative frequency of readiness and safety of the hospital

S.No.	Readiness		NO		TOTAL		Readiness Level
	Abs.F*	Rel.F**	Abs.F*	Rel.F**	Abs.F*	Rel.F**	
1. The condition of emergency exit and stairs	27	90	3	10	30	100	Excellent
2. Safety against fire	26	89.65	3	10.35	29	100	Excellent
3. The condition of elevator	29	93.55	2	6.45	31	100	Excellent
4. Gas supply system (medical and household)	32	94.12	2	5.88	34	100	Excellent
5. Lighting system	20	100	0	0	20	100	Excellent
6. Electrical system status	8	88.89	1	11.11	9	100	Excellent
7. Installations unit condition	6	100	0	0	6	100	Excellent
8. Checking glasses and windows	14	82.35	3	17.65	17	100	Excellent
9. Duct and interior view of the building condition	8	72.73	3	27.27	11	100	Good
10. Exterior view of the building	12	80	3	20	15	100	Good
11. Parking condition	7	70	3	30	10	100	Good
12. Partitions condition	4	57.14	3	42.86	7	100	Middle
13. The condition of furniture and interior decoration	8	61.54	5	38.46	13	100	Good
14. Protection and safety of individuals and equipment	11	84.62	2	15.38	13	100	Excellent
15. Procurement condition (tent, food, medicine, etc.)	17	80.95	4	19.05	21	100	Good
16. Safe places for individuals, patients, equipment and ...	26	83.87	5	16.13	31	100	Excellent
17. The condition of personal protective equipment	5	62.5	3	37.5	8	100	Good
18. The condition of health and safety education	10	100	0	0	10	100	Excellent
19. The condition of vaccination and infection control	12	100	0	0	12	100	Excellent
20. The level of safety in the operating room	25	86.21	4	13.79	29	100	Excellent
21. Lancing position	26	89.65	3	10.34	29	100	Excellent
22. The condition of emergency safety	21	87.5	3	12.5	24	100	Excellent

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S.No. Readiness

	YES		NO		TOTAL		Readiness Level
	Abs.F*	Rel.F**	Abs.F*	Rel.F**	Abs.F*	Rel.F**	
23. The safety of CSR	30	93.75	2	6.25	32	100	Excellent
24. The condition of different sectors	8	100	0	0	8	100	Excellent
25. Especial investigation into ICU-CCU condition	9	100	0	0	9	100	Excellent
26. Especial investigation into orthopedic sector	4	80	1	20	5	100	Good
27. Especial investigation into obstetrics and gynecology sector	8	100	0	0	8	100	Excellent
28. The condition of safety of pharmacy & medicine warehouse	34	94.44	2	5.56	36	100	Excellent
29. The condition of radiology	18	90	2	10	20	100	Excellent
30. The condition of laboratory safety	37	92.5	3	7.5	40	100	Excellent
31. The condition of chicken safety	31	91.18	3	8.82	34	100	Excellent
32. The condition of the environmental health	14	87.5	2	12.5	16	100	Excellent
33. The condition of support units	15	88.24	2	11.76	17	100	Excellent
34. The condition of the corpses maintenance	4	100	0	0	4	100	Excellent

Abs.F* - Absolute frequency; Rel.F** - Relative Frequency

Figure-1: Comparison of the relative readiness and safety of different sectors of the hospital. As per Table-2, only the partitioning status was found at medium level. The average Hospital readiness was estimated 87.44% that was evaluated at the excellent level.

Discussion:

Proper security planning against accidents provides the safety of personnel and patients in critical situations and prevents undesired disturbances in health centers. Our results reveal that the hospital equipment is one of the most important issues in disaster preparedness and for the same, the staff should become familiar with relevant security issues and guidelines and must be updated continuously (Hsu *et al.*, 2006; Koenig *et al.*, 1996). Our data reflects that authorities have made considerable

efforts in recent years to develop security guidelines, but there are still some deficiencies exist in the security equipment. However, there are differences between the security conditions in the confrontation of disasters and normal conditions but the better condition can be achieved by a special attention on this issue. The level of readiness in examining the status of training was 100% and was evaluated at its excellent level. The present result (the level of readiness) is higher than Amerion *et al.* (2010)'s study as 82.46%, (good), Koari *et al.* (2005) as 77.8%, (good); Hojat *et al.* (2008) as 66.69% (good); Nasiripor *et al.* (2007) as 50.8% (Medium); Hoseinishokoh *et al.* (2008) as 47.6% (Weak); Sedighi (2006) as 15-35%, weak, and Ojaghi *et al.* (2009) as 17.9%, very weak were more frequent.

In another study, Zaboli *et al.* (2006) demonstrated that 9.5% of hospitals have a regular education plan and 28.6% of hospitals enjoy appropriate educational facilities. Differences in the level of education indicate the viewpoints toward education in this field and the difference in manager's sensitivity to training the personnel. The surveys show that except for a few border towns, the majority of big cities have appropriate facilities and educational environment for implementation of theoretical classes, exercises, and practical maneuvers but there are no guidelines, instructions and detailed descriptions of the suitable training program to practice periodically. Soleimani (2006) pointed out that the hospital staff had been trained over different periods to deal with unexpected events and also educational pamphlets had been provided for colleagues and clients, but there was a lack of practical and operational awareness. The findings demonstrated that pieces of training related to staff readiness should be increased to decrease the stress in the confrontation with disasters which build up to 45% in personnel, especially in nurses (Amerion *et al.*, 2010; Krajewski *et al.*, 2005). Hence, we should pay special attention to the training the staff in order to improve their performance in the confrontation with disaster. The support unit obtained 88.24 score which was excellent and it was inconsistent with Amerion *et al.* (2010) as 81.21 (excellent) and was higher than the studies of Nasiripor *et al.* (2007) as 74.6% (good), Hojat *et al.* (2008) as 68.97%, (Good) and Hoseinishokoh *et al.* (2008) as 52.4% (medium).

In astudied hospital by Zaboli *et al.*, (2006), the condition of facilities and necessities was medium while the level of equipment in the hospitals of Kermanshah evaluated by Ojaghi *et al.* (2009) was found to be weak.

Another important factor for managing the disaster is the parking condition, the readiness and the speed of operation in transportation and evacuation. In this regard, the readiness of the Shahid Beheshti hospital was found to be 70% which is a good level and it resembles the

Amerion *et al.* (2010) study as 72% and higher than Hojat *et al.* (2008) as 39.63%, Hoseinishokoh *et al.* (2008) and Koari *et al.* (2005) who found it as 33.3% in their studies.

This level of readiness, particularly in big cities, does not enjoy a suitable degree which can be increased by a good plan or allocation of disaster condition-related facilities such as inputs equipped with time of disaster and the implementation of periodic maneuvers. It is very important to predict the problems and causes of the crisis in management because the management with accurate prediction can reduce the extent of the crisis (Nasiripor *et al.*, 2007).

The results of the present study showed that the studied hospital was revealed at an excellent level in terms of structures and job description, but there are still some deficiencies in various sectors. To reach the maximum degree of readiness, one can make use of internal and international research results on improving the weaknesses in this field.

Acknowledgements:

The authors are thankful to the officilas staff of Shahid Beheshti Hospital to cooperate with us during our study.

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