

Appraisal of Disaster Response Plan of Hospitals in Taipei Judged by Hospital Emergency Incident Command System (HEICS)

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Abstract

Taipei City government has begun to ask the emergency response hospitals to implement HEICS in their disaster response planning. We then evaluated the adequacies of these plans and make comparisons among the plans of different hospitals. Of the 53 plans, there were about 50 (94%) that had predictable chain of management, and the average score was 78 points. As to accountability of position function, there were only 10 (19%) plans that met the criteria, the average score was only 45. Fewer hospitals (n=8; 13%) had flexible organizational chart that allows flexible response to specific emergencies, improved documentation of facility and also common language to facilitate outside assistance. The scores were 40, 40 and 48, respectively. Finally, only 6 hospitals have provided prioritized response checklists, cost effective emergency planning within health care corporations, and complete governmental requirements. The scores were thus 35, 35 and 30 respectively. The average score was significantly higher in tertiary center than in other hospitals (68 ± 8 vs. 45 ± 14 , $P < 0.001$). For 7 individual categories, the average points of tertiary centers were also significantly better than those of others. In summary, there are still many engagements in training, understanding of HEICS and the overwhelming idea of changing out an entire disaster plan in our systems. (*Ann Disaster Med.* 2003;1:104-111)

Key words: HEICS; Disaster; Hospitals

Introduction

The Hospital Emergency Incident Command System (HEICS) has been developed to assist the operation of a medical facility in a time of crisis in many countries.¹ Its general

organizational chart shows a chain of command that incorporates four sections under the overall leadership of an Emergency Incident Commander.¹ The four sections such as logistics, planning, finance and operations, has their

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individual leader appointed by the incident commander. The leaders in turn designate directors and unit leaders to subfunctions, with supervisors and officers filling other crucial roles. This structure limits the span of control of each manager in the attempt to distribute the work. It also provides for a system of documenting and reporting all emergency response activities. It is hoped that this will lessen liability and promote the recovery of financial expenditures.

In 1991 the administrative staff of the pilot hospitals were introduced to the original HEICS program, trained and tested the plan in a full functional exercise. This was all accomplished within a three-month time span with very positive results. While 90 days may be rushing it for some institutions, the length of the implementation/ transition program for each medical facility will depend upon a variety of factors. The size of the institution, the number of people committed to the project, the funds available to promote the project and the strength of management's support are just some of the factors that will need consideration in the implementation program design. The information and tools contained in this second edition will significantly help this process, but the actual implementation time is the decision of management and the HEICS implementation team. Taipei City government has begun to ask the

emergency response hospitals to implement HEICS in their disaster response planning. We then evaluated the adequacies of these plans and make comparisons among the plans of different hospitals.

Materials and Methods

There were 12 administrative areas and overallly 53 emergency response hospitals which accounted for 20,160 beds in Taipei City in 2002. Of the hospitals, seven were the tertiary care medical centers and the remaining 46 secondary hospitals. We then collected all of the disaster response plans from these hospitals. We reviewed all the plans according to build-up of HEICS with central focus upon the following: predictable chain of management; accountability of position function; flexible organizational chart allows flexible response to specific emergencies; improved documentation of facility; common language to facilitate outside assistance; prioritized response checklists; cost effective emergency planning within health care corporations; governmental requirements as is the case with public hospitals. For these 7 categories, there were about 5 to 7 items to evaluate the adequacies of the plans. Five independent experts in disaster medicine reviewed these plans and gave scoring. The final scores were obtained after summing up and taking the average of 5 individual scores. The

scoring was then compared according to the different levels (or rankings) of these hospitals.

Statistic Analysis

All the data were processed and analyzed with Microsoft Excel 2000 for Windows. The techniques applied to data analysis included descriptive statistics generating and independent samples *t*-test and chi-square test.

Results

Performances of Disaster Plans Judged by HEICS

Of the 53 plans, there were about 50 (94%) that had predictable chain of management, and the average score was 78 points. As to accountability of position function, there were only 10 (19%) plans that met the criteria, the average score was only 45. Fewer hospitals ($n=8$; 13%) had flexible organizational chart that allows flexible response to specific emergencies, improved documentation of facility and also common language to facilitate outside assistance. The scores were 40, 40 and 48, respectively. Finally, only 6 hospitals have provided prioritized response checklists, cost effective emergency planning within health care corporations, and complete governmental requirements. The scores were thus 35, 35 and 30 respectively.

Comparisons among Different Rankings of Hospitals

We compared the performances of 7 tertiary-care medical centers with another 46 secondary hospitals. The average score was significantly higher in tertiary centers than in other hospitals (68 ± 8 vs. 45 ± 14 , $P<0.001$). For 7 individual categories, the average points of tertiary centers were also significantly better than those of others (Figure).

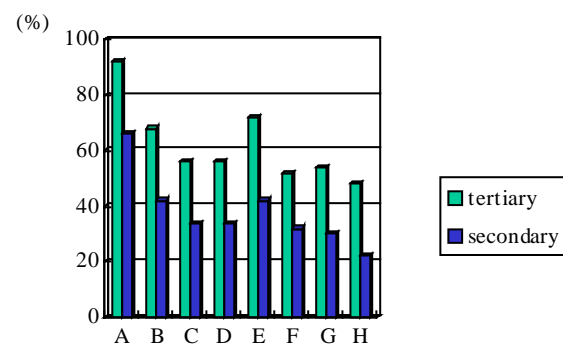


Figure. Comparison of scorings under different categories of evaluation [A: predictable chain of management; B: accountability of position function; C: flexible organizational chart allows flexible response to specific emergencies; D: improved documentation of facility; E: common language to facilitate outside assistance; F: prioritized response checklists; G: cost effective emergency planning within health care corporations; and H: governmental requirements as is the case with public hospitals. $P<0.01$ for each category.

Discussion

HEICS is a set of response procedures, which fit within a hospital's emergency preparedness plan.¹ The HEICS plan for hospitals offers the following benefits:^{1,2} predictable chain of management; accountability of position function; flexible organizational chart allows

flexible response to specific emergencies; improved documentation of facility; common language to facilitate outside assistance; prioritized response checklists; cost effective emergency planning within health care corporations; governmental requirements as is the case with public hospitals. Based upon the Incident Command System, emergency response plans share many organizational qualities with other ICS based plans. The commonalities shared between plans are a great attribute in times of crisis. This can bind hospitals and non-hospitals together in a crisis.

According to a survey conducted by San Mateo County (CA) Emergency Medical Services Agency in Spring of 1997,² 501 hospitals in California were sent a survey to ask if they were utilizing the HEICS plan. Of the 207 surveys returned, 116 responded that the HEICS plan was being utilized at their facility. This equals about 56% of the survey respondents. Hospitals in Vancouver, British Columbia (Canada) are implementing the HEICS. The HEICS have also been adopted by Germany, New Zealand, Japan, South America and Saudi Arabia. Over eighty percent of those hospitals that have used HEICS during an actual emergency rated their experience as "positive" in regards to the plan. No respondents stated that their HEICS experience was "negative".

However, our study revealed that

most of the hospitals in Taipei still did not make full use of the HEICS. We have to discuss the possible reasons for the observation. Time, cost and a currently working disaster/emergency preparedness plan are reasons for hesitancy for a conversion. Sometimes the real reason is lack of understanding of HEICS and the overwhelming idea of changing out an entire disaster plan. All of these concerns are valid. However, all facilities need to examine the real attributes and benefits of an Incident Command System-based plan. There are distinctive advantages to the entire disaster medical response community when all participants operate in a similar, predictable fashion.

It has been argued that disasters are just large-scale emergencies and the only disaster response is an expansion of the routine emergency response, supplemented by the mobilization of extra personnel, supplemented by the mobilization of extra personnel, supplies, accommodations, and equipment.³⁻⁵ However, the fact is the disasters pose unique problems that require different strategies. Disasters are not only quantitatively different, but also qualitatively different. The disaster response involves variable destruction of communication system, working with different people, solving different problems, and using different resources than those for routine emergencies.^{3,6-8}

The low frequency of devastating disasters always poses a problem for

hospital planners, because few planners have had enough disaster experience. Furthermore, no nationally institutionalized process exists for collecting, analyzing, and disseminating the lessons learned from past disasters so that future planning can benefit from them.

Another issue is the so-called “paper plan syndrome”. Utopian planning efforts that seek to address every possible disaster contingency simply are not realistic. Even if these types of efforts were possible, the planners would never have the funding to implement them.⁵ Some believe that every disaster is unique, meaning that effective planning is not even possible. However, empirical disaster research studies certainly have identified a number of problems and tasks that appear to occur with predictable regularity, regardless of the disaster. These problems and tasks are the most amenable to planning. For example, almost every major disaster requires collecting information about the disaster and sharing it with the multiple agencies and institutions that become involved in the response. Other tasks include warning and evacuation, resource sharing, widespread search and rescue, triage, patient transport that efficiently utilizes area hospital assets, dealing with the press, and overall coordination of the response. Effective planning involves identifying and planning for what is likely to happen in disasters. It

also requires procedures for planned, coordinated improvisation to deal with those contingencies that have not been anticipated in the plan.⁵ A written plan can be an illusion of preparedness if other requirements are neglected, which is so-called the paper plan syndrome.^{3,6,9} To avoid the creation of impotent paper plans, the planning should be based on valid assumptions about what happens in disasters, inter-organizational perspective,^{2,9} accompaniment with the provision of resources,⁶ association with an effective training program so the users are familiar with the plan,¹⁰ and being acceptable to the users. If the plan users are involved in the planning process, they are more likely to be familiar with the final product and make it practical, realistic, and legitimate.^{11,12}

To gain the attention, respect, and cooperation of organization members, disaster planning needs to be given the necessary status, authority, and support.^{1,13-16} One of the reasons things so often do not go according to plan when disasters strike is the failure to provide the necessary resources including funding, time and personnel. We expect the next step will be the HEICS planning must be tied to the resources necessary to carry out the mandate.^{4,17,18}

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由醫院緊急事件指揮系統對 台北市緊急責任醫院災難應變計劃之評鑑

王宗倫 張 珩

摘要

台北市政府已要求所屬緊急責任醫院，將醫院緊急事件指揮系統納入其災難應變計劃。我們評估這些計劃的適當性，並比較不同層級醫院的計劃品質。在所收集的 53 件計劃中，有 50 件（94%）具有可預測處理流程，整體平均分數為 78 分。其中只有 10 件（19%）達到角色功能明確的標準，平均分數為 45 分。在具有彈性組織架構，改善設施認證，以及與院外建立共同語言三方面，只有 8 家醫院（13%）達到要求，而平均分數分別為 40 分、40 分和 48 分。此外，只有 6 家醫院提供優先性應變檢查表，具經濟有效性的緊急應變計劃，以及完整的政府需求。而分數分別為 35 分、35 分和 30 分。整體而言，醫學中心的平均分數比其他責任醫院為高（ 68 ± 8 vs. 45 ± 14 , $P < 0.001$ ）。其中 8 個分項，醫學中心的表現也較其他醫院為高。因此在台北市要全面推行醫院緊急事件指揮系統，仍有許多改善的空間。（*Ann Disaster Med.* 2003;1:104-111）

關鍵詞：醫院緊急事件指揮中心；災難；醫院

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