

Financial Burden of Emergency Preparedness on an Urban, Academic Hospital

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Abbreviations:

EMC = Emergency Management Committee
EOP = emergency operations plan
JC = Joint Commission
NIMS = National Incident Management System

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Abstract

This study assessed the direct human resource costs of a hospital's emergency preparedness planning (in 2005) by surveying participants retrospectively. Forty participants (74% of the identified population) were surveyed. Using the self-reported hourly salary of the participant, a direct salary cost was calculated for each participant. The population was 40% male and 60% female; 65% had a graduate degree or higher; 65% were administrators; 35% were clinicians; and 50% reported that their job description included a reference to emergency planning activities. All participants spent a combined total of 3,654.25 hours on emergency preparedness activities, including 20.1% on personal education/training; 11.6% on educating other people; 39.3% on paperwork or equipment maintenance; 22.2% on attendance at meetings; 5.6% on drill participation; and <1% on other activities. Considering the participants' hourly salary, direct personal costs spent on emergency preparedness activities at the institution totaled US\$232,417. Ten percent, all of whom were physicians, reported no compensation for their emergency preparedness efforts at the hospital level.

As much as these results illustrate the strong commitment of the institution to its community, they represent a heavy burden in light of the often-unfunded mandate of emergency preparedness planning that a hospital may incur. Such responsibility is carried to some extent by all hospitals.

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Introduction

Hospitals have multiple missions, including patient care, clinical education, clinical research, and community service. Two of these missions come together when a community faces an emergency or disaster—patient care and community service. The hospital's patient care role expands as the disaster unfolds. The hospital's community service role begins long before a disaster strikes, as the hospital staff attempts to mitigate hazards and prepare through planning, equipment, education, training, exercising, evaluations, and updating its emergency operations plan (EOP).^{1,2}

To gain and maintain Joint Commission (JC) accreditation, hospital staff must develop an EOP that utilizes an incident management system (IMS) and integrates the plan within a community's response plan. An "all hazards" approach to disaster management is incorporated into this EOP. Further, the hospital staff performs biannual drills and a yearly review of the EOP. These planning activities are not reimbursed as they do not represent patient care; however, they do represent a form of organizational investment for the future, should a disaster strike, due to the fact that better prepared organizations should demonstrate greater resiliency and effectiveness during times of disaster.

These activities come at a high cost. Hospital preparedness that meets the challenge of a pandemic influenza threat has been estimated at US\$1,000,000 per hospital.¹ The institution that participated in this study always has had a very strong commitment toward emergency preparedness efforts, due to its

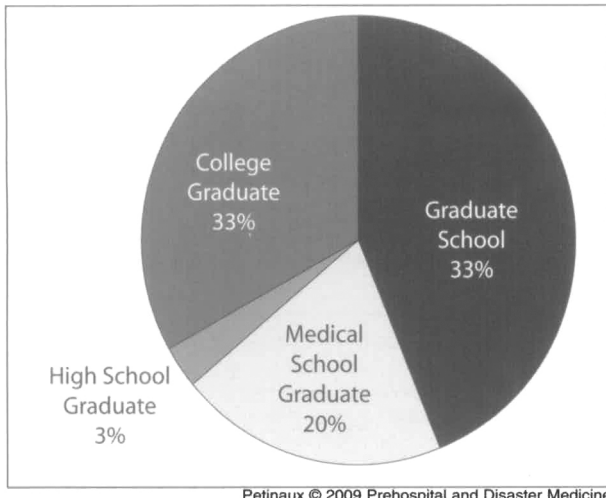


Figure 1—Educational background of the study population

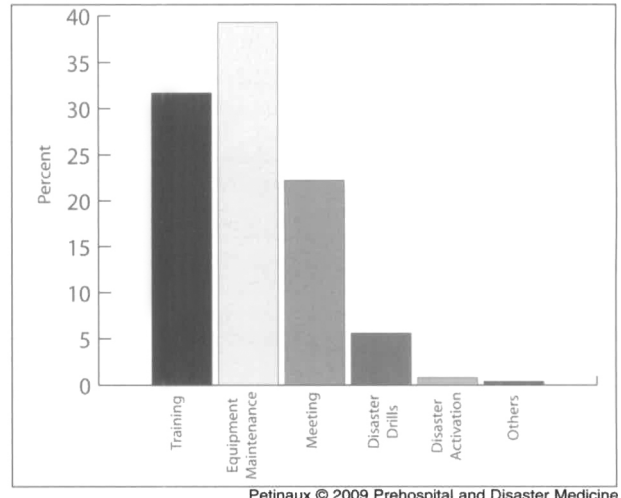


Figure 2—Time spent on each EP effort

location and involvement in the community. As required by its bylaws, the hospital has formed an Emergency Management Committee (EMC). This Committee is tasked with leading all emergency preparedness efforts at the institution and ensuring JC compliance. The Committee has been very active in organizing biannual drills, updating the EOP, educating and training staff, resource management, and representing the hospital to the emergency management community at-large. In addition to the above efforts, anticipated or sudden unexpected increases in the EMC’s functions can occur. One example of a sudden, unexpected event was the response to the anthrax scare in Northern Virginia in March of 2005. Conversely, an example of an anticipated event was the Presidential Inauguration in January of 2005.

The above outlined activities to some extent are duplicated at every hospital in the United States, but the salary costs of maintaining such efforts in the field of emergency preparedness planning never have been studied in depth in the field of emergency preparedness planning. A MEDLINE search of the terms “committee” and “disaster” yielded only two entries,^{4,5} neither of which addressed the actual planning process. Prior studies have examined the costs, including not just salary expenses, incurred by institutions relating to institutional review board work associated with research.^{6–9} A prior study examining the overall cost of hospital emergency preparedness from the Greater New York Hospital Association in the post-9-11 era identified that 25.8% of all expenditures were related to staff resources.¹⁰ The data presented in this study focus exclusively on the direct salary costs of the emergency preparedness efforts at one institution.

Methods

The EMC members were surveyed retrospectively regarding their emergency preparedness efforts during the 2005 calendar year. Participants were asked to estimate their involvement in meetings, education, training, preparations, and response to disasters. Using the self-reported hourly salary of the participant, a direct salary cost was calculated for each participant. The source of the salary also was

reviewed to determine whether or not any external funding was obtained to support the participant’s efforts. The Institutional Review Board approved this study. Consent was obtained from all participants.

Results

Fifty-four eligible members of the EMC were identified for participation in this study. Of these, one reported no time spent and no income, 11 did not participate, one declined to participate, and one member (author) abstained. Overall, 40 members (74%) participated. Figure 1 outlines the educational backgrounds of the study population. Sixteen participants were male (40%), 24 female (60%); eight (20%) participants were physicians.

Sixty-five percent of the participants described their job functions to be mostly administrative and 50% of participants stated that their job function specifically included emergency preparedness responsibilities. The study participants reported a combined 3,654.25 hours dedicated to EOP efforts in 2005. Of the time devoted to emergency preparedness efforts, 39.3% was spent on paperwork and maintaining equipment. Approximately 31.7% was spent on training, with 20.1% on self-education and 11.6% on education and others. Twenty-two percent was spent on meetings, of which about 75% was spent on internal meetings to the hospital and the rest in meetings external to the facility. Of the remaining time, 5.6% was spent on disaster drills, 0.8% was spent on disaster activations, and 0.4% on unspecified activities (Figure 2).

The average salary of the participants was \$56.43 per hour. The collective total amount of money spent during 2005 on direct salary costs was \$232,417.20. The salaries for 29 participants were paid directly by the hospital. Two participants had multiple funding sources for their salaries related to emergency preparedness activities at the hospital, four reported employers other than the hospital to have paid the salaries, and five reported no compensation. Of note, all participants not reporting any actual salary compensation for their efforts were physicians. No participant reported grant income.

Develop a core Emergency Management Committee (EMC) of smaller size to meet monthly
Meet quarterly or less with all Emergency Management Committee Members to address system wide Mitigation, Preparation, Response, and Mitigation Efforts
Provide the Emergency Management Committee Leadership with administrative resources that can perform non-EMC core tasks
Involve hospital support departments such as Materials Management and Finance Department in resource management—integrate 'Disaster Supplies' with existing hospital resource management
Integrate Emergency Preparedness Efforts into existing hospital efforts – Life Safety Rounds, Fire Drills, Core Competencies, Annual Reviews, etc.
Encourage local Hospital Associations to develop a strong local, regional, and state-wide hospital emergency preparedness committee to manage funding opportunities and their associated requirements, documentation, and auditing
Encourage local Hospital Associations to develop memoranda of understanding between members for local, regional, and state-wide resource management during a response
Develop IS (NIMS) equivalent courses tailored specifically to your facility to maximize training opportunities
Develop asynchronous learning tools via distance learning specific to your facility that staff members may take at their own pace and convenience
Consider adopting 'off the shelf' plans—though be sure to make these plans organization and facility specific
Consider working with other hospitals in your area to develop common pieces to an emergency management program such as a hazard and vulnerability analysis, biannual exercise, etc.
Recognize staff members emergency management function to include this responsibility in their job description and provide for formally protected time to participate in EMC efforts

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Table 1—Planning and preparation management recommendations (EMC = Emergency Management Committee; IS = independent study; NIMS = National Incident Management System)

Discussion

Emergency planning represents a large, unfunded, yet necessary financial burden on hospitals. The extent of the financial burden of emergency preparedness planning on any institution has not been reported before. By examining the direct human resource costs associated with emergency planning, this study attempted to quantify this financial burden within its study limitations. All institutions must realize that their emergency planning efforts resulted in substantial direct costs to their operating budget. To assist in controlling such costs, recommendations for an EMC to achieve maximum efficiency of personnel use in the planning and preparation efforts of emergency management are outlined in Table 1. The National Incident Management System (NIMS) Implementation Activity Element Six for hospitals and healthcare systems, as published by the Federal Emergency Management Agency, directs hospitals to enact a mechanism through which preparedness funds provided by the Federal and State governing bodies could be allocated by hospitals and hospital associations for preparedness efforts.¹¹ However, such funding efforts typically do not include the actual planning process, but focus primarily on resourcing and hospital infrastructure. By nature, emergency planning efforts often do not add to the core business of a hospital, which is direct patient care, as they are mostly preparatory efforts. This planning could be

thought of as an investment in the future should disaster strike. Yet, fiscal pressures and the paucity of financial support for dedicated disaster planning at the individual hospital level, place the majority of the financial burden onto hospitals.

Emergency preparedness is a topic of great study based on recent disasters in the United States; however, the researchers who focus on disaster preparedness efforts and discuss the costs incurred with such efforts tend not to focus on the cost of the actual emergency planning process.^{12,13} This process cost, expressed in salaries alone is substantial. Equipment maintenance and "paperwork" were responsible for almost 40% of all efforts. Compliance with standards, updating and maintaining plans, and resource management are included within this category. As funding is available for resourcing, activities such as purchase ordering, tracking, organizing, stocking, inventorying, maintaining, and auditing of resources are labor intensive. Further, to be utilized efficiently, these resources must be integrated into the planning process.

Education and training represented almost 32% of the time commitment that members reported on the EMC. This training may have included internal or external training. Some of this training is done at the discretion of the members; some trainings, though, such as the NIMS courses, are obligatory for compliance purposes. If all 54 EMC members took the IS-100 (3 hours), IS-200 (3 hours), IS-

700 (3 hours), and IS-800 (3 hours) courses for a total of 12 contact hours, a one time median salary cost of >\$36,000 would be incurred by the facility to meet this implementation activity. Meetings included the monthly EMC meetings, other internal planning and preparatory meetings, as well as external planning and preparatory meetings with outside agencies and partners.

Limitations

This was a single-site study; therefore, the results were influenced by the study population as well as the characteristics of the facility, an urban, academic medical center. Furthermore, the intensity of planning and preparatory efforts, though baseline at all hospital facilities within the US, may be driven differently at certain facilities due to hazard and vulnerability analysis results. The study environment, being an urban, academic center in a major metropolitan area, might have inflated the preparedness efforts. The Greater New York Hospital Association (GNYHA) report found similar trends with academic hospitals outspending community hospitals three to one in their overall preparedness efforts. Hence, direct applications of this study must be viewed in the context of size and type of hospital, a hospital's commitment to emergency preparedness efforts, and probability and the likely impact of any given disaster on the hospital.

Further, the study focused only on the members of the EMC. It must be recognized that facility-wide education and drilling occurs year round and such costs were not included in this study. However, most of these activities would not involve strict planning. The co-chair of the EMC during most of the study period was the author of the study, and therefore, did not participate. The author estimates an additional \$30,000 of salary costs that could have been added to the total if included in the report. Further costs, such as benefits of up to 28% per employee were not included in the study. Indirect costs such as loss of

physician relative value units, productivity, malpractice, travel costs, communication, and office costs also were not included. Future research should focus on prospective salary costs of emergency preparedness efforts at an institution. As the level of preparedness and involvement within preparedness efforts may differ with hospital characteristics, a multicenter research study may more accurately approximate costs. These costs also should not only be measured in direct salary costs alone, but should include indirect costs such as office support, costs of all drill/exercise participants, and system-wide training, exercising, and planning costs.

Conclusions

Hospitals are committed to strong emergency management programs due to the risks to which they are exposed. These risks are measured by the impact of any given hazard on the facility within its geographic locations including: proximity to hazards, such as industrial and transportation centers, and potential exposure to disasters of both natural and human-made causes, both internal and external. In the participating institution's staff, salary cost of such a commitment as demonstrated in this study totaled almost a quarter of a million dollars. In light of such large sums of money, the healthcare industry should strive to streamline emergency preparedness efforts by providing strong hospital leadership support. By standardizing plans, developing local and regional disaster protocols, integrated responses within the community, and effective resource management across competing hospital systems, hospitals would benefit from synergy in their disaster preparation and responses. Individual hospitals might be served better by establishing one individual or a small group of individuals who develop the NIMS compliant community, integrated, all-hazards EOP and maintain it. It also would be this small group's or individual's responsibility to train all employees on their roles within the plan as well as meeting with departmental leadership to ensure plan accuracy.

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