



IMMEDIATE BED AVAILABILITY IN CASE OF A DISASTER

Mariya Georgieva¹, Rostislav Kostadinov¹, Mariya Semerdjieva²,

1) *Department of Epidemiology and Disaster Medicine, Faculty of Public Health, Medical University, Plovdiv, Bulgaria.*

2) *Department of Health Care Management, Faculty of Public Health, Medical University, Plovdiv, Bulgaria.*

ABSTRACT:

Introduction: During a disaster, an increase in the number of casualties requiring hospital admission is recorded. This challenge the hospitals' management - there is a need for beds, rooms, consumables, drugs, and medical teams to support the increased number of patients arriving.

Purpose: This study aims to analyze the awareness of hospital medical professionals about the required procedures described in the hospital contingency plan for increased bed availability in case of disaster.

Materials and methods: 295 hospital medical professionals in the Plovdiv region, Bulgaria, participated in an anonymous survey that contained 55 questions.

Results: Most of the respondents are not familiar with the approved procedures to optimize the availability of emergency beds after the disaster that impacts the hospital disaster resilience.

Conclusions: Optimization of activities related to operational hospital disaster resilience must include training of medical specialists in immediate bed availability procedures.

Keywords: hospital disaster resilience, medical personnel, immediate bed availability

INTRODUCTION

During a disaster, an increase in the number of casualties requiring hospital admission is recorded, which imposes several changes into hospital care workflow organization that are described in the hospital disaster management contingency plan. The plan obligatorily determines how the structure and the task of the wards have to be modified for the provision of beds, drugs, teams and equipment required for the treatment of disaster casualties. Undoubtedly, the most affected are the hospital emergency and intensive care departments that have to be supported into the first hours of the disaster medical support. [1-3]. When additional hospital space is required, the plan describes the necessary actions for the liberation of beds or/and provision of extra

beds for admitting those requiring hospital treatment. Some of the actions include stabilized patients discharge or transfer of patients to other wards or to outpatient clinics, whereby the available beds can be used by the casualties in need of definitive treatment. [4, 5] Of the total flow of patients to be admitted to the hospital, those in triage categories T1 and T4 must be immediately sent by the sorting medic to the shock room, intensive care unit or operating rooms, which implies the hospital's ability to adapt to the new requirements and redirect medical capabilities to some of the wards and units. [6-8]

PURPOSE

This study aims to analyze the awareness of hospital medical professionals about the required procedures described in the hospital contingency plan for increased bed availability in case of disaster.

MATERIALS AND METHODS

Between July and September 2019, 295 hospital medical professionals in the Plovdiv region, Bulgaria, participated in an anonymous survey that contained 55 questions. The questions were designed to assess their awareness of the medical activities described in the hospital disaster medical support plan. Descriptive statistics were used to calculate the relative percentage, along with Pearson's chi-square test and Spearman's correlation. A p-value below 0.05 was considered statistically significant. All descriptive and analytical statistics are calculated using the specialized SPSS v.21 software for Windows XP. A Microsoft Office Excel 2013 product was used for graphical processing.

RESULTS AND DISCUSSION

The hospital's readiness for adequate and effective disaster response depends on its available means and capabilities and their proper utilization. In the event of a disaster, if there is a need for additional beds, the disaster medical support plan envisages a maneuver with the bed base to ensuring casualties' admission and treatment. [4, 5] Most of the respondents (88.5%, n = 261) are un-

familiar with the approved procedures to optimize immediate bed availability to ensure intensive treatment of incoming casualties with life-threatening injuries. The highest percentage of medical specialists who are aware is observed among managers, 35.7% (n=10) ($p = 0.001$ $\chi^2 = 18.46$). A very small proportion of nurses (10.0%, n = 15) and resident physicians (8.6%, n = 8) are aware. The low level of awareness suggests possible difficulties in the reception of the injured; therefore, it is a prerequisite for reduced efficiency and disaster resilience.

During a disaster, a relatively large number of casualties need urgent medical care in a very limited period of time, and the existing imbalance in means and capabilities is a major challenge for medical support. To cope with expected hospital overload, planning and providing resources that can be used in the event of a disaster is necessary. The plan describes in detail hospital stores such as beds, medical staff, specialized medical teams, ambulances. The task of the hospital director and the headquarters established in each hospital is to prepare an estimate of the necessary means and capabilities for disaster medical support. [4,5] The predominant percentage of respondents (89,5%, n=264) are not aware of how much additional hospital space (beds, rooms and wards) for the treatment of casualties is planned. A study conducted in Sofia, Bulgaria, showed an extremely high level of awareness (100.0%) about the possibility of increase the number of beds among the respondents, which differs from our results. [9] In our study managers are the most informed about the additional hospital space: 32.1% (n = 9) are familiar ($p = 0.001$ $\chi^2 = 17.76$). The percentage of nurses (8.0%, n = 12) and resident physicians (10.8%, n = 10) familiar is extremely low. Although managers demonstrate the highest level of awareness, we consider their awareness to be unsatisfactory. As disaster medical support managers at the hospital level, they should be well acquainted with the number of beds that can be reserved for the treatment of casualties and the wards that can be reorganized for the needs of disaster medical support. Making a management decision regarding the maneuver with the bed base requires prior

knowledge of these resources. Insufficient knowledge of the possibilities for admission and treatment of casualties can lead to a deteriorating quality of disaster management, which has a negative effect on the operational element of hospital disaster resilience.

Of the total flow of casualties to be admitted to the hospital, those in categories T1 and T4 who are urgent must be sent by the sorting anesthesiologist to the intensive care unit or operating theaters, which implies the hospital's ability to treat casualties in needed intensive care. To provide adequate treatment, the bed's hospital must provide the necessary intensive treatment beds. [6-8] 2/3 of the medical specialists (75.6%, n = 223) are unaware of whether their hospital plans to use additional intensive care beds. The highest percentage of medical specialists who are informed is observed among managers, 49.2% (n = 12) ($p = 0.006$ $\chi^2 = 12.34$). Only 21.3% (n = 32) of nurses and 29.0% (n = 27) of resident doctors know if the hospital had planned additional intensive care beds. The number of nurses needs to correspond to the number of intensive care beds, which requires the secondment of nurses from other wards to the intensive care unit. [7,8] The distribution and secondment of nurses are coordinated and led by managers. To be able to make adequate management decisions related to the treatment of the most severely injured, managers must know the provision of intensive care beds. Insufficient awareness of medical professionals about the bed capacity, which can be transformed for intensive care of casualties (less than half - 49.2% of them are informed), is a prerequisite for improper allocation of resources and staff, which suggests inadequate management. Disaster management, inconsistent with the needs of the casualties, has a negative impact on operational resilience.

CONCLUSION

Results of the study highlight the need for focused and dedicated training of the hospital medical personnel regarding the standard operating procedures approved in the plan for optimization of the activities related to the operational component of hospital disaster resilience.

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Address for correspondence

Mariya Georgieva
Department of Epidemiology and Disaster Medicine, Faculty of Public Health,
Medical University of Plovdiv,
15A, Vasil Aprilov Blvd., Plovdiv 4002, Bulgaria.
E-mail: mari.georgieva@mu-plovdiv.bg