Analysis of the Hospital Disaster Vulnerability based on the Kaiser Model

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Abstract

Kaiser model was used to study the current hospital development actual situation, and build a professional disaster vulnerability assessment panel, put forward the related assessment criteria, understand the existing hospital disaster vulnerability, not only can effectively solve problems of disaster during the practice management, can also improve the emergency management of hospital. It should be noted that the Kaiser model should not directly replace the emergency plan, and the risk assessment expert team should not only be involved in the internal management of the hospital, and the application of the Kaiser model should be ensured to achieve maximum standardization. Therefore, on the basis of understanding the definition of Kaiser model, this paper proposes an appropriate management system according to its application in hospital disaster vulnerability, and from this, clarifies the practical significance of Kaiser model to hospital disaster vulnerability, as well as the problems that need to be paid attention to.

Keywords

Kaiser Model; The Hospital; Disaster Vulnerability.

1. Introduction

1.1 Disaster vulnerability

By combining the Kaiser model to study the vulnerability of hospital disasters, clarify the focus of hospital emergency management during operation, and put forward the emergency management plan in line with internal operation, it can not only strengthen the emergency awareness of hospital staff, but also improve the overall management level. From the perspective of hospital operation and management in recent years, in-depth discussion on different types of risk events and appropriate solutions based on accumulated experience in practice can not only alleviate the doctor-patient relationship, but also improve the risk identification ability of the hospital and reduce the probability of safety accidents or bad disputes in the hospital.

Combined with the definition proposed by the International Joint Commission on the Assessment of Healthcare Institutions in the United States, disaster vulnerability refers to identifying potential emergency situations and their direct or indirect impacts on hospital operations and service requirements, and using disaster vulnerability analysis tools to identify and control risks.

Table 1. Divides 30 hazardous events based on four dimensions

Classification of	Dangerous incidents
Natural disasters	Typhoons, high temperatures, floods, epidemics
Technical accidents	Power outages, water outages, internal fires, traffic paralysis, sewage system failure, fire alarm failure, communication failure, medical gas failure, information system failure, information leakage, elevator failure, building collapse
Personal injuries	Mass Injuries (Traumatic), Medical Emergency Public Health Incident, Hospital Infection Outbreak, Terrorism (Biochemical), Theft (Infants, Property, Drugs, Medical Supplies, etc.), Violent Medical Dispute, Medical Risk Error Accident, Explosives Threat, Public Opinion Crisis
Dangerous goods injury	Drug safety hazard incidents, hazardous chemical incidents, nuclear accidents and radiation accidents, food safety incidents, equipment safety incidents

1.2 The Kaiser model

This model, developed by the Kaiser Permanente medical group in the United States, is mainly used for disaster vulnerability analysis of medical institutions and is a widely used analytical tool [1-4]. In practice, Excel forms are used to score and rank the probability and harm of risk events of different dimensions. Because the overall evaluation method is relatively perfect and the final result is intuitive and clear, it can be applied and promoted nationwide. Table 1 is an example, which refers to the 30 dangerous events after screening:

2. Disaster vulnerability analysis of hospitals based on Kaiser model

2.1 Evaluation Indicators and Standards

According to the analysis of the current application of Kaiser model in hospitals, the risk evaluation matrix proposed from this perspective involves two aspects of the probability and harm of the occurrence of the event, and each index is mainly divided into four levels, namely 0,1,2,3 points, and the design scoring standard is the key content of the overall evaluation work. At the early stage of the investigation, the disaster vulnerability analysis tool software independently developed by the hospital was used to conduct professional training and on-site demonstration for the staff of all departments in the conference of the whole hospital. At the same time, the real-time evaluation software was also used to investigate and analyze the risk value of possible dangerous events. The specific calculation formula is as follows:

Risk (%) = (probability /3) × | (human impact + asset impact + operation impact + preparation work + internal response + external response) /18 |

2.2 Specific Analysis

On the one hand, according to the actual hospital operation analysis, the existing risk factors should be clear. Using the Kaiser model to study the natural, social and technological aspects of hospitals, the classification results of disaster vulnerability indicators can be obtained as shown in Table 2 below:

Table 2. Division of hospital disaster vulnerability indicators

The serial number	First-level indicators	Secondary indicators
1	Natural disaster events	Volcanic eruptions, blizzards, floods, dam breaks, landslides, hail, extreme temperatures, wildfires, pandemics, droughts, earthquakes
2	Social harm	Strike behavior, baby abduction, explosive threat, mass public security incidents, network public opinion events, medical disputes and so on
3	Technical Events	Fuel shortage, traffic paralysis, central supply failure, nuclear accident and radiation, boiler explosion, communication failure, water cut, power cut, fire alarm failure, generator failure, information network emergency, elevator accident, infection outbreak, drug safety hazard incident, canteen food safety incident, internal fire, etc

On the other hand, the meaning of human resources, assets, operations and internal and external representatives is clarified by combining the calculation formula proposed above. From the practical point of view, human impact is to consider the accident may cause casualties and emotional psychological impact; Asset impact is the time to calculate the expenses and return to normal; The operation impact needs to pay attention to all kinds of interruptions while studying all kinds of losses that may be caused by illegal operations, such as image reputation, etc.; The preparation work is to make clear whether the emergency plan meets the requirements, whether the required materials and participants have participated in the training, etc.; Internal response refers to the study of effective response times, types of materials, and the skills that staff need to master; External response refers to the emergency response capacity of the national and regional governments, as well as the specific situation of signing cooperation agreements with similar hospitals and material agencies.

3. Precautions

According to the analysis of the application effect of Kaiser model in hospital emergency management in recent years, it can be seen that Kaiser model is a disaster vulnerability analysis tool with convenience, applicability and effectiveness, which is very suitable for the current emergency management needs of hospitals. But there are also caveats. For one thing, the Kaiser model should never be used as a direct replacement for emergency plans. The reason is that such models are only an assessment aid and cannot fully cover all the functions of an emergency plan. Hospitals should put forward targeted solutions based on the understanding of relevant local laws and regulations and requirements of emergency plans. On the other hand, the application of the Kaiser model must really achieve maximum standardization. Relevant institutions should organize evaluation experts to provide training and guidance on relevant knowledge on the basis of clarifying the scope of disaster, risk probability and time, and then avoid incorrect understanding of hospital staff affected by subjective consciousness. If important disaster conditions change, such as the new construction of oil refineries and nuclear power plants in the surrounding areas, the disaster assessment content must be adjusted in time to improve the response level during the actual operation [2-5].

4. Conclusion

To sum up, according to the analysis of the occurrence of hospital disasters in recent years, the implementation of disaster vulnerability analysis using Kaiser model can not only find out the potential safety problems in operation management in time, but also put forward appropriate emergency plans based on the accumulated experience of practical management. At the same time, in view of the analysis of the evaluation index and standard management system, the hospital managers must attach importance to and strengthening its efforts in disaster vulnerability analysis, and learn to use high quality tools for in-depth discussion and analysis, only in this way can in an increasingly complex social environment protect hospital operation and management of security and stability.

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