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ORIGINAL RESEARCH

Evacuation Implementation and Evacuation Paths in Disaster Conditions for Patients at Undata Hospital, Central Sulawesi Province

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Abstract
Undata Hospital of Central Sulawesi Province is located in a disaster-prone zone. Evacuation in hospitals is different from general because most of the visitors are patients who are undergoing treatment. When a disaster occurs, it is necessary to pay attention to the evacuation process, evacuation routes, and evacuation instructions which must be adequate because they assist the process of patient evacuation. This study aimed to determine the evacuation implementation and evacuation routes in a disaster situation for patients at Undata Hospital, Central Sulawesi Province. This study used a qualitative method with a case study approach. There were 10 informants. The results of this study indicated that the evacuation system at Undata Palu Hospital already have a policy in handling patient evacuation, but it has not been disseminated to all hospital residents. The patient evacuation procedure is in accordance with the SOP. All hospital human resources are involved in evacuating patients and have also been given training. Evacuation routes and instructions at the Undata Hospital were quite good. However, there are still some shortcomings, such as not all high-rise buildings having ramps, no special/emergency lighting, the gathering point is still used as a parking lot and heavily damaged signposts. Checking evacuation routes and evacuation instructions is carried out once a year. It is suggested that Undata Hospital - Palu could routinely carry out socialization related to evacuation policies, provide training and evacuation simulations to nurses. Meanwhile, it is also expected to procure evacuation facilities and evaluation signs.
Keywords: Evacuation Implementation, Evacuation Path, Disaster Situation

1 | INTRODUCTION

Disaster is a series of events that can happen at any time and can harm humans, both material and non-material. As facilities that provide access to health services, hospitals have the potential for disasters. Hospitals must be ready to face disasters by preparing facilities and human resources (Adzhani, 2016). In the event of a disaster, the things that need to be considered are evacuation, evacuation routes and evacuation instructions. One of the protection standards against potential hazards is the standard evacuation plan. There are two decisive phases in building evacuation, namely the pre-evacuation phase and the movement phase. The pre-evacuation phase is the stage before the building occupants leave the room; the movement phase is the movement of the building occupants to a safe area (Kementerian Kesehatan RI, 2010). Evacuation in hospitals is different from evacuations in other public buildings; this is because most hospital visitors are patients undergoing treatment who are physically incapable so that when an emergency occurs, they need assistance in evacuation (Kementerian Kesehatan RI, 2010).

Disaster data from BAKORNAS PB states that disaster events in Indonesia continue to increase from year to year; between 2003-2015, there have been 1,429 disaster events, of which hydrometeorological disasters are the most frequent disasters, about 53.3% of the total disaster events in Indonesia. Based on the atlas of the Aceh disaster risk map (2011), shows that the earthquake and tsunami in Aceh resulted in 126,915 deaths, 37,063 people lost, around 100,000 people suffered serious and minor injuries, along with 517,000 houses lost; this series of events has reminded us that natural disasters in the form of earthquakes and tsunamis can occur at any time (National Agency for Disaster Management, 2013).

Based on BNPB calculations on October 26 2018, Central Sulawesi Province suffered damage and losses of Rp. 18.48 trillion, especially in 4 affected districts/cities, namely Palu City, Donggala Regency, Sigi Regency, and Parigi Moutong Regency. The most significant loss and damage came from settlements, followed by the economic sector (Central Sulawesi Provincial Health Office, 2019).

Based on the results of a preliminary study conducted by researchers at Undata Hospital, Central Sulawesi Province that evacuation and evacuation routes in a disaster situation for patients in each building have not been appropriately realized where evacuation and evacuation routes at Undata Hospital Central Sulawesi Province still use independent evacuation and evacuation routes. Existing evacuation routes are still in the form of stairs. The standard operating procedure (SOP) for evacuation and evacuation routes at the Undata Hospital in Central Sulawesi Province is based on the decision letter from the director of the Undata Hospital in Central Sulawesi Province Number 188.04/II.04/Undata regarding the determination of patient evacuation routes in the event of a disaster in the hospital environment.

Evacuation is the transfer of people or occupants from a dangerous place to a safer place. One of the protection standards against potential hazards is the standard evacuation plan. The evacuation system made so that people can survive through self-rescue means, including exits, exit doors, emergency stairs and assembly points, is a single unit so that the rescue process runs quickly and smoothly (Octa, 2015).

An evacuation route is intended for people to respond when a disaster occurs and not scatter when a disaster occurs, panic when a disaster occurs but can position what they are going to do by looking at the direction of arrows or other signs in order to reduce the number of victims caused by panic when a disaster occurs, such as volcanic eruptions, floods and earthquakes. Evacuation instructions are signs or symbols that have meaning and are used to save lives in a disaster or unwanted tragedy.

This study aimed to determine the implementation of evacuation and evacuation routes in a disaster situation for patients at Undata Hospital, Central Sulawesi Province.

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2 | METHODS

This study used a qualitative research method with a case study design. This research was conducted in the condition of natural objects. In qualitative research, the researcher acts as a key instrument. The data collection technique was done by triangulation (combined); the data analysis was inductive, the informants used were informants with experienced the substance to be studied through in-depth interviews and stopped when there was no new information. The informants in this study consisted of 1 Key Informant, Head of Occupational Health and Safety (OHS) Undata Hospital, Ordinary Informants consisting of 6 Heads of Undata Hospital, and Additional Informants consisting of 2 nurses at Undata Hospital, and 1 patient.

3 | RESULT AND DISCUSSION

1. Evacuation System

An evacuation system is an act of moving humans directly and quickly from a location to a safe location to stay away from threats or events that are considered dangerous or have the potential to threaten the lives of humans or other living creatures. Evacuation certainly requires specific steps to provide better conditions for the victim, not worsen the situation because of the wrong technique. In an evacuation, do not add new injuries to the victim. (Gabriel, 2019). In the evacuation system at Undata Hospital, Central Sulawesi Province, a policy regulates the evacuation process in a disaster. The policy was issued and signed directly by the Director of Undata Palu Hospital in the form of a module. Policies related to patient evacuation need to be enforced in every hospital so that patient evacuation follows applicable regulations because patient safety and comfort are prioritized in hospitals.

This is in line with research. Emergency response management must become a necessity and be stated in a policy. Without the support and will of management, the emergency response management program will not succeed. The highest leadership holders of power set policies; for the agency or company level, emergency policies must be determined by local leaders (Ramli, 2010). All hospital residents, employees, nurses, and patients ' families must know policies that apply to hospitals. This is done so that all hospital residents understand the evacuation process in a disaster, both fire and earthquake. By disseminating policies related to evacuation, it can minimize the risk of danger that occurs during a disaster; both nurses and the patient's family know how to find a way out of the hospital building to a safe place from danger.

Hospital OHS policies and objectives are set by the hospital's highest leadership and are stated officially and in writing; the policy must be clear and easy to understand and known by all hospital human resources, both management, employees, contractors, suppliers and patients, visitors, patient introductions, guests and other related parties with appropriate procedures. In addition, all of them are responsible for supporting and implementing the OHS hospital implementation policy and the procedures that apply in the hospital while in the hospital environment. The OHS hospital policy must be socialized with various efforts at the leadership meeting (Menteri Kesehatan, 2016).

The evacuation procedure at the Undata Hospital of Central Sulawesi Province is in accordance with the SOP. This is to ensure the safety of patients and other hospital residents in the event of a disaster. If the procedure is not carried out under the SOP, it will automatically increase the risk that poses a danger and threat to all hospital residents, especially patients. The results of this study are in line with research (Ferdinansyah, 2015); the evacuation procedures used are walking to the gathering point, staying calm, not using the elevator, following the instructions of emergency response officers, extinguishing the fire if trained, evacuating via emergency stairs. Persons who experience health problems must separate and calm themselves in the evacuation process, then call first-aid workers. Avoid bringing items or equipment that can hinder the evacuation process and endanger other people.

All human resources are involved in the evacuation process at Undata Hospital. An evacuation team is formed in each room consisting of nurses divided into 4 people according to the colour of the safety

helmet who have their respective duties in the evacuation process. In the evacuation process, all human resources, both nurses involved in the evacuation team or nurses not included in the evacuation team, have been given the training to apply in an emergency. The results of this study are in line with research (Permadi, 2013). Implementing policies related to disaster awareness is quite good because the hospital has made an organizational structure and human resources as implementers of activities during disaster evacuation by providing special training on OHS, especially evacuation in a state of disaster. The results of this study are not in line with (Safrina, 2015); simulation activities and disaster socialization have not been carried out on an ongoing basis, thus allowing staff and patients to forget or even not know about where the evacuation point should be in the event of a disaster.

2. Evacuation Paths and Evacuation Instructions

The evacuation route is a particular path that connects all areas to a safe area (assembly point). In building construction, the evacuation route is very important to evacuate workers to a safe place if things happen in an undesirable building (Mawardi, 2018). Evacuation instructions are a medium to assist evacuation in the event of a disaster at the hospital, and evacuation instructions are tools to inform the existence of a hazard and provide warnings to visitors and all human resources in the hospital, where evacuation directions also direct to go to the safe place (meeting point) (Kurniawan, 2020).

At Undata Hospital, Central Sulawesi Province, each room has 2-3 evacuation routes leading to the exit door. Each corridor in the Undata Hospital has a width of 3 meters, according to the established standards. In the evacuation route in each patient room leading to the exit, there are no obstacles such as items placed at the exit, making it easier to rescue patients in the event of a disaster. However, the lack of evacuation routes at the Undata Hospital, there is no sloping path in each inpatient building. The lighting for evacuation routes at the Undata Hospital only applies lights usually installed in various places in the hospital for special lighting related to evacuation. This special lighting is intended to provide light when a disaster occurs when the lights go out, it will make it difficult to evacuate patients when the room is not given lightly. For evacuation routes in high-rise buildings using only stairs, there are no evacuation routes such as sloping routes, making evacuating patients in high-rise buildings more efficient.

The evacuation route is a means to evacuate patients. Evacuation routes in every hospital need to be considered. A good evacuation route if in each room there are 2-3 evacuation routes that lead to the emergency exit, the evacuation route must also be taken into account the width of the corridor because considering a large number of patients so that the evacuation process can be carried out correctly and on time. Each evacuation route must also be free from all obstacles because it will complicate the evacuation process if items are placed along the evacuation route or at the exit. In addition, the evacuation route needs special lighting to guard against a power outage in the hospital building. The ramp is an evacuation route that is needed to evacuate patients in high-rise buildings. The ramps will make the evacuation process more timely and efficient in a disaster so that patients are only encouraged to use a bed or wheelchair and transfer them to a safer place more quickly.

The results of this study are in line with research (Pratama, 2017); self-rescue facilities are building facilities that residents can use to save themselves by getting out of the building during a fire emergency. This self-rescue facility is divided into three parts, namely evacuation routes (emergency exits, corridors and emergency stairs), exit signs and assembly points.

The results of this study are in line with research (Fang, 2019), showing that the emergency lighting evacuation indicator is a lighting system for people in buildings in disaster control operations. The system consists of emergency lights, emergency lighting and other related equipment. Emergency lighting evacuation indicator serves as lighting and can light up quickly after an emergency occurs. This emergency lighting provides illumination for clues and can evacuate patients to a safe place, and it is also possible to guide any trapped hospital occupants to escape from dangerous areas more timely and effectively. The instructions or signs at the Undata Hospital are

evacuation arrows, exit doors and assembly point signs. The installation itself follows applicable standards. In every hospital building, evacuation directions have been installed, but the new building at the Undata Hospital has not been installed because all hospital management is still focused on handling COVID-19, so the installation in the new building has not been implemented.

Evacuation directions have a considerable function in patient evacuation. Evacuation instructions will make it easier for everyone to protect themselves and patients from danger while in the building when a disaster occurs. Evacuation instructions will direct everyone to find a way out to a safe point. Placement of evacuation directions must be following applicable standards. The placement of evacuation directions at the Undata Hospital is quite good. Based on the researchers' observations, the placement of evacuation directions is placed on the wall along the evacuation route and installed sequentially. The distance is not too far so that hospital residents can easily and see the available evacuation signs. Based on the observations made by measuring the height, it has met the SNI standard for the height of the evacuation directions. The placement of evacuation instructions with a low height of 40 cm from the floor base and a medium height of 170 cm from the floor base.

The study results align with research (Jeon, 2019); evacuation direction signs are essential in dealing with emergencies in building disasters. Evacuation directional signs help refugees escape quickly by following the fastest and safest escape route after a disaster emergency occurs. Many researchers note that brightness, colour, size and distance affect people's visibility of evacuation directions. There are 4 gathering points at the Undata Hospital, viz. at the front, left side (front of the ER), right side, and back of the hospital. The placement of the gathering point at the Undata Hospital is quite safe, but the function of the gathering point at the Undata Hospital has changed its function to a vehicle parking area. Switching its function to an automatic gathering point will disrupt the patient evacuation process in the event of a disaster.

The results of this study are in line with research (Lestari, 2013); one of the signs for saving lives is the assembly point. An assembly point is a place around or outside the location used as a gathering place after the evacuation, and calculations are made in high-risk disasters.

Efforts to maintain evacuation routes and evacuation signs are by carrying out routine checks. With regular checks, evacuation signs will be maintained and maintained correctly. Checks are carried out to replace whether there are signs that are damaged or faded in colour. Checks for evacuation routes and evacuation instructions at Undata Hospital have been carried out, but these checks have not been routinely carried out where the checks are carried out approximately once a year or during hospital accreditation activities. Evacuation signs are damaged, replaced and checked only when there are reports from each room that there are damaged signs.

The results of this study are in line with research (Prima, 2011); inspections are carried out to maintain safety signs or evacuation guidance signs so that they are always in good condition. Inspection of the signs that exist in each building or place that has been determined is routinely carried out. The workplace is also a necessity in caring for signs. In addition, it is necessary to replace damaged signs with new ones and repaint fade safety signs.

The results of this study are in line with research (Astrianti, 2019), showing that the evacuation routes at the Awal Bros Hospital, Bekasi for corridor widths of more than 2 meters, emergency stairs and exit doors are under existing standards. For exit directions, there are signs for evacuation directions, exits and gathering points. However, the meeting point itself is still used as a parking lot by the Awal Bros Hospital. The results of this study are not in line with research (Karimah, 2016), that in the evacuation route facilities and evacuation signs in hospitals there are still some that do not meet standards, such as the width of the evacuation route. Evacuation direction signs whose installation and placement are not up to standard.

4 | CONCLUSION

The evacuation system in Undata includes policies related to evacuation in the form of modules, but

for the dissemination of policy content to all hospital employees, it has not been appropriately implemented due to lack of socialization carried out. The evacuation procedure in Undata is under the SOP. All human resources at Undata Hospital are involved in the patient evacuation process. Also, a special evacuation team is available in each room with their respective duties according to the colour of the safety helmet.

Evacuation routes and evacuation instructions at Undata Hospital are quite good, but there are still shortcomings, such as evacuation routes in high-rise buildings that still use stairs because there are still buildings that do not have ramps. Evacuation instructions or evacuation signs have suffered much damage; Undata Hospital does not yet have evacuation instructions or signs for the new building. The gathering point at the Undata Hospital is not installed with a gathering point sign, and even the meeting point itself is still used as a parking lot.

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