



Analysis of Occupational Health and Safety Risks in the Surgical Inpatient Room at Hospital

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Abstract: According to the latest report from the International Labor Organization, more than 1.8 million people died in Asia-Pacific. At the Asian level, as many as two-thirds of the global population of more than 2.78 million people die every year due to work accidents or occupational diseases. Meanwhile, based on the National Safety Council (NSC) report, it shows that 41% of accidents in hospitals are greater than in other industries. The purpose of this study was to determine the level of occupational safety and health risks in the surgical inpatient room of X Hospital Bandar Lampung. This study uses a semi-quantitative method that refers to AS/NZS: 2004 and a method for identifying risk using job hazard analysis (JHA) and multiplying the values of consequence, likelihood, exposure to determine the level of risk. The research results obtained with a substantial risk level of 1 risk and an acceptable level of 10 risks.

Keywords: AS/NZS: 2004; Occupational Health and Safety; Risk analysis

Introduction

Hospital Occupational Safety and Health are all activities to ensure and protect the safety and health of hospital human resources, patients, patient companions, visitors and the hospital environment through efforts to prevent work accidents and occupational diseases in hospitals. (Ministry of Health, Minister of Health Regulation No. 66, 2016).

The National Safety Council (NSC) report shows that 41% of accidents in hospitals are greater than in other industries. Cases that often occur are needle stick injuries (NSI), sprains, back pain, scratches or wounds, burns, infectious diseases and others. (Zimri et al., 2020).

According to report latest from International Labor Organization (Organization Labor International), as many as more from 1.8 million person die in Asia-Pacific. At the Asian level, as much as two-thirds of the global population is over from 2.78 million person die every year consequence accident Work or disease Work. Apart from that, as much around 374 million accident And disease consequence non-fatal work. Temporary

that, based on data BPJS Employment amount accident Work every year increase. In 2015 there were 110,285 work accidents, in 2016 there were 105,182 and in 2017 there were 123,000 cases. (Nugraha, 2019). According to the Employment Social Security Administering Agency (BPJS), Employment is based on work accident reports. The number of work accidents was 147,000 in 2018, 114,235 in 2019 and increased to 177,161 in 2020, including 11 Covid-19 cases (Sudalma, 2021).

House Sick must carry out program service safety Work like coaching And supervision safety, service health, infrastructure And equipment, promotion And supervision equipment safety Work, management And maintenance infrastructure, equipment House Sick, And procurement equipment House Sick (Watung, 2019).

Room operation is areas which give service surgery with risk accident which very tall. As big as (80.8%) incident No expected (KTD) happen on patient hospital, And 58.4% incident No desired the happen in room operation. (Asmuji et al., 2021). Based on initial observations in the surgical inpatient room, researchers found several risks, namely slippery hallways, no K3

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signs in the elevator and the floor surface had holes in the mobilization route between the operating room to the surgical inpatient room and inside the surgical inpatient room.

Regional General Hospital Dr. A. Dadi Tjokrodipo is a hospital type C which is located at Bandar Lampung City, The Occupational Health and Safety Management System (SMK3) at Tjokrodipo Hospital was recently established. Based on data obtained from the K3 Hospital, in the surgical inpatient room, K3 risk analysis has never been carried out so there is a possibility that health workers or patients experience work accidents. One of the reports of accident risk in the surgical inpatient room area is that workers almost slipped because they were not there is an anti-slip carpet so the floor is slippery. Therefore, researchers are interested in conducting K3 analysis research in the surgical inpatient room to find out the health and safety risks that exist in the surgical inpatient room at A. Dadi Tjokrodipo Hospital.

Method

Method which used is method analysis risk semi-quantitative. The objects of this research are equipment and work environment and data collection techniques

by means of observation, interviews and analysis. The data used in this research are questions using semi-structured interviews, while the observation sheet uses the job hazard analysis form (JHA). Data processing was carried out using the JHA table, while risk analysis data used the AS/NZS:2004 semi-quantitative analysis method by multiplying the consequence, exposure and likelihood. The first stage is risk identification using the JHA observation sheet. The second stage carries out risk analysis to determine the magnitude of a risk using semi-quantitative analysis ASNZS:2004. The third stage is risk evaluation by comparing the level of risk found during the risk analysis process with previously established criteria (AS/NZS 4360:2004). What differentiates this research from previous research is that this research analyzes environmental risks and work tools in surgical inpatient rooms using the JHA method.

Result and Discussion

Based on research, 11 types of risks can be identified in work equipment and the work environment in the surgical inpatient room at Hospital X in Bandar Lampung. Once identified, data analysis was carried out using the AS/NZS:2004 theory.

Table 1. Risks to work equipment and work environment in the surgical inpatient room at Hospital X in Bandar Lampung

Risk Identification	Impact	Basic Risk			Risk Level	Degrees	Action
		C	E	L			
There is no anti-slip carpet so the hallway floor is slippery and there are no handrails on the stairs which could result in the risk of accidents	Slip - Fall - Wound - Bruises	15	3	3	135	Substantial	Requires corrective action
The door to the evacuation route is locked and there are objects in the evacuation route area such as oxygen cylinders, cupboards and other items, this is because the warehouse is full and there is no longer a special room to store these items. So that in an emergency, the evacuation route is difficult to use and can cause casualties.	- Difficult to save yourself in an emergency situation and eat victims	50	0.5	0.5	12.5	Acceptable	The intensity of activities that cause risk must be minimized
There are no K3 signs in the lift and when the lift is operating, the lift suddenly doesn't work, while in the lift there are patients, visitors and officers. The absence of K3 signs and damaged lifts can result in incidents.	- Lack of oxygen - Trauma	1	3	3	9	Acceptable	The intensity of activities that cause risk must be minimized
There are visitors who are minors who enter the surgical inpatient room, and these children are at risk of contracting disease because the children's immune system is still weak.	- Contracting a disease	15	0.5	0.5	3.75	Acceptable	The intensity of activities that cause risk must be minimized
Chairs that are not suitable for use and	- Injury	1	2	1	2	Acceptable	The intensity of

Risk Identification	Impact	Basic Risk			Risk Level	Degrees	Action
		C	E	L			
there is a risk of falling from the chair when you want to sit or while sitting	- Bruises						activities that cause risk must be minimized
A leaking ceiling can cause leaks or even collapse, posing a risk of an incident.	- Collapse - Causing casualties	5	0.5	0.5	1.25	Acceptable	The intensity of activities that cause risk must be minimized
Mobilization from the operating room to the surgical inpatient room has a rough and uneven floor surface, causing patient discomfort and risk of falls.	- Fallen - Experiencing dizziness - Inconvenience	1	1	0.5	0.5	Acceptable	The intensity of activities that cause risk must be minimized
The uneven floor surface (holes) in the surgical inpatient room creates a risk of tripping.	- Bruises - Injury - Minor injuries	1	1	0.5	0.5	Acceptable	The intensity of activities that cause risk must be minimized
The bathroom handle is rusty and there is a risk of allergies or even infection after holding it.	- Infection - Allergy	1	0.5	0.5	0.25	Acceptable	The intensity of activities that cause risk must be minimized
There are wheelchairs whose footrests are damaged, causing discomfort for patients and risk of falling	- Fallen - Uncomfortable	1	0.5	0.1	0.05	Acceptable	The intensity of activities that cause risk must be minimized
The storage warehouse is full and there is no longer a special storage space so the drawers containing IV fluids, injection drugs, gauze, report file books, lists of discharged patients and new patients are not locked from morning to evening and this is at risk of being contaminated or lost.	- Contaminated - Is lost	1	0.5	0.1	0.05	Acceptable	The intensity of activities that cause risk must be minimized

Based on the hazard and risk assessment table above, 11 types of risks were found in the environment and work equipment in the surgical inpatient room at RS X Bandar Lampung. The calculation results of the existing basic risk (basic risk) which is in the substantial category is 1 risk and 10 risks are in the acceptable category. The results of the basic risk assessment can be seen that there are 10 acceptable risks and 1 risk requires control measures to reduce the risk level.

Basic risks slippery corridor amounting to 135 (substantial) with a consequence value of 15 (serious) because the impact of slipping in the hallway could cause disability or disease, this could happen due to hitting the floor or wall. The exposure frequency value is 3 (Occasionally) because based on the results of interviews it was found that there were often reports of almost slipping. The value (likelihood) is 3 (Unusually but possible), namely the event that occurs most often. Based on interviews, of the many risks in room E4, there are frequent reports of almost slipping due to slippery walkways. There is no stair railing and the floor is

slippery, there is no warning symbol that the floor is slippery.

The evacuation route in the surgical room is locked and there are objects around it with a basic risk value of 12.5 (Acceptable). The consequence value is 50 (Disaster) because if the emergency door is locked it will have a fatal impact if an emergency occurs so it will hinder evacuation. The exposure frequency value (Exposure) is 0.5 (very rare), based on the results of the interview it was found that up to now there has never been an emergency, so the emergency evacuation route door was locked without causing any impact. The probability value (likelihood) is 0.5 (Conveivable), there has never been an emergency for many years, but emergencies can happen. The reason the emergency door is locked is to minimize theft and there are objects around the emergency door, this will have fatal consequences at any time in an emergency situation.

The lift at E4 sometimes stops suddenly and there is no K3 sign on the lift. The basic risk is 9 (Acceptable), the consequence value is 1 (Noticeable) because the

impact is only minor injury or illness and the work process stops because sometimes nurses are also trapped in elevators but do not cause pollution outside the location. The exposure frequency value is 3 (Occasionally). Based on the results of the interview, it was found that the lift occurred occasionally. But even so, always be alert when using the elevator. The probability value (likelihood) is 3 (Unusual but possible), dead lifts are not common but may occur. There are no K3 signs. When the lift stops it takes around 30 minutes to evacuate the people trapped in the lift.

The basic risk value for the risk of visiting children under 12 years is 3.75 (Acceptable), the consequence value is 15 (serious) because small children have weak immune systems so they are susceptible to contracting disease. An exposure value of 0.5 (Very rare) is much unknown when it occurs. Based on interviews, there were no reports of young children who had visited room E4 experiencing infectious diseases as a result of being in that room. The probability value (likelihood) is 0.5 (conveivable), there has never been an incident report, but this incident could happen. Visitors to patient patients are children under 12 years old and are at risk of contracting disease because the immune system of young children is not as strong as that of adults. This happens because there is less strict supervision from security.

In the surgical inpatient room there are chairs that are not suitable for use but are still used with a basic risk value of 2 (Acceptable), a consequence value of 1 (Noticable) because the impact is injury, bruising or minor illness if you fall from the chair. Exposure frequency value (exposure) of 2 (Infrequent) does not happen often, because there have been reports of almost falling when trying to sit in a chair. The probability value (likelihood) is 1 (Remotely Possible) for events that have a small possibility of occurring. The room has proposed repairs, but the hospital has not responded yet.

There is a ceiling that is leaking so there is a risk of it collapsing, the basic risk value is 3.75 (Acceptable), the consequence value is 5 (Important), because if the ceiling suddenly collapses it could cause injury to the patient or the patient's family who are in the toilet so they need medical treatment and outside the location does not cause damage. The exposure frequency value of 0.5 (very rare) is much unknown when it occurs, to date there have been no incidents of ceiling collapses. A likelihood value of 0.5 (conveivable) means that there has been no accident for many years, but it is possible. There has never been an incident and it has not been repaired.

On the mobilization route from the operating room to the operating room there is a rough floor surface and holes, this poses a risk of incidents. The basic risk was obtained at 0.5 (Acceptable), the consequence value was

1 (Noticeable) because the impact could cause injury, bruising and minor damage. An exposure value of 1 (rare) is unknown when an incident occurs. Because maybe an incident almost happened, but didn't report it. The probability value (likelihood) is 0.5 (conveivable) that there has been no accident for many years, but it is possible. Rough floor surfaces can make patients uncomfortable and even pose a risk of falls. Not only is the floor surface rough, but at several points there are holes in the floor and to date there has been no control.

In the surgical inpatient room there are holes in the floor which can cause tripping, minor cuts and injuries. Obtained a basic risk value of 0.25 (Accaptable), a consequence value of 1 (Noticable), the impact if you trip could result in bruises, injury or minor illness. The exposure frequency value of 0.5 (Veri rare) is much unknown when it occurs. The probability value (likelihood) is 0.5 (Conveivable) that there has been no accident for many years, but it is possible. However, to date there have been no incidents, perhaps incidents have occurred but no one has reported them until now. I have proposed repairs but they have not been repaired because the building will be completely renovated.

There is a rusty bathroom handrail with a basic risk value of 0.25 (Acceptable), a consequence value of 1 (Noticable). The impact is a mild illness such as infection or itching. Based on interviews, there have never been any reports of incidents or illnesses resulting from holding a rusty toilet handle. The exposure frequency value (Exposure) of 0.5 (Very rare) is much unknown when it occurs. The probability value (likelihood) is 0.5 (Conveivable). There has never been an accident in many years, but it is possible. There has never been an incident and there has been no control from the hospital.

The wheelchair in the surgical inpatient room was damaged in the footrest, this certainly poses a risk of an incident. Basic risk is 0.5 (Acceptable), Consequency value is 1 (Noticable) the impact is minor injury or illness, bruises and minor damage, there have been no incidents of falls from wheelchairs with damaged footrests. The exposure frequency value of 0.5 (Very rare) is much unknown when it occurs. A likelihood value of 0.1 (Practically Impossible) is very unlikely to happen. There are only two wheelchairs in the surgical inpatient room and one of the wheelchairs is damaged at the footrest. The surgical inpatient room has proposed repairs but no action has been taken to date.

Drawers containing IV fluids, injection drugs, urine pots, gauze, report file books, lists of new patients and lists of discharged patients are placed in the front of the patient's room unlocked, except at night, so there is a risk of incidents occurring. Basic risk is 0.25 (Acceptable), Consequency value is 1 (Noticable), the impact could be that the work process stops temporarily. The exposure frequency value of 0.5 (Very rare) is much unknown when it occurs. The probability value

(likelihood) is 0.5 (Conveivable). There has never been an incident for many years, but it might have happened because from morning until last afternoon it was not in a locked state. When the drawer is not locked, someone other than the officer could open the drawer and there are concerns that medical equipment will be contaminated, files will be lost and so on. The reason these drawers are located in front of the patient's room is because there is a lack of available space, so they have to be placed there.

Conclusion

Dangers and risks found in the work environment and work tools in the surgical inpatient room, namely slippery hallways, locked emergency doors, incidents in elevators, Minor visitors, damaged chairs, leaking ceilings, holey floor surfaces in the mobilization area, holey floor surfaces in the surgical inpatient room, rusty toilet handrails, damaged wheelchair footrests, inappropriate storage of drawers... Basic risk assessment results It can be seen that there are 10 acceptable risks and 1 risk in the substantial category, namely slippery corridors, requiring control measures to reduce the risk level.

Author Contributions

Siti Mariam: Researcher, Agung Aji Perdana: supervisor lecturer 1, Riyanti: supervisor lecturer 2, Khoidar Amirus: supervisor 3, and Fitri Eka Sari: supervisor 4.

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Conflicts Of Interest

This research is subsidized by the thesis supervisor and can lead to one of the graduation requirements. I have disclosed these interests to my supervisor and have an approved plan to manage any potential conflicts arising from this arrangement.

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