International Journal of Health, Economics, and Social Sciences (IJHESS)
Vol. 7, No. 3, July 2025, pp. 1302~1308
DOI: 10.56338/ijhess.v7i3.8019
Website: https://jurnal.unismuhpalu.ac.id/index.php/IJHESS

Risk Management of Occupational Health and Safety (K3) in Sanitation Health Workers at Padjonga Dg. Ngalle Hospital Takalar District in 2025

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Article Info

Article history:

Received 24 May, 2024
Revised 07 Jul, 2024
Accepted 25 Jul, 2025

Keywords:

Risk Management,
Sanitation Installation,
Occupational Health and Safety, Sanitarian.

ABSTRACT

Sanitarians are health workers with the largest presentation and play an important role in providing health services, especially in controlling medical waste. In carrying out their duties Sanitarians are at risk of experiencing occupational health and safety (K3) disorders. This study aims to analyze the K3 risks of Sanitarian personnel in the sanitation room of Padjonga Dg.Ngalle Regional General Hospital, Takalar Regency in order to find appropriate risk control efforts so that Sanitarians avoid work accidents and occupational diseases. This descriptive qualitative research has been conducted on all Sanitarians in the sanitation room totaling 10 people (total sampling), risk assessment refers to the AS / NZS standard on Risk Management. To assess likelihood, exposure, and consequence, interview guidelines and job hazard analysis forms were used. It was concluded that the greatest level of danger was obtained in the act of separating medical and non-medical waste in the form of radiation risks of hazardous pipe materials, anesthetic gases, incorrect body position or ergonomic disorders, The hospital is advised to make further control efforts in accordance with the K3 control hierarchy.

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INTRODUCTION

A sanitation installation is a unit or facility within an organization, especially a hospital, that is responsible for managing various aspects of environmental hygiene and health to prevent the spread of disease and health problems. The focus is on waste management, clean water, pest control, and area hygiene to create a safe and healthy environment.

Sanitation Installation is a service unit that is responsible for efforts to prevent disease and/or health problems from environmental risk factors to realize a healthy environmental quality both from physical, chemical, biological, and social aspects within the hospital environment. The implementation of environmental health is organized through health, safety, and control efforts carried out on the hospital environment.

Risk analysis of Occupational Health and Safety (OHS) in sanitarian health workers in the hospital environment is important to identify potential hazards and control risks that may arise from their work. Sanitarians in hospitals are at risk of exposure to various hazards, such as infections, hazardous chemicals, physical injuries and ergonomic disorders. OHS risk analysis helps in efforts to prevent accidents and occupational diseases, and create a safer and healthier work environment.

According to Nurmansyah et al (2014) the demand for hospital services including continues to increase, this is due to an increase in various types of infectious diseases, acute degenerative diseases, traffic accidents, work accidents, disasters and other events. The results of research in several countries prove that hospitals are one of the dangerous workplaces and sanitarians are one of the health workers who are at risk of experiencing occupational health and safety problems as a result of their work. As an illustration, the Bureau of Labor Statistics and the National Insurance Council of America (2013) concluded that in hospitals in America every 100 hours of work there are 6.8 incidents of work accidents and occupational diseases (PAK). This figure puts work accidents and occupational diseases in hospitals slightly higher than work accidents and occupational diseases in other sectors, such as construction, manufacturing, and other professional and business services. As many as 48% of occupational accidents were caused by excessive use of force/muscle by sanitarians when exposed to residual medical equipment, handling patients, such as lifting, moving or reaching residual patient disposables, and other medical equipment. In addition, 54% of the types of accidents experienced were related to musculoskeletal disorders, such as muscle sprain and strain, and this makes musculoskeletal disorders the largest recipient of compensation claims from hospital costs. The material losses incurred from occupational accidents and PAK each year are approximately US$2 billion. Efforts that can be made to minimize the risk of occupational health and safety disorders from work activities carried out by sanitarians are risk management or known as risk management.

According to the Australia / New Zealand standard (2004), risk management is basically preventive in nature against the occurrence of work losses and accidents. The steps of risk management are carried out in a sequence that aims to assist in making better decisions by looking at the risks and impacts that may be caused. The purpose of risk management itself is to minimize losses in a sequence consisting of context determination, risk identification, risk analysis, risk evaluation, risk control, monitoring and evaluation, and communication and consultation.Risk management for sanitarians in hospitals is a systematic process for identifying, assessing, and controlling risks associated with sanitation activities in the hospital environment. The goal is to minimize negative impacts on patients, staff, and the hospital environment.

The scope of risk management of sanitarian personnel in the hospital environment includes waste management including medical waste, domestic waste, and hazardous and toxic waste. Risks that need to be managed include contamination, infection, and environmental pollution. Management of clean water quality for medical and non-medical purposes, including the risk of bacterial and chemical contamination, Control of indoor air quality, including the risk of spreading infection through the air and air pollution, Sanitary supervision of food and beverages provided in hospitals, including the risk of food contamination and poisoning, Management of the sterilization process of medical devices and environmental disinfection to prevent infection, Control of pests and disease vectors in the hospital environment to prevent disease transmission, Ensuring the safety of food served in hospitals, starting from the process of receiving food ingredients to serving to patients.

Medical waste has a major hazard, namely the risk of infection from microorganisms contained in the waste, infection occurs due to puncture by sharp objects. Hepatitis B, hepatitis C and even HIV/AIDS are the most serious threats when exposed to sharps medical waste (Blenkharn, 2006). Sharps medical waste is at great risk of causing accidents and diseases if not treated properly.

The production of medical waste at Hj.Padjonga Dg.Ngalle General Hospital. in 2024 ± 120 kg per day, ± 3,600 kg per month, so for a total of ± 43,200 kg per year. The picture can be concluded that the Hj.Padjonga Dg.Ngalle General Hospital has great potential to cause work accidents, disease transmission in waste workers and the environment becomes polluted. The results of the research conducted if the medical waste management process is not carried out in accordance with standard procedures.

General Hospital Hj.Padjonga Dg.Ngalle is the only government-owned hospital in Takalar Regency with a fairly high level of risk of exposure to sanitarian officers in the Sanitation Installation, in addition to the large number of patients per visit, it is also a referral hospital from neighboring districts and several health centers both within the Takalar district itself and from outside the region.

METHODOLOGY

This type of research is descriptive research using qualitative methods. Supporting data were obtained from interviews, observations, and document reviews. This research is included in descriptive because this research was conducted with the aim of studying the situation objectively, this research was conducted to obtain problem solving solutions or answer the problems faced when managing B3 waste in the Padjonga

DG.Ngalle Regional General Hospital environment. Descriptive research is a research method carried out with the main objective of making a picture or description of a situation objectively (Notoatmodjo, 2005: 138). The object of this research is sanitarian staff. The total population in this study were waste management officers at Hj.Padjonga Dg.Ngalle General Hospital, totaling 10 people.

The variables studied in this study were sharps medical waste, sharps medical waste management, hazard identification, risk level characteristics and risk control. The data sources used in the study were primary and secondary data sources. Primary data obtained from observations, conducting risk assessments of sharps medical waste management and interviews. The researcher explains the purpose of the research to the respondent, then if the respondent understands and agrees to sign an inform consent. Then observations were made about the risk assessment of sharps medical waste management to 10 respondents of waste management officers at the hospital.

The data analysis carried out is descriptive by documenting and observing the activities of respondents in the management of sharps medical waste to determine potential hazards, observing risk controls that have been implemented in hospitals in order to reduce risk, then these results will be carried out risk assessment. After the risk assessment is carried out, namely by identifying hazards in the waste management process after that conducting a risk assessment, so that risk characteristics will be obtained, after these results, risk control will be carried out.

RESULTS

Health care is one of the vital needs of society. Currently, the cost of health services is getting higher, thus reducing public access to the health services needed. In the midst of increasingly difficult economic conditions, the availability of adequate health services at affordable rational rates is what is currently needed by the community.

Sharps Medical Waste Management

Table 1. Evaluation of Sharps Medical Waste Management in Hospital

Variable	Criteria
Separation	Separation of sharps medical waste not very appropriate, because syringes are still found not separated from spets, medical and non- medical waste is mixed.
Temporary storage	The collection of medical waste with the assessment criteria is good and meets all the criteria consisting of puncture-resistant containers, strong, safe, non-flammable materials, place as close as possible to the place where sharp medical equipment is widely used. Sharps medical equipment is widely used.
Transportation	The transfer of waste from the trolley to the waste transportation container is good, transported every day using a trolley with the criteria that the surface must be smooth, flat, and not translucent. translucent.
Destruction	Destruction in medical waste management is good, because the *incinerator* is no longer used, the hospital uses a third party for the destruction stage.Uses a third party for the destruction stage

Hazard Identification

Hazard identification is a process carried out to recognize all conditions that have the potential to cause occupational diseases and accidents that arise in the workplace. The results of hazard identification with the *Job Safety Analysis* (JSA) method in Sharp Object Medical Waste Management at Padjonga DG.Ngalle Regional General Hospital.

Table 2. Hazard Identification at the Hospital

Work Steps	Hazard	Potential Hazard
Separation	Syringe	Puncture
	Infusion Fluid Spill	Slipping
	Ampoule Bottle	Scratched/Cut
Temporary	Syringe	Punctured

Shelter		
	Trolley Cover	Hand pinched
	Trolley placement is not in place	Bumped
Displacement	Carriage that is not careful	Falling on medical waste
		Scratched by broken bottles
	Trolley lid	Hand pinched

Risk Assesment

The risk level is obtained from a matrix between *likelihood*, which is the possibility of the hazard occurring, and *severity*, which is the severity of t h e impact caused by the hazard. The *likelihood* assessment is based on observations and supported by interviews with the waste management team at the Sanitation Installation.

Table 3. Risk Assesment of Sharp Object Medical Waste Management

Work Steps	Hazard Impact	Risk Value	Risk Level
Separation	Hand injury, hand bleeding	6	M
	Injury	4	M
	Minor injury	4	L
Temporary Shelter	Hand injury, hand bleeding	6	M
	Minor injury	2	L
	Injury	4	M
Moving	Foot and hand injuries	4	M
	Hand Injury	6	M
	Injury	6	M

Risk Control Measures

The control efforts that have been carried out by Padjonga DG Ngalle Regional General Hospital are administrative control of personal protective equipment, and technical control, technical control that has been carried out is to replace the plastic bags used with thick plastic bags so that the potential for puncture / scratches of syringes can be reduced. Administrative control that has been carried out is the provision of education and training on safe work to workers which is carried out once a year. Making SOPs for medical waste management officers, for example, separation of medical and non-medical waste, use of temporary shelters. Conducting installation procedures how to use tools according to standards in each tool, labeling of hazardous chemicals, inspection and maintenance of *incinerators*, even though the tools are no longer used. As for personal protective equipment that has been implemented by the hospital, namely providing work clothes, gloves and *safety shoes*.

In some actions, control recommendations that can be carried out administratively are supervision of the implementation of the SOP, increasing knowledge about K3, and job safety analysis (JSA).

DISCUSSION

Every action taken by sanitarians has the potential for various hazards, ranging from physical, biological, to ergonomic hazards. Physical hazards often arise from the use of sharp instruments such as syringes and ampoules that can cause puncture wounds or scratches. Biological hazards come from possible exposure to body fluids or medical waste containing pathogenic microorganisms, which are at risk of transmitting diseases such as Hepatitis B, Hepatitis C, or even HIV/AIDS if direct contact occurs without adequate protection (Gulo et al., 2024). Meanwhile, ergonomic hazards are found in improper work postures, especially when bending or lifting weights, which can lead to musculoskeletal disorders such as low back pain and muscle strain. Riccoboni et al. (2024) stated that the use of ergonomic aids can significantly reduce the burden on the spine of workers, especially when carrying out activities to transport patients or heavy medical materials.

The occupational safety and health (OSH) culture implemented in the hospital environment is an important aspect in reducing these risks. K3 culture not only includes the availability of personal protective

equipment (PPE), but also relates to worker behavior and consistency of supervision in its application. Research by Irmayani et al. (2023) showed that although PPE was provided by the hospital, worker compliance in its use was still not optimal. Comfort factors, availability in various sizes, and lack of training are the main causes of the low consistent use of PPE. Therefore, in addition to providing appropriate PPE, there needs to be regular training and supervision to ensure that safety procedures are actually implemented.

Risk management in medical waste management at Hj. Padjonga Dg. Ngalle has been running through several stages such as separation, storage, transportation, and waste destruction. However, there are still discrepancies in the separation of medical and non-medical waste, as well as potential exposure to hazardous materials during the transfer process. Research by Gulo et al. (2024) confirmed that the implementation of good medical waste management has a positive impact on protecting the workforce from the dangers of contamination and work accidents. Meanwhile, an internal audit of the OHS management system (SMK3) can help ensure that the entire risk control process is running according to standards and on an ongoing basis. Indasah et al. (2024) stated that regular internal OHS audits are part of efforts to create a systematic and measurable safety culture in hospitals.

As a form of control, the use of PPE remains the last alternative after technical and administrative controls are applied. The study by Alam et al. (2024) in Bangladesh showed that the provision of PPE that was ergonomic and appropriate to the work climate significantly improved compliance of sanitation workers. At Padjonga Dg. Ngalle Hospital, PPE such as work clothes, rubber gloves, safety shoes, and masks are available, but need to be followed by continuous education efforts and disciplined monitoring of their use. In addition, administrative controls such as the preparation of SOPs, routine training, and labeling of hazardous chemicals are also important steps in preventing work accidents.

Overall, strengthening OHS risk management for sanitarian workers must start from hazard identification, risk assessment, to the implementation of tiered controls according to the principles of the OHS control hierarchy. Accurate risk assessment makes it easier to prioritize control measures, while OHS civilization through training and audits is an important foundation for the success of the overall system. With this integrated approach, it is expected that the sanitarian work environment will become safer, healthier and more sustainable.

In addition to ergonomic risks and biological exposures, medical waste management also involves the potential release of gases or aerosols that can cause respiratory infections. A cross-sectional study in Ethiopia concluded that training on specific safety procedures and practices for medical waste workers increased compliance with SOPs by 78%, including proper packaging and handling techniques to prevent spills and exposure to infectious aerosols (Ketema et al., 2023). At Padjonga Dg.Ngalle Hospital, implementation of similar training would go a long way in raising awareness of potential hazards such as dust and gases from drug residues, as well as strengthening mask-wearing and ventilation practices to avoid respiratory infections.

Furthermore, a systematic review of medical waste management highlights the importance of a whole-of-chain approach-from sorting to final disposal-in minimizing biological, chemical, physical and ergonomic risks (Riaz & Hasan, 2022). The implementation of a comprehensive hierarchical model of OHS control (physical hazard elimination, hazardous material substitution, engineering, administrative controls, and PPE) can reduce the incidence of injuries and hazardous exposures by more than 60% according to a recent meta-analysis. This confirms the need for Padjonga Hospital to strengthen control strategies ranging from the physical structure of waste containers to the internal audit system and near- miss reporting to create an OHS system that stands the test of time.

CONCLUSION

Prevent work accidents and occupational diseases, Create a healthy and safe work environment, Increase work productivity, Prevent environmental pollution, Increase awareness about the importance of OHS By applying the principles of OHS, sanitarians can carry out their duties safely, effectively, and responsibly, and contribute to the creation of a healthy and safe environment for all. Sanitarians must be able to identify potential hazards in the workplace, such as hazardous chemicals, medical waste, or unsafe environmental conditions. After that, they need to conduct a risk assessment to determine the level of danger and take appropriate precautions. Sanitarians need to get education and training on OHS to improve their knowledge and skills in applying OHS principles in the workplace. It is recommended for further control efforts in accordance with the OHS control hierarchy consisting of the implementation of SOPs, role play of each action, and training related to Sanitarian skills knowledge about hospital OHS, efforts to improve safe behavior.

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