THE ANALYSIS OF READINESS ON HAZARDOUS AND TOXIC MATERIALS MANAGEMENT FROM OCCUPATIONAL HEALTH AND SAFETY ASPECTS OF HOSPITAL X IN BANYUWANGI IN DEALING WITH SNARS ACCREDITATION

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ABSTRACT

Hospital accreditation assessments regarding Hospital Occupational Health and Safety (OHS) are included in the Facility Management and Safety (FMS) group, one of which is regarding hazardous and toxic materials. The assessment of these materials in hospital accreditation is an effort to minimize the risk of using hazardous and toxic materials and their waste to hospital human resources, patients, patient companions, visitors, and the environment. This study aims to analyze the readiness of Hospital X regarding the management of hazardous and toxic materials from the aspect of OHS in the hospital in facing SNARS (National Hospital Accreditation Standards) 1.1 accreditation. This research is categorized in quantitative descriptive research. The population in this study were all assessment elements of FMS SNARS 1.1 standard 5 and standard 5.1. Data collection techniques are documentation, interviews, observation and simulation. There were 7 interview subjects. The results of data analysis show that the unpreparedness management of hazardous and toxic materials in Hospital X is due to incomplete regulations for the materials and waste management, requirements for hazardous and toxic waste storage, lists of hazardous and toxic materials and the waste, and the absence of reporting of spills / exposures and analysis. The unpreparedness management of hazardous and toxic materials in Hospital X in facing the SNARS 1.1 accreditation is 79.4%, less than the SNARS 1.1 accreditation standard, which is ≥ 80%. Suggestions from this research are to complete regulations and documentation program of the hazardous and toxic material.

Keywords : Facility Management and Safety , Occupational Health and Safety , Hazardous and Toxic Materials

BACKGROUND

Hospital Occupational Health and Safety (OHS) is 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 occupational accidents and occupational diseases. The need for implementing OHS in hospitals in accordance with government policies regarding hospitals in Indonesia is to improve access, affordability, and quality of safe health services in hospitals. OHS planning, implementation, monitoring and evaluation and follow-up, refer to the Decree of the Minister of Health No. 432 / Menkes / SK / IV / 2007 regarding OHS Management Guidelines in hospitals and OHSAS 18001 concerning OHSAS standards.

Occupational Health and safety (OHS) assessment in hospitals through SNARS accreditation by KARS (Hospital Accreditation Commission) in the Facility Management and Safety (FMS) program, one of the programs is the management of hazardous and toxic materials and their waste. Treatment of hazardous and toxic materials waste in hospitals is a process to change the type, amount, and characteristics to be harmless and / or non-toxic as well as immobilize waste before being dumped and / or allow the waste to be reused (recycled). WHO (1999) estimates that around 10% -25% of waste produced by hospitals is waste that has been contaminated by infectious agents and has the potential to harm human health and the environment. Sharp objects such as needles that come from hospital waste from human contact can cause hepatitis B and C infection and HIV. In addition, other hospital waste can also cause diseases, including cholera, typhoid, malaria, and skin diseases (Riyanto, 2013).

Hazardous and toxic materials and waste treatment are included in the Hospital OHS program, which is then assessed through the SNARS accreditation by KARS. Hospital X is the only type B hospital in Banyuwangi Regency and is the newest type B hospital in East Java Province in 2017. The benefits of implementing an OHS management system can provide satisfaction to the community and better service quality. In addition, it can be useful to improve the image of the hospital and have an impact on the service system and maintain the continuity of hospital operations.

This research was conducted to determine the readiness of Hospital X in the hazardous and toxic waste materials management in facing SNARS accreditation as well as a recommendation for FMS implementation. Where the standard value of hospital readiness in facing SNARS 1.1 accreditation is ≥ 80%. This research is expected to be a benchmark for the results of future SNARS accreditation assessments.

METHOD

This research is a descriptive quantitative research. It uses a case study with the aim of further examining the readiness of hazardous and toxic materials management from the health and safety aspects of Hospital X in facing hospital accreditation. The population in this study were 11 elements of standard MFK assessment and 5.1 SNARS 1.1 standard MFK. In this study, 7 respondents were used to be interviewed as part of the safety and facility management assessment elements, namely the director, the Head of Hospital Facilities & Infrastructure Maintenance Installation, the Chair of Hospital Occupational Health and Safety, Head of pharmacy, Head of laboratory, person in charge of Wastewater Treatment Plant (WWTP) and hospital sanitation officers..

Data collection techniques are documentation, interviews, observation and simulation. Descriptive data analysis techniques began by examining all available data from various sources, namely researchers' observations, official documents, simulations and interview results. This study uses a logical model including input, process and output.

RESULT AND DISCUSSION

The readiness of hazardous and toxic materials management from the aspect of hospital OHS aims to minimize the risk of using hazardous and toxic materials and waste to hospital human resources, patients, patient companions, visitors, as well as the hospital environment. Table 1 presents the recapitulation results of the readiness of hazardous and toxic material management from safety and health aspects of the hospital based on SNARS 1.1.

Tabel 1. Readiness for management of hazardous and toxic materials from OHS aspects based on SNARS 1.1

Readiness for the Management of Hazardous and Toxic Materials from the Aspect of Occupational Health and Safety	Score	Total Score	Readiness Percentage
FMS 5	50	70	71.4%
FMS5.1	35	40	87.5%
Total			158.9%
Average of readiness for management of hazardous and toxic materials from occupational safety and health aspects based on SNARS 1.1			79.4%

Based on the research, the results of the study can be seen in Table 2 and Table 3

Tabel 2. Facility Management and Safety (FMS) 5

Element	Score	Result
1. The hospital has regulations that regulate hazardous and toxic materials and its waste in accordance with the WHO category and statutory regulations, covering items 1 to 7 on the aims and objectives.	5	Not Fulfilled completely The regulations on the management of hazardous and toxic materials and waste as well as the list it does not mention the type, location and quantity
2. The hospital has a complete and up-to-date list of hazardous and toxic materials and the waste according to the WHO category and statutory regulations covering the type, location and quantity of all hazardous and toxic waste.	5	Not Fulfilled completely There is no evidence in the form of a list of hazardous and toxic materials and its current waste including its type, location and quantity
3. There is MSDS and an evidence for the procurement / purchase of hazardous and toxic materials and the supplier has attached an MSDS.	10	Completely fulfilled
4. Officers have used the correct PPE when handling hazardous and toxic materials and the waste and in certain areas there is also an eye washer	10	Completely fulfilled
5. Hazardous and toxic materials and its waste have been labeled / signposted in accordance with the laws and regulations	10	Completely fulfilled
6. There are reports and analysis of spills, exposures, and other incidents	0	Not Fulfilled completely No documentation of spill, exposure / exposure and incident analysis
7. There is documented evidence of requirements including permits, licenses, or other terms	10	Completely fulfilled

Based on the research results of MFS 5, the achievement value was 71.4%. The problems that exist include:

a. Regulations on the management of hazardous and toxic materials and the waste are incomplete, where there is no identification of the type, quantity and location. Regulations, guidelines / guidelines and / or SOP regarding the management of toxic and hazardous materials should include (Permenkes, 2019):
   1) Inventory data / identification of hazardous and toxic materials lists and their wastes which include the type, quantity and location.
   2) Handling, procuring, storing and using hazardous and toxic materials and its waste.
   3) Use of personal protective equipment (PPE) and its manual, procedures in case of spillage, or exposure.
   4) Appropriate labels / signs on of hazardous and toxic materials and its waste
   5) Reporting and investigations of spills, exposures and other incidents.
   6) Documentation, including procurement permits, licenses, or regulatory requirements
   7) In purchasing of hazardous and toxic materials, suppliers are required to attach material safety data sheets (MSDS) for of hazardous and toxic materials and their safe waste at the hospital.
b. Hospital X already has a list of of hazardous and toxic materials and the waste which includes the type, location and amount but cannot show the most recent data, according to the following interview results:

"There is a list of of *hazardous and toxic materials inventory, maybe it is not updated so it is not complete*."(RD,36 years old)

The list of types of of hazardous and toxic waste generated in hospitals includes medical waste, used batteries, expired drugs and pharmaceutical materials, used oil, used oil filters, used lamps, batteries, fixer and developer fluids, used paint containers (for paints that contain toxic substances) , used chemical containers, used printer cartridges, used x-ray films, used computer motherboards, and others.

Identification is carried out by the environmental health unit by involving the waste-generating unit in the hospital and of hazardous and toxic waste which is identified including the type of waste, its characteristics, source, volume produced, container method, transportation method, storage method and processing method. Inventory of hazardous materials and wastes in all work units. Handling, storing and using hazardous materials and waste with an effort that all work units using of hazardous and toxic materials must know how to handle, store and use them by paying attention to the MSDS at each location of the work unit using of hazardous and toxic materials..

The hazardous waste in the source room that the hospital's of hazardous and toxic waste officer delivers or takes to the of hazardous and toxic waste landfill, must be completed with an official report of the delivery, which contains at least the day and date of delivery, the origin of the waste (source location), the type, the form, the volume, and the method of packaging / packaging of of hazardous and toxic waste.

Hospital X is in accordance with Government Regulation No.74 of 2001 concerning the management of toxic and hazardous materials, that each of its package must be given a symbol and label and be equipped with a Material Safety Data Sheet (MSDS). At Hospital X, the procurement / purchase of of hazardous and toxic materials and suppliers have attached MSDS for hazardous and toxic materials respectively.

The MSDS describes 16 items, namely: Product and company identification, material composition / information, Hazard identification (dangerous conditions), first aid if exposed, first aid if an accident occurs, assistance in case of accident, handling and storage, personal protective equipment, physical properties and chemical, stability and reactivity, information, toxicology, ecological information, disposal, transportation information, regulatory information and other necessary information.

c. A spill kit or other cleaning method tool for hazardous and toxic waste has been prepared in the source room and is equipped with instructions and MSDS. According to the following interview results:

"..Yes, for the prevention of hazardous and toxic materials *spills, officers have used complete PPE. The eye washer is already equipped for processing and storage areas."*(AD,35 years old)

The MSDS and Spill Kit should be placed in a place that is easily visible and easily accessible. Everyone should be aware of the MSDS and Spill Kit. Spill kits placement in X Hospital is located at 11 spots, based on the results of the interview:

"...according to the negotiations between the Hospital Facilities & Infrastructure Maintenance Installation and the Infection Prevention And Control team, 11 spots for the spill kits were determined" (AD,35 years old)

Placement of spill kits in the ER, surgery room, dental, gynecology, radiology, laboratory, CSSD, Pharmacy and mortuary.

Spill kits must always be completely filled and in good condition. Officers who work with hazardous and toxic materials and the waste have been given training on how to work with it. Spilled or scattered hazardous and toxic materials and the waste must be cleaned using a spill kit. KIT contains: neutralizing agents such as sodium carbonate or sodium

bicarbonate or sodium bisulfite, absorbents such as pillows or embankments, tissue paper, rags or foam

d. Hazardous and toxic materials and its waste have been labeled / signs in accordance with the laws and regulations. Based on the following interview results:

"It is complete, but there are some that are looking worn out and need to be repaired."(AD,35 years old).

Hazardous and toxic materials are stored in a special warehouse and are given a label with the name of the material, date of entry and special sign / symbol of it. Label on hazardous and toxic materials are not damaged and can be read clearly because the label must be easy to read, clearly visible, not easily damaged, and not easily separated from the packaging. hazardous and toxic materials that are flammable such as alcohol, formalin, ether, etc. are stored in a separate room with other hazardous and toxic materials and in a room that is safer from the risk of fire..

The hazardous and toxic materials label is a brief description indicating, among other things, the classification and type. Hospital X has carried out the labeling consisting of: The symbol for explosive classification, the symbol for flammable classification, the symbol for classified as toxic and dangerous, the symbol irritant, corrosive, and the symbol that is classified as carcinogenic. The symbol on hazardous and toxic materials in the form of stickers or other materials that adhere well to the packaging, are easy to use, durable, resistant to water and resistant to spillage of the contents of hazardous and toxic materials packages when they come into contact with them (for example plastic, paper, or metal plates)

e. There is no documentary evidence according to the SOP regarding reports and analysis of spills, exposures, and other incidents. Based on interviews:

"Until now, the incident reports only work accidents, such as needle sticks, falls, etc. for spill exposure, never once but subsequently no one has reported. There should be". (DA,34 years old).

Reported incidents are events that have already occurred, have the potential to occur or are near occurrences that were made by all hospital staff who first discovered the incident or were involved in the and shovels, mops, disposable protective clothing and containers to accommodate spilled material.

incident or officers who received reports from other parties such as guests or visitors.

Incident reports are made as soon as possible after the incident by filling out the incident reporting form (reporting no later than 2x24 hours). Submission of reports to the reporting direct superior or to the OHS Committee if the incident occurs in neutral areas (corridors, parks, parking areas). Reports must be submitted to the OHS Committee. Incident investigations are carried out immediately after the report is received and carried out by the incident investigation team (the investigation is carried out no later than 2x24 hours). Incident reports using the RCA (Root Cause Analysis) form.

Formation of an investigation team as needed, the investigation team may consist of the OHS Committee only, or involve related work units if an incident is included in the accident / emergency category. Investigative reporting should be kept in the area and the OHS Committee.

Hospital X does not have documentary evidence if the reporting and analysis have been carried out in accordance with the SOP. Furthermore, hospital X plans to disseminate the implementation of SOPs on reporting of spills, exposures and incidents periodically.

f. Documentation of requirements including permits, licenses, or other terms and conditions have been completed, confirmed by the results of interviews::

"There are operational permits for hazardous and toxic materials *storage, liquid waste treatment, generators, elevators and others."*(RD,36 yaars old).

Hospital X has Temporary Storage for a hazardous and toxic permit from Environmental Department of Banyuwangi which is still valid until December 14, 2021, a permit for processing waste using a steam incinerator (still being processed by the Ministry of Environment and Forestry), a permit for disposing of liquid waste from Environmental Department is valid until December 14, 2021, and permit for disposal of waste from Environmental Department of Banyuwangi is also still in effect until December 14, 2021.

Tabel 3. Facility Management and Safety (FMS) 5.1

Element	Score	Result
1. The hospital has regulations for storing and treating a hazardous and toxic waste properly and safely in accordance with statutory provisions	5	Not Fulfilled completely There are no regulations regarding the requirements for a hazardous and toxic waste storage places
2. Hazardous and toxic waste storage already has a valid landfill permit and is in accordance with the legislation	10	Completely fulfilled

3. The hospital already has a WWTP with a valid permit in accordance with statutory regulations.	10	Completely fulfilled
4. The hospital has a hazardous and toxic processing plant with a valid license or cooperates with a third party with a valid a hazardous and toxicatransporter and processor in accordance with the laws and regulations.	10	Completely fulfilled

Based on the results of the FMS 5.1 study, the results obtained were 87.5%, with discussion:

a. Hazardous and toxic waste management includes 6 stages, namely:
   1) Waste separation;
   2) Transport of waste;
   3) Waste treatment
   4) Burial of waste; and / or
   5) The Landfill

Regulations for storing and treating hazardous and toxic waste properly and safely in accordance with the provisions of the statutory regulations must exist in a hospital. Hazardous and toxic waste storage is carried out in a hazardous and toxic waste storage facility, namely at hazardous and toxic waste landfill belonging to Hospital X which is free from floods and natural disasters and has complete facilities as stated in the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia No. P.56 of 2015. Hospital X regulations regarding the storage of hazardous and toxic waste do not exist, namely the provisions of the requirements for storing hazardous and toxic waste in hospitals consisting of (Permenkes, 2019):

1) The Landfill can be designed in the form of a building with closed and semi-open spaces, equipped with a rainproof roof cover, adequate ventilation and air circulation and adequate lighting and can be occupied by garbage containers.
2) The landfill is built with walls and floors of strong material, waterproof, easy to clean.
3) Landfill is cleaned at least 1 x 24 hours.
4) The landfill is equipped with a nameplate.
5) Water tap with sufficient pressure for cleaning the landfill area.
6) A sink with running water that comes soap or hand rub hands and hand dryers as well as material / tissue.
7) Sign prohibited entry for unauthorized.
8) Floors are equipped with embankments so that water used for cleaning or leachate does not come out of the landfill area and is equipped with - 49 - drains to the control basin or Wastewater Treatment Unit.
9) Fire protection facilities such as fire extinguishers and fire alarms as well as symbols or instructions for the prohibition of burning, smoking prohibition and entry prohibitions for unauthorized persons.
10) The landfill area is equipped with a safety fence, at least 2 meters high.
11) Equipped with a first aid kit and PPE.

b. Hazardous and toxic waste storage at hospital X already has a valid landfill permit and is in accordance with the legislation.

"Yes, the permit exists and is still valid."(RD,36 years old).

The garbage dump / landfill in the Hospital X environment also has a permit issued by the Environmental Department which is valid until December 14, 2021. This is similar to Maulana's research (2017) that the provision of hospital facilities in terms of waste handling requires careful planning. mature.

c. The hospital already has a Wastewater Treatment Plant (WWTP) with a permit that is still valid until December 14, 2021 in accordance with statutory regulations covering (Kepmenkes, 2004):
   1) Fulfill the frequency in taking liquid waste samples, which is 1 (one) time per month.
   2) Fulfill the recording of liquid waste laboratory test results reporting to government agencies in accordance with the minimum requirement every 1 (one) time per 3 (three) months.
   3) WWTP is placed in the right location, namely in areas that are far away or do not interfere with hospital service activities and are strived to be close to receiving water bodies (waters) to facilitate disposal.
   4) Waste water sampling basin equipped with the words "Sampling Place for Influent Wastewater"
   5) Measuring tool for wastewater discharge in the influent pipe and / or effluent pipe
   6) WWTP is equipped with an area safety fence with sufficient lighting and a sign prohibiting entry except those concerned.
   7) WWTP coordinate writing board using Global Positioning System (GPS).

Hazardous and toxic waste reporting is carried out every 3 months to the district Environmental Department, provincial Environmental Department and Ministry of Environment and Forestry. The reports are in the form of a hazardous and toxic waste balance, logbook and data collection. The waste balance is the performance of hazardous and toxic waste management in a certain structuring

period. The logbook contains the source name, quantity and volume, characteristics, implementation of storage and delivery of hazardous and toxic waste to a 3rd party. This is in accordance with what is stated in the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number P.56 of 2015 which states that reporting on Hazardous and Toxic Waste Treatment is carried out regularly every 6 months to the Minister of Environment and Forestry with a copy to the governor and regent / mayor according to their authority.

d. The hospital has a hazardous and toxic waste processing plant with a valid license or cooperates with a third party with a license to act as a transporter and processor in accordance with statutory regulations.

"*The hospital is working with a third party, PT Priya, for hazardous and toxic waste to be transported and processed by PT Priya. The company license is still valid."*(AD,35 years old)

Hospital X collaborates with a third party, PT Priya in the transportation of hazardous and toxic waste which has a permit from the Ministry of Environment and Forestry as a transporter and the transportation vehicle has a permit from the Transportation and processing office which is still valid until 2023.

Suggestions from this research are to complete regulations, a list of hazardous and toxic material and the waste, requirements for a place to store the waste and document evidence of reporting and analysis of spill / exposure.

CONCLUSSION

The readiness of hazardous and toxic materials management from the aspect of occupational health and safety at Hospital X is 79.4% less than the standard value of the hospital's readiness in facing SNARS 1.1 accreditation, namely ≥80%. Unpreparedness due to incomplete regulations, requirements for hazardous and toxic waste storage, lists of hazardous and toxic materials and the waste, and no reporting of hazardous and toxic waste spills / exposure and analysis.

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