Analysis of Hazardous and Toxic (B3) Management at the Puskesmas Sirnajaya

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Abstrak

Management of Hazardous and Toxic Waste (B3) is a critical aspect in maintaining environmental health and safety, especially in health service facilities such as Community Health Centers. This research aims to analyze the B3 waste management system at the Puskesmas Sirnajaya, in order to identify the weaknesses and strengths of existing procedures and provide recommendations for improvements that can be implemented to increase the efficiency and safety of waste management.
The research method used is a qualitative descriptive method with a case study approach. Data was obtained through direct observation, in-depth interviews with health workers and waste managers, as well as analysis of documents related to B3 waste management policies and procedures at the Puskesmas Sirnajaya. Data analysis was carried out thematically to identify patterns and main issues in B3 waste management.
The research results show that the Puskesmas Sirnajaya, has B3 waste management procedures which include the stages of collection, temporary storage, transportation and handover to licensed third parties. However, there are several significant weaknesses, including a lack of routine training for officers, limited storage facilities that meet standards, and a lack of regular supervision and monitoring. Some of the advantages found were officers' awareness of the importance of B3 waste management and collaboration with third parties who have official certification.

Key words : B3 waste management; environmental health; work safety

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INTRODUCTION

Hazardous and Toxic Waste (B3) is waste that contains materials that can endanger human health and the environment if not managed properly. In Indonesia, B3 waste management is regulated in various regulations, but its implementation often encounters various obstacles. This research aims to evaluate the status of B3 waste management in Indonesia, identify common types of B3 waste, and provide recommendations for improvement (Ditjen Pengendalian Pencemaran dan Kerusakan Lingkungan, 2024).

Management of Hazardous and Toxic Waste (B3) is a very crucial aspect in the management of health service facilities. B3 waste includes various types of medical and pharmaceutical waste which have the potential to cause health and environmental risks if not managed properly. Sirnajaya Health Center, as one of the first level health service facilities, plays an important role in ensuring that the B3 waste produced is managed in accordance with applicable regulations and standards (Nature and Health, 2021).

B3 waste in health facilities includes various types of waste such as remaining medicines, used syringes, laboratory chemicals and other infectious materials.

Improper management can cause environmental pollution, spread of disease, and endanger health workers and the surrounding community. Therefore, a comprehensive and effective B3 waste management system is needed to minimize this risk (Riyadi, 2019).

Appropriate management in the stages of collection, separation, storage, transportation and processing of waste must be carried out appropriately and safely to prevent hospital nosocomial infections (Arlinda et al., 2022).

Based on the background that has been described, proper management of hazardous and toxic waste is very important, so the author is interested in conducting an analysis of the management of hazardous and toxic waste (Nursabrina et al., 2021).

METHOD

The research method used is a qualitative descriptive method with a case study approach. Data was obtained through direct observation, in-depth interviews with health workers and waste managers, as well as analysis of documents related to B3 waste management policies and procedures at the Margajaya Community Health Center. Data analysis was carried out thematically to identify patterns and main issues in B3 waste management.

RESULTS AND DISCUSSION

Government Regulation Number 22 of 2021 concerning Management of Hazardous and Toxic Waste defines Hazardous and Toxic Materials (B3) as substances, energy and/or other components which, due to their nature, concentration and/or amount, either directly or indirectly, can pollute and /or damage the environment, and/or endanger the environment, health and survival of humans and other living creatures.

According to PP 22/2021, B3 waste management is an activity that includes reduction, storage, collection, transportation, utilization, processing and/or landfill (Utami & Syafrudin, 2018). B3 Waste Government Regulation Number 22 of 2021 explains that what is meant by B3 waste is "energy substances, and/or other components which, due to their nature, concentration and/or amount, either directly or indirectly, can pollute and/or endanger the environment, health, and the survival of humans and other living creatures.

Results of Analysis of Hazardous and Toxic Waste Management (B3) at Sirnajaya Health Center, Bekasi Regency :

1. B3 Waste Management System:
   a. Collection: B3 waste at the Sirnajaya Health Center is collected in special containers that have been labeled according to the type of waste. Sharp medical

waste such as syringes is placed in puncture-resistant containers, while pharmaceutical and chemical waste is collected in tightly closed containers.

b. Temporary Storage: B3 waste is stored temporarily in the storage space provided. This room is equipped with good ventilation and is out of reach of the public. However, storage space capacity is often insufficient, especially when waste volumes increase.
c. Transportation: B3 waste is transported by a third party who has an official license. Transportation is carried out periodically according to a predetermined schedule.
d. Handover to Third Parties: Waste is handed over to waste management companies that are accredited and have waste processing facilities that meet standards.

Table. 1 Generation of solid B3 medical waste

No	Month	Type of incoming B3 waste	Amount of B3 Waste Out (Kg/Month)
1	January	Solid B3 medical waste	4980
2	February	Solid B3 medical waste	7620
3	March	Solid B3 medical waste	12152
4	April	Solid B3 medical waste	4236
5	May	Solid B3 medical waste	7776
6	June	Solid B3 medical waste	10935
7	July	Solid B3 medical waste	4966
8	August	Solid B3 medical waste	9081
9	September	Solid B3 medical waste	16960
10	October	Solid B3 medical waste	5592
11	November	Solid B3 medical waste	13280
12	December	Solid B3 medical waste	5650

Data on B3 waste generation produced by B3 solid medical waste health centers, there is also non-medical solid B3 waste presented from January to December 2023.

Above is data on incoming and waste generation out, which includes B3 solid medical waste data.

2. Weaknesses:
   a. Limited Facilities: B3 waste storage facilities at the Sirnajaya Health Center are still limited, no waste cold storage and do not always meet established standards. This creates a risk of environmental pollution and exposure to health workers.
   b. Lack of Training: Routine training for health workers regarding B3 waste management is still lacking. Many officers do not fully understand waste management procedures that are safe and comply with standards.
   c. Supervision and Monitoring: The supervision and monitoring system for B3 waste management is not running optimally. Periodic monitoring and evaluation of the implementation of waste management procedures is still minimal.

3. Advantages:
    a. Officer Awareness: Even though training is still lacking, health workers' awareness of the importance of B3 waste management is quite high. Officers try to carry out waste management procedures according to their existing abilities and knowledge.
    b. Collaboration with Third Parties: Sirnajaya Health Center has collaborated with licensed and accredited waste management companies, ensuring that B3 waste is handled using correct and safe procedures.

Discussion:

1. Management System Evaluation:
    a. The B3 waste management system at the Sirnajaya Health Center is generally running, but still needs a lot of improvement. Limited storage facilities and lack of training for officers are the main problems that must be addressed immediately. Procurement of more adequate facilities and implementation of regular training is very necessary to improve the quality of waste management.
2. Impact of Limited Facilities:
   Limited storage facilities can cause waste to accumulate which poses a risk to the environment and health. B3 waste that is not managed properly can pollute groundwater and air, and increase the risk of infection for staff and the surrounding community.
3. Importance of Regular Training:
   Regular and quality training will increase the competency of officers in managing B3 waste. Trained officers will be better able to follow waste management procedures correctly, so that the risk of errors can be minimized. Training is also important to ensure officers always follow the latest developments in regulations and standards in B3 waste management.
4. The Importance of Supervision and Monitoring:
   Strict supervision and monitoring is needed to ensure that each stage of B3 waste management runs according to procedures. With regular monitoring, the Community Health Center can identify problems early and take necessary corrective action. Good supervision will also increase officer accountability in carrying out their duties.
5. Improvement Recommendations:
    a. Improved Facilities: Provide more adequate and standardized B3 waste storage facilities, including puncture-resistant containers and well-ventilated storage rooms.
    b. Training and Education: Implement regular training programs for all health workers regarding B3 waste management procedures that are safe and comply with regulations.

c. Supervision and Monitoring: Developing a more effective supervision and monitoring system, including regular internal audits to evaluate waste management performance.
d. Socialization and Communication: Improve communication and coordination between Puskesmas management, health workers, and third parties who manage waste to ensure better and more efficient cooperation.

By implementing these recommendations, it is hoped that the management of B3 waste at the Sirnajaya Health Center can be improved, so that it is able to protect public health and the surrounding environment from the negative impacts of hazardous and toxic waste.

CONCLUSION

The research results show that the Sirnajaya Community Health Center has B3 waste management procedures which include the stages of collection, temporary storage, transportation and handover to licensed third parties. However, there are several significant weaknesses, including a lack of routine training for officers, limited storage facilities that meet standards, and a lack of regular supervision and monitoring. Some of the advantages found were officers' awareness of the importance of B3 waste management and collaboration with third parties who have official certification.

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