

Analysis of Hazardous and Toxic Solid Medical Waste Management at Bengkalis Regency Public Health Center, 2022

Lamin¹, Oktavia Dewi², Yessi Harnani³, Herniwanty⁴, Endang P.R⁵

¹Dinas Lingkungan Hidup Kabupaten Bengkalis, Indonesia

^{2,3,4,5}Universitas Hang Tuah Pekanbaru, Indonesia

laminskm70@gmail.com

Abstract

The purpose of this study is to analyze hazardous and toxic solid medical waste management at Bengkalis Regency Public Health Center in 2022. This study uses a qualitative type with a phenomenology research design. This research is conducted at the Damon Inpatient Public Health Center, the Selat Baru Inpatient Public Health Center, and the Pematang Duku Non-Inpatient Public Health Center, Bengkalis Regency. The time of the research will be from May to June 2022. The main informants are Environmental Health Officers and Nurses. Supporting informants are Cleaning Service. The key informant is the Head of the Public Health Center. Collecting data using the method of observation and in-depth interviews. Data processing is done using data triangulation. The results show that the implementation of waste management started from the stages of sorting, collecting, storing, transporting, but for the stage of destruction carried out by a third party. Suggestions to the Public Health Center to apply for ownership of the incinerator to the health Office and complete training for human resources in waste management.

Keywords

hazardous; toxic; waste management



I. Introduction

Solid medical waste is solid waste consisting of infectious waste, pathological waste, sharp object waste, pharmaceutical waste, cytotoxic waste, chemical waste, radioactive waste, pressurized container waste, and waste with high heavy metal content. Health service waste includes all waste products originating from health installations, research facilities, and health laboratories (Himayati et al., 2018).

The management of solid medical waste in health care facilities at the Bengkalis Regency Health Office in 2021 includes 18 Public Health Centers located in Bengkalis Regency. From the available data, it is known that all Public Health Centers in Bengkalis Regency do not yet have a special unit for waste management, standard procedures for waste management and waste management permits. All Public Health Centers have collaborated with third-party waste managers.

The amount of solid medical waste produced by the Public Health Center of Bengkalis Regency has increased every year. In 2019 the amount of solid medical waste was 1,618 kilograms, in 2020 it increased to 3,071 kilograms and in 2021 it increased again to 3,519 kilograms. Public Health Center with the most medical waste is in the Damon Non-Inpatient Public Health Center 663 kilograms, the Selat Baru Inpatient Public Health Center 526 kilograms, the Pematang Duku Non-Inpatient Public Health Center 343 kilograms, the Lubuk Muda Public Health Center 255 kilograms, and the Balai Makam Public Health Center 187 kilograms.

Based on the results of initial observations and interviews conducted by the author on the management of solid medical waste at the Damon Inpatient Public Health Center, the Selat Baru Inpatient Public Health Center, and the Pematang Duku Non Inpatient Public Health Center, Bengkalis Regency, based on input criteria (human resources, costs, standard operating procedures, facilities, and infrastructure) it is known that the existing human resources are still lacking where there is only 1 environmental health officer and no training on waste management has ever been held. Based on costs, there is no special financing for waste treatment and only submits to third parties. In addition, there is no standard operating procedure on waste management and the available infrastructure is only a safety box for putting syringes and medical and non-medical waste bins. Based on the results of short interviews with the community around the Public Health Center, residents often smell unpleasant odors from the Public Health Center waste. So far, there have been no complaints of diseases due to contamination of medical waste from officers or the public who live in the vicinity of the Public Health Center.

From the results of interviews conducted, it is known that the Public Health Center cooperates with transporters in managing medical waste but the management is not optimal, where in the memorandum of understanding medical waste should be picked up once a month, but sometimes it is picked up every 2 to 3 months. This has led to a buildup of medical waste in the Public Health Center. In addition, in terms of budget, every time waste is transported it is immediately paid, while the budget from the Health Office for waste management costs is often late so that waste collection is irregular.

Based on the results of initial observations at the stage of the process, the management of medical waste has not gone well because the management carried out is only collected such as syringes (waiting for a third party) while other solid wastes such as infusion bottles, cotton, masks, and handscoons are only thrown away just like that without any further processing. At the output stage, it is hoped that solid medical waste management has been carried out according to health requirements by the Minister of Health Regulation Number 18 of 2020, but so far there are still many drawbacks.

The purpose of this study is to analyze hazardous and toxic solid medical waste management at Bengkalis Regency Public Health Center in 2022.

II. Research Method

This study uses a qualitative type with a phenomenology research design. Qualitative research is research that is descriptive and tends to use analysis. Process and meaning are highlighted in qualitative research (Octiva et al., 2018; Pandiangan, 2018). Phenomenology is a research approach that does not use temporary hypotheses or conjectures in the analysis process, although phenomenology can also produce a hypothesis for further testing. In addition, phenomenology is not initiated and has no purpose to test the theory through a hypothesis (Asyraini et al., 2022; Octiva, 2018; Pandiangan, 2015).

This research is conducted at the Damon Inpatient Public Health Center, the Selat Baru Inpatient Public Health Center, and the Pematang Duku Non-Inpatient Public Health Center, Bengkalis Regency.

The time of the research will be from May to June 2022.

Informants are people who provide information about a person or organization to an agency (Jibril et al., 2022; Pandiangan et al., 2018; Pandiangan, 2022). The main informants are Environmental Health Officers and Nurses. Supporting informants are Cleaning Service. The key informant is the Head of the Public Health Center.

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes (Octiva et al., 2021; Pandiangan et al., 2021; Pandia et al., 2018). Collecting data using the method of observation and in-depth interviews.

Data triangulation is where the researcher uses two or more methods for the verification of the findings and results (Pandiangan et al., 2022; Tobing et al., 2018). Data processing is done using data triangulation.

III. Result and Discussion

3.1 Human Resources Condition

Based on the results of in-depth interviews with all key informants, it was revealed that those involved in the management of solid medical waste at the Public Health Center were environmental health workers, cleaning services, and all medical personnel in the service room. According to the main informant, waste is the remnants of activities or activities at the Public Health Center that are no longer used. The types of medical waste are solid, liquid, and gas medical waste. Medical waste generated by the Public Health Center includes handsoons, personal protective equipment, syringes, and laboratory equipment.

The service that produces the most solid medical waste is immunization activities. The danger of medical waste is that it can damage the environment and cause disease. All Public Health Center have cooperation agreements with third parties in the management of medical waste. There is no definite schedule for the transportation of waste at the Damon Non Inpatient Public Health Center, the Selat Baru Inpatient Public Health Center, and the Pematang Duku Non Inpatient Public Health Center. The schedule for transporting waste depends on the third party. The waste transported from the Damon Non Inpatient Public Health Center is around 600 kilograms each time, the Selat Baru Inpatient Public Health Center 190 kilograms, and the Pematang Duku Non Inpatient Health Center 60 kilograms.

Human resources is a science or method of how to manage the relationship and role of resources (labor) owned by individuals efficiently and effectively as a team and contribute to the success of the organization and can be used optimally so as to achieve the common goals of the company, employees and society is maximized.

Regarding the process of transporting waste, the officer in charge in this case should be given special training, while for the supervision and processing of waste at the Public Health Center, it should be carried out by educated sanitation workers. The nursing staff is tasked with collecting waste related to the separation of medical and non-medical waste from each functional service unit of the Public Health Center, while the cleaning staff can do this in another room. In addition, transport officers must also be equipped with work clothes or adequate protective equipment such as hats, masks, clothes, gloves, pants, and shoes.

The researcher's assumption is based on the results of the study that the human resources involved in waste management are all community health centers. Health workers on duty in each room also play a role in waste management, starting from the separation between medical and non-medical waste. After that, the waste is transported to the temporary storage area by the cleaning service and data collection is carried out by environmental health officers regarding the amount of incoming waste.

3.2 Infrastructure Condition

Based on the results of in-depth interviews with the main informants of the Damon Non Inpatient Public Health Center, the Selat Baru Inpatient Public Health Center, the Pematang Duku Non Inpatient Public Health Center, there are no incinerators. The Public Health Center has provided personal protective equipment for handling medical waste in the form of handsoons, masks, boots, googles, and hazmat clothes. The personal protective equipment is always used during the process of handling medical waste but it is inconsistent.

The facilities and infrastructure used for the waste treatment process are supporting devices for waste management activities. Aspects of budget availability, number of visits, and duration of patient hospitalization, as well as various other technical considerations must be considered in determining the overall device.

The researcher's assumption is based on the results of the study that the infrastructure for processing medical waste in all Public Health Center has not met the requirements. There is no incinerator but personal protective equipment for waste treatment has been provided by the Public Health Center. In practice the personal protective equipment used is only general personal protective equipment such as gloves and masks. Waste treatment should also use boots, helmets, aprons or googles or special glasses.

3.3 Standard Operating Procedure Condition

Based on the results of in-depth interviews with key informants, there is a standard operating procedure for the implementation of solid medical waste management at the Public Health Center. The standard operating procedure for the implementation of solid medical waste management at the Public Health Center is going well and is known and implemented by all the Public Health Center. Based on the results of in-depth interviews with key informants, it is known that there is no reward and punishment system in the implementation of standard operating procedures.

Medical waste management will greatly depend on the existence of policies accompanied by the availability of human resources, budget and facilities, in addition, standard operating procedure variables related to solid medical waste are the dominant factors that influence the actions of nurses in disposing of solid medical waste in public health services.

The researcher's assumption is based on the results of the study that all officers state that there is a standard operating procedure for waste management, but the standard operating procedure is only in the form of a file and cannot be read by all Public Health Center officers. Existing standard operating procedures should be placed in certain rooms, especially the room for the implementation of the standard operating procedure.

3.4 Analysis of Hazardous and Toxic Solid Medical Waste Management at Bengkalis Regency Public Health Center in 2022

The results show that the implementation of waste management started from the stages of sorting, collecting, storing, transporting, but for the stage of destruction carried out by a third party.

a. Sorting

Based on the results of in-depth interviews with key informants, it is known that the process of sorting solid medical waste at the puskesmas starts from the health workers in each room. The cleaning service officer will then pick up the separated waste to be put into a temporary storage area. Medical waste sorting is carried out after each medical procedure

is completed and is picked up every day to be taken to a temporary storage area. Medical waste is sorted using plastic. Yellow plastic is used for medical waste and black plastic for domestic waste.

Sorting is an activity carried out at sources and storage systems that store medical solid waste temporarily at sources that produce medical solid waste. The sorting and storage system is carried out at all sources, sorting is carried out by medical officers on duty in each room, where medical officers have been given socialization regarding the separation between medical and non-medical solid waste (Yusti et al., 2019).

b. Collecting

Based on the results of in-depth interviews, the main informants revealed that the one who collected medical waste was the cleaning service. Medical waste collection is carried out every morning or evening and is collected in a temporary storage area. The container used is a closed trash can to collect medical waste. There is no specific path for moving medical waste. According to Zuhriyani (2019) the collection must ensure that the waste bag is closed or tightly tied. Collection of solid medical waste from each waste-generating room using a special closed trolley.

c. Storing

Based on the results of in-depth interviews with the main informants, there are animals in temporary medical waste storage areas such as cockroaches, lizards, ants. The Damon Non Inpatient Public Health Center and the Selat Baru Inpatient Public Health Center have implemented a recording system for waste entering and leaving, but the Pematang Duku Non Inpatient Public Health Center does not yet have a recording system for waste entering and leaving. Air ventilation in the waste storage area is good. Solid medical waste is in storage depending on third parties. Waste collection every few months to once a year. The researcher's assumption is based on the research results that waste storage is carried out and taken only once a year. This can result in the accumulation of waste up to hundreds of kilograms. We recommend that waste be transported every week or a maximum of once a month. Waste that is stored for too long is feared to be a medium for disease transmission.

d. Transporting

Based on the results of in-depth interviews with the main informants, it is known that the transportation of medical waste is carried out by the puskesmas using a special car for transporting medical waste in the form of a box car. Waste from poly is transported to a temporary storage area depending on the amount of waste, if the waste is full it will be transported immediately. The transportation of medical waste goes through two stages, namely internal transportation and external transportation. The internal transportation process is carried out by the cleaning service every day to be taken to a temporary shelter. External transportation is carried out by private transporters using box cars once a month.

e. Destruction

Based on the results of in-depth interviews with key informants, it is known that the process of destroying solid medical waste is carried out by a third party and not by the puskesmas. The solid medical waste that has been destroyed in a year ranges from 200 kg to 900 kg. The Damon Non Inpatient Public Health Center and the Selat Baru Inpatient Public Health Center have implemented a recording system for waste entering and leaving, but the Pematang Duku Non Inpatient Public Health Center does not yet have a recording

system for waste entering and leaving. Research by Nursamsi et al. (2017) revealed that at the extermination stage of the 15 Public Health Centers there were only 4 Public Health Centers that had incinerators, so that the destruction of solid medical waste at the puskesmas was still mixed with community waste. In the final eradication stage, officers take action to mix solid medical waste with general waste.

IV. Conclusion

The results show that the implementation of waste management started from the stages of sorting, collecting, storing, transporting, but for the stage of destruction carried out by a third party.

Suggestions to the Public Health Center to apply for ownership of the incinerator to the health Office and complete training for human resources in waste management.

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