[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social (IJHES)

EVALUATION OF SOLID MEDICAL WASTE HANDLING OF HAZARDOUS AND TOXIC MATERIALS AT "X" EDUCATIONAL HOSPITAL IN SEMARANG

Intan Sekar Arumdani[1], Sulistiyani Sulistiyani[1*], Tri Joko[1]

[1]Faculty of Public Health, Diponegoro University, Semarang, Central Java

Email: Intansekar28@gmail.com, sulistiyani@live.undip.ac.id

Article details:
Received: 12 th April 2021
Accepted: 22 th April 2021
Published: 27 th April 2021

Abstract

During the COVID-19 pandemic, the production of solid medical waste generated by hospitals and other health care facilities increases 30%. The increase of waste can spread diseases if the waste is not properly managed. Hospital waste is included in the category of medical waste of hazardous and toxic substances, the handling procedures and technical requirements are regulated in the Regulation of the Indonesian Minister of Environment and Forestry Number 56 in 2015. This research aims was to evaluate the hazardous and toxic materials solid medical waste handling at "X" Educational Hospital in Semarang, which includes reducing, sorting, storing, transporting, and ensuring the staff's protection. This was descriptive quantitative research with a cross-sectional study design. Data sources in this research were obtained from observations, interviews, and document studies. Based on the research conducted, the results of the evaluation of hazardous and toxic materials solid medical waste handling at this Hospital showed a total percentage of 74.75% for the fulfilled criteria. The Unsuitable requirements include trash cans that are not equipped with infectious symbols, holes in hazardous and toxic materials waste dumps, solid plastic waste compaction, errors in binding plastic waste, and incompatibility in personal protective equipment use.

Keywords: *Medical Waste,:Handling,: Evaluation,: Hospital.*

To cite this article :

Intan Sekar Arumdani, Sulistiyani Sulistiyani, T. J. (2021). Evaluation Of Solid Medical Waste Handling Of Hazardous And Toxic Materials At "X" Educational Hospital In Semarang. *International Journal of Health, Education and Social (IJHES)*, *4*(4), 19–30.

Introduction

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

Hospitals have the primary function to provide and carry out health service activities starting from preventive, curative, rehabilitative, and promotive conducted in an integrated manner to create a high degree of public health through optimal services (Indonesian Departement Of Health, 2009). In addition to providing hospital health services can be a medium of disease transmission, it can occur if a hospital applies improper handling of medical waste and in accordance with the principles of environmental management. Medical waste be a link to the spread of nosocomial infections and can cause of polluted environments when medical waste is disposed of without processing (Zuhriyani, 2019).

Solid medical waste results from solid waste, including pathology waste, sharp objects, infectious, pharmaceutical waste, waste, waste, radioactive waste, and waste with a high content of heavy metals. These types of waste fall into the category of waste or hazardous and toxic materials. During the COVID-19 pandemic, solid medical waste production increased by about 30% (Sutrisno and Meilasari, 2020). This is in line with the data obtained the amount of solid medical waste hazardous and toxic materials produced by "X" Educational Hospital every year has always increased, especially during the COVID-19 pandemic. In 2019 the amount of waste reached 17,317.35 kg increased in 2020 to reach 24,693.67 kg consisting of medical waste COVID-19 and non-COVID-19. This Hospital can potentially spread disease if the waste is not processed correctly and properly, seeing the magnitude of the increase and the amount of waste produced per year. When in direct contact with medical waste, the impact can occur in the form of infections that can be transmitted through feces, bodily fluids, blood, etc. (Biswas et al.,2011). Especially during the COVID-19 pandemic, the impact that can arise from the production of medical waste is more dangerous. Medical waste can cause coronavirus and infect patients, visitors, and officers working in hospitals (Sutrisno and Meilasari, 2020). Therefore, to prevent the impact that can arise, medical waste must first be carried out properly and properly managed.

The handling of medical waste produced by health care facilities from primary to tertiary level, including health centers, hospitals, medical laboratories in Indonesia is still below the standards set. Many hospitals are still conducting medical waste treatment that has not been in accordance with the previously established regulations (Novita, 2017). In 2019 the percentage of hospitals carrying out medical waste handling according to the new provisions reached 42.64% throughout Indonesia. The remaining 57.36% of hospitals have not implemented it in accordance with the standards set by the Government (Indonesian Ministry Of Health, 2019). The Government has established procedures and technical requirements for the handling of hazardous and toxic waste from health care facilities, and hospitals are obliged to carry out hazardous and toxic materials waste handling consisting of the reduction and sorting stage, storage stage, transportation stage, processing stage, burial, and/or hoarding stage (Indonesian Minister of Environment and Forestry, 2015).

The initial observations that have been conducted show the handling of solid medical waste hazardous and toxic materials in "X" Educational Hospital consists of 3 stages, namely reduction and sorting, storage, and transportation. But in its implementation is still not in accordance with Regulation of the Indonesian Minister of Environment and Forestry Number 56

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

in 2015. At the sorting stage is indicated by non-medical waste mixed into the medical trash can, there is no infectious symbol on some medical bins, labels, and symbols that have been peeled off and not seen in some trash cans thus increasing the potential for confusion in waste disposal. There are still errors in the binding, and there is still an emphasis on hazardous and toxic materials solid medical waste plastic in the transport process. Then, in the storage process, plastic medical waste has not been bound in the temporary storage, and the condition of the floor of temporary storage hazardous and toxic materials Medical waste looks dirty.

The purpose of this study is to evaluate the handling of hazardous and toxic materials solid waste at "X" Educational Hospital in Semarang, which includes the stages of reduction, sorting, storage, transportation, and guarantee of personnel protection whether it is in accordance with the regulations set by the Government.

Methods

This research is descriptive quantitative research, is a study conducted to see and describes with narrative and numbers about objects studied to conclude according to what is seen (Putra, 2015). This study uses a Cross-sectional study design for research time, where all subjects and variables are observed only once at a predetermined time (Irmawartini and Nurhaedah, 2017).

In this study, the subjects or informants were selected using the Purposive Sampling Technique, considering and selecting informants who fit the research's purpose and better understand the information needed. Subjects or informants in this study include Head of Sanitary & Wastewater treatment plant Installation, Housekeeping, Head of the outpatient room, Head of Crysan Inpatient, Head of ICU room, Head of a laboratory, and Head of Pharmaceutical Installation, Head of IGD room. To increase validity in the study results and obtain more valid data, researchers choose the subject as a triangulation informant, which includes: Staff of Sanitary & Wastewater treatment plant Installation, Housekeeping, Infection Control Prevention Hospital Officer and Hospital occupational health and safety Officer.

This study uses primary data and secondary data obtained through observations, interviews, and related document studies. Preliminary data obtained through observations and interviews, while secondary data obtained through the study of documents related to the handling of solid medical waste hazardous and toxic materials includes standard operational procedures hospital waste handling, data on the amount of waste produced, permit documents, and cooperation agreement documents with medical hazardous and toxic materials waste handling services. Data analysis using descriptive statistics that is by presenting data collected through tables and graphs.

Results and Discussion

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social (IJHES)

Type, Source, and Amount of Solid Medical Waste hazardous and toxic materials at "X" Educational Hospital in Semarang

1. Types and Sources of Solid Medical Waste Hazardous and Toxic Materials

The type of hazardous and toxic materials solid medical waste produced by "X" Educational Hospital comes from 2 types of treatment rooms, namely public treatment rooms and treatments in the COVID-19 isolation room, and consists of two kinds of Non-COVID-19 medical waste and COVID-19 medical waste. These two types of waste include infectious waste, chemical waste, sharp object waste, and pharmaceutical waste. Broadly speaking, the medical solid waste produced from the health service includes disposable medical masks, disposable medical gloves, infusion hoses, infusion plabots, contaminated used cotton/gauze, ampoules, vials, catheter hoses, syringes, used blood pads, blood bags, used drug bottles, urine bags, body tissues, body fluids, syringes, swab alcohol, drug waste, expired drugs, wiping paper, chemical reagents, and testers.

COVID-19 medical waste produced during the COVID-19 pandemic is almost the same as medical waste in general. COVID-19 medical waste is dominated by personal protective equipment worn by COVID-19 patient service personnel, including disposable N95 Masks, Disposable gloves, Eye protection, Disposable head protectors, face protectors, hazmat and disposable shoe covers, and in the treatment room, the resulting medical waste isolation includes, ampoules, infusion plabots, oxygen release hoses, infusion needles, vials, syringes, contaminated tissues, contaminated gauze, used tissues, alcohol bottles, swabs, rapid test kits, the plastic used food and beverages, and food and beverage waste from COVID-19 patients.

Informant S1 :

"Solid medical waste here there are residual body tissues, placenta, medical gloves, plaster / sanitary pads used, masks, vomit by patients, apusan / swabs, wipe paper, waste from the isolation room COVID-19, used syringes, needles, vials, ampoules, expired drugs.

Hazardous and toxic materials solid medical waste is produced from several health service activities derived from various "X" Educational Hospital rooms. There are several units and service rooms as a source of production of solid medical waste hazardous and toxic materials include: Outpatient Installation consists of (poly 1 and poly 2), Central Surgical Installation, Inpatient Installation consisting of bangsal (Chrysan, rehearsal, VECA or maternity room), Pharmaceutical Installation, radiology room, Emergency Installation, hemodialysis room, laboratory room, Intensive Care Unit (ICU), rehabmedic or physiotherapy room and isolation room consisting of wards (Lavender and Edelweiss).

Table 1. Types and Sources of Solid Medical Waste Hazardous and Toxic Materials At "X" Educational Hospital In Semarang

Type of Solid Medical Waste Hazardous and Toxic Materials	Source
Syringes, leftover tooth extractions, spets, residual ointments, vials, tissues, scalpels,	Outpatient Installation

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social (IJHES)

Type of Solid Medical Waste Hazardous and Toxic Materials	Source
alcohol swabs, disposable masks, disposable medical gloves, used shoes, used sanitary pads.	
Tissues, organs, plabots, disposable gloves, syringes, syringes, spuit caps, body tissues, ampoules, used kassa, disposable masks.	Central Surgical Installation
Disposable masks, disposable gloves, ampoules, transfusion sets, NGT (Nasogastric Tube), infusion plabots, glass vials, syringes, catheters, used sanitary pads, alcohol swabs, urine bags, blood bags, third-degree personal protective equipment (PPE), food waste	Inpatient Installation (including isolation room)
Drug Expiry Date (Expiry), damaged medicine, disposable mask	Pharmaceutical Installation
Chemical reagents, disposable masks, used cotton, syringes, disposable gloves, chemical waste	Radiologists
Disposable masks, disposable gloves, medicinal waste, contaminated medical devices, syringes, vials, ampoules, infusion plabots, used sanitary pads, used cotton, infusion hoses	Emergency Installation
Disposable masks, disposable gloves, venous and arterial hoses, syringes, gauze, masks, syringes, used sanitary pads, used cotton, blood bags	Hemodialysis
Disposable mask, disposable gloves, reagents, syringes, vial bottles, body tissues, syringes, disposable kassa, alcohol swab	Laboratory
Disposable Needle Maker, disposable gloves, injectable, vial, infusion,plabot, ampoule, glass bottle, food waste, third level personal protective equipment (ppe)	ICU
Disposable mask, disposable gloves, ultrasound gel	Rehabmedik

Table 1 indicate that, the solid medical waste hazardous and toxic materials is produced from various sources and has several variations. Sharp object waste is produced in almost every room except medical rehab and pharmaceutical installations. Pharmaceutical installations produce waste in the form of expired and damaged medicines. Solid medical waste with infectious characteristics is found in rooms that provide action and care to patients, including outpatient installations, central surgical installations, inpatient installations, emergency installations, hemodialysis, laboratories, and ICU. Central surgical installations, laboratories, and outpatient installations produce solid medical waste in the form of tissues and organs with pathological characteristics. Radiology does not produce radioactive waste because it uses more modern computerized digital tools in the film washing process. Solid medical waste with cytotoxic characteristics is not produced because this Educational Hospital does not provide cancer chemotherapy services.

As for the third-level personal protective equipment (PPE) waste in the form of (N95 mask, disposable gloves, eye protection, disposable head protectors, face protectors, disposable

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

shoe covers, and hazmat) are produced in isolation and treatment rooms of COVID-19 patients, namely inpatient installations (Lavender and Edelwais) and ICU.

2. Total Solid Medical Waste Hazardous And Toxic Materials

This Educational Hospital's amount of waste can be known from the daily logbook placed in the Medical Waste temporary storage the hazardous and toxic materials. The logbook is specially made to record hazardous and toxic materials solid medical waste by room. The recording is done every time transporting waste from the room to the Medical Waste temporary storage hazardous and toxic materials before it is recorded weighing first. Weighing and recording the weight of medical waste to the logbook is the housekeeping duty from the producing room.

Informant K1:

"In temporary storage, waste will be weighed and recorded in the logbook then waste placed in the yellow wheel bin in the temporary storage. Then wheel bin sprays disinfectant because it is during the pandemic, after which housekeeping remove personal protective equipment (PPE), wash hands and return to the room."

Figure 1.Total Solid Medical Waste Hazardous And Toxic Materials At "X" Educational Hospital in Semarang January 2021

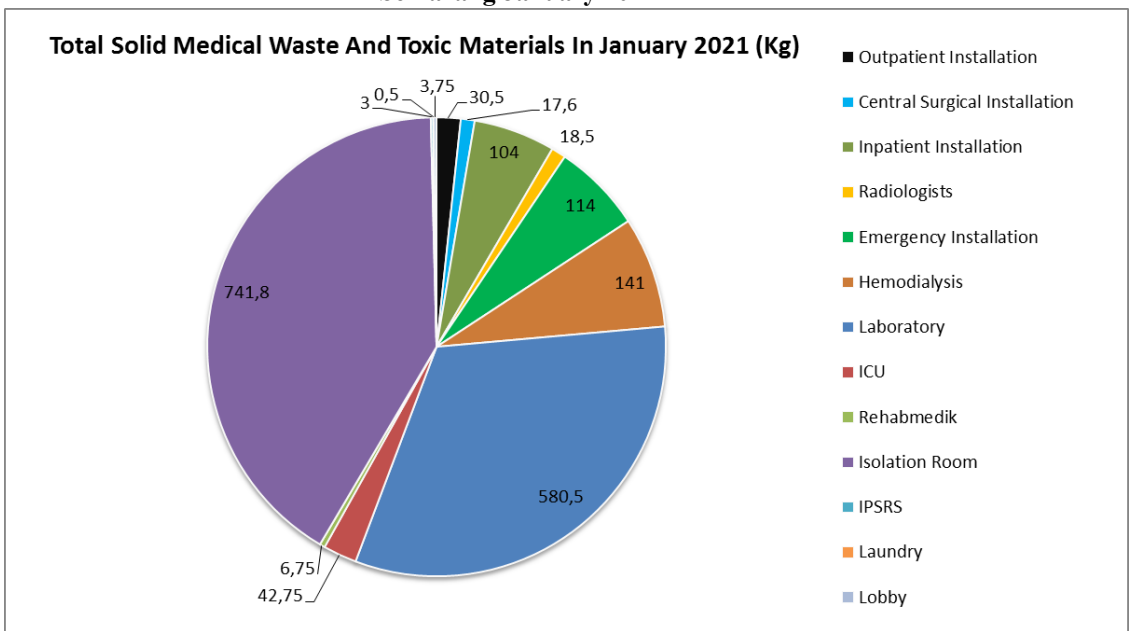

Figure 1. indicate that, the amount of medical waste produced amounted to 58.21 kg produced per day and a total of 1804.65 for January 2021. The infectious waste dominates medical waste produced in the room in the form of medical masks and disposable medical gloves—the waste of sharp objects dominated by syringes.

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

Based on the data obtained, the isolation room becomes the room that produces the most waste in January 2021. Waste produced by isolation rooms in January 2021 reached 784.5 kg, with an average per day of 25.3 kg. The isolation room consists of wards (lavender and edelweiss) and ICU rooms. The total number of beds in the isolation room is 27 beds with a value of Bor (Bed Occupancy Rate) reaching 80% in January 2021. The amount of waste produced is influenced by high or low BOR levels and increased visitors' number (Saghita et al., 2017). Bed Occupancy Ratio (one of the indicators describing the high low utilization rate of hospital beds) (Muhith et al., 2013).

Evaluation of Hazardous And Toxic Materials Solid Medical Waste Handling at "X" Educational Hospital in Semarang

Table 3. Effectiveness of Hazardous And Toxic Materials Solid Medical Waste Handling

Stage Handling	Number of Requirements	Requirements Appropriate	Percentage (%)
Reduction and Sorting	10	7	70,00
Storage	17	14	82,35
Transport	20	16	80,00
Personnel Protection Guarantee	6	4	66,67
Total	53	41	74,75%

Table 3 obtained the results of the evaluation of solid medical waste handling hazardous and toxic materials in this Educational Hospital with a total percentage of 74.75% for the appropriate category and 25.25% for the category that is not yet appropriate. Percentage of conformity with the technical requirements of toxic waste handling hazardous and toxic materials from health care facilities can be still low and not yet eligible according to the Regulation of the Indonesian Minister of Environment and Forestry No. 56 of 2015 because it has not got a value of 100%.

1. Hazardous And Toxic Materials Solid Medical Waste Reduction and Sorting Stage

"X" Educational Hospital in Semarang has conducted several activities to reduce the weight and amount of medical waste produced. This reduction also aims to minimize hazardous materials produced by replacing them using safer materials. Efforts to reduce activities that have been carried out include already using a digital thermometer, which can reduce hazardous waste produced in the form of mercury waste. Mercury waste is dangerous for the body mercury content can mix with more complex elements that can disrupt brain tissue and cause mental disorders to death (Dewi et al., 2019). The next effort made by this Hospital is to minimize the use of air fresheners containing hazardous and toxic substances in the form of chemicals, drug handling with FEFO or First Expired First Out system, regular checking of expire date or expired drugs, and regulate the stock and distribution of medicines, as well as dispose of the remaining liquid contained in the infusion plabot, the disposal of waste will make the weight of waste

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

produced reduced. Efforts made at the reduction stage are largely in accordance with applicable regulations, but there are still discrepancies including the unavailability of standard operational procedures at the reduction stage.

Informant K6:

"Plabot infusions are rarely usually available for wound treatment, before being disposed of usually in his bowels first and put in the infectious trash."

Waste sorting at this Educational Hospital is done by separating the waste into infectious medical waste, non-infectious waste of sharp object waste, pharmaceutical waste, and chemical waste. In general, each room is equipped with 3 types of trash cans, namely infectious trash cans for medical waste, non-infectious trash cans for non-medical waste, and jerry cans for sharp object waste. However, there is a room that only has one type of trash can, namely lavender room, edelweiss, and ICU, that function as an isolation room for COVID-19 patients because all waste produced in this room will be considered contaminated by the COVID-19 virus and classified as infectious waste. The trash can is already equipped with labels and symbols to avoid mistakes in sorting. But the point at the time of the observation process is still found trash cans that have not been equipped with infectious symbols, and labels on some trash cans have been damaged or not read clearly. this can occur due to a lack of care and supervision on all trash cans. There is no labeling and symbols with specific characteristics on small plastic bags to increase the potential for confusion in waste disposal.

Informant H3:

"Ever found the wrong throw, some throw needles into the infectious plastic usually directly transferred to jerry cans. Never also found the wrong throw away, garbage mask dumped into non-medical garbage."

2. Hazardous And Toxic Materials Waste Storage Stage

The process of storing medical waste is done from source or from room to storage at temporary storage. Storage in the room is done using the provided trash can in accordance with the characteristics of the resulting waste. As for waiting for the process of transportation from third parties, waste will be stored at temporary storage hazardous and toxic materials that already has a permit. Temporary storage is a sturdy building, flood-free, and equipped with several supporting facilities. The facilities contained in the medical waste temporary storage hazardous and toxic materials have mostly met the requirements of temporary storage equipped with fire extinguisher, personal protective equipment (PPE) boxes, scales for weighing waste plastics, medical waste plastic reserves as reserves if plastic is torn or leaked, and temporary storage hazardous and toxic materials is equipped with first aid boxes.

Temporary storage hazardous and toxic materials is equipped with cleaning equipment consisting of a water source in the form of a sink and a water tap equipped with soap for handwashing and disinfectant for cleaning on transport or wheeled bin. Temporary storage building has a roof made of zinc that can protect from rain, sunlight, and wind, equipped with adequate lighting and ventilation. On the door of temporary storage hazardous and toxic

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

materials, there is a nameplate that reads " Temporary Storage Of Waste Hazardous And Toxic Materials Medical Hospital," and on the door, there is a prohibition sign that reads "Other Than Officers Are Prohibited From Entering," as well as infectious symbols. It is within 50-100 meters of physiotherapy or medical rehab services. The length of storage time has met the requirements done for 1-2 days before transportation by third parties.

Informant S1:

“"Medical waste is stored in temporary storage maximum 2 days, transportation every Monday, Tuesday, Thursday, and Saturday."

Based on the observations, temporary storage looks less neatly arranged because it was found in unbound waste bags, left open, and placed on the floor. This can occur due to a lack of supervision during the storage process. It can be a place for vectors of diseases that are harmful to human health, the cause of work accidents for workers due to the scattering of sharp objects such as syringes (Amelia, 2019). Then on the walls and floors of temporary storage tends to look dirty because cleaning is not done every day and is only done once a week. Temporary storage building looks poorly maintained because there are some holes that are large enough to be accessible to insects, birds, and other animals.

3. Hazardous And Toxic Materials Waste Transport Stage

The transportation process is carried out, starting from collecting waste plastic from the room's trash can to medical waste temporary storage the hazardous and toxic materials. Based on medical waste observation, plastic to be tied already meets the criteria that waste has reached or not more than 3/4 of the waste plastic volume. It also applies to the handling of medical waste COVID-19, in accordance with guidelines published by the Government, which states that after the waste reaches 3/4 full or no later than 12 hours, hazardous and toxic materials waste must be tightly tied (Ministry of Health of the Republic of Indonesia, 2020). In the process of transport and already carry out with a logical time and route. In general, transportation is carried out every hour at 6.00 WIB, 13.00 WIB, and 19.00.

Informant K1:

“After sorting, the garbage will be collected and transported to the temporary storage by housekeeping on each shift. The number of shifts in the room varies. For example in outpatient poly, there are 2 shifts means waste is disposed of 2 times. Hospitalization 3 times.

Transportation from the room is carried out using wheeled trolleys and or yellow wheeled bins for infectious and green waste for non-infectious waste. Wheeled bin has specifications of scratch-resistant waste sharp objects, easy to clean, easy to do loading and unloading, and equipped with infectious symbols. Officers are still pressing or compacting waste using hands or feet, some officers still tie plastic with rabbit ear models, there are still transportation equipment that is not equipped with labels, and the transport is not routinely cleaned every day.

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

Informant K1:

"Housekeeping will bring waste with a waterproof closed wheeled trolley to the temporary storage or yellow wheel bin."

In addition to transportation from the source of space, transportation is also carried out by third parties as transporters and destruction of hazardous and toxic materials solid medical waste. Transport is carried out using special means of transportation in boxcars and officers using complete personal protective equipment (PPE).

4. Personnel Protection Guarantee

Mentioned in Regulation of the Indonesian Minister of Environment and Forestry Number 56 in 2015, which includes a guarantee of protection to personnel or officers managing medical waste hazardous and toxic materials, includes personal protective equipment (PPE), implementation of training, routine medical examinations, immunization, and additional food.

At the storage and transport stage, there is still an improper use of personal protective equipment (PPE) on officers. Low awareness of officers and lack of supervision carried out, making the use of personal protective equipment (PPE) has not been maximized and in accordance with applicable requirements. In ensuring the protection of waste handling officers, the Hospital also carries out training activities, socialization, and regular inspections.The Hospital has provided additional food. However, hepatitis B and tetanus immunizations have not been given to the Housekeeping officers. Immunization is important because Housekeeping officers are workers who make direct contact with garbage, therefore immunization is important as a protection to avoid disease (Erma, 2017).

Informant S1:

"If personal protective equipment (PPE) that is not suitable for example should wear thick latex gloves, but wear handscoon only, there are those who wear safety shoes there actually have prepared but returned to personal, at the beginning has been socialized standards like what."

Informant S3:

"Here, there are also educational and training activities, so infection control prevention officer is invited to provide materials for the process of education and training for officers, fundamental infection control prevention training, occupational health and safety training, sanitation training.

Informant S2 :

"If for housekeeping officers have not been given immunization."

Conclusion

Types of Solid Medical Waste hazardous and toxic materials produced by "X" Educational Hospital in Semarang is dominated by disposable medical masks, disposable medical gloves, and sharp object waste in the form of syringes. The amount of hazardous and toxic materials solid

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

medical waste produced amounted to 58.21 kg per day and a total of 1804.65 for January 2021.The evaluation of hazardous and toxic materials solid medical waste handling at "X" Educational Hospital in Semarang received a total percentage of 74.75% for the appropriate category and 25.25% for the unsuitable category. Percentage of conformity with the technical requirements of toxic hazardous and toxic materials waste handling from health care facilities can be said to be low and not yet qualified in accordance with Regulation of the Indonesian Minister of Environment and Forestry No. 56 of 2015.

There are still found discrepancies at the reduction and sorting stage , there are trash cans that have not been equipped with infectious symbols, labels on some trash cans have been damaged or not read clearly, and small plastic medical waste has not been equipped with symbols and labels.There are still found discrepancies that are in the temporary storage area there are holes so that it can still be accessed by insects, birds, and other animals, walls and floors tend to look dirty, and found bags of unbound waste, left open and placed on the floor.There is still a discrepancy that there is still emphasis or compaction of waste plastic, there are still errors in tying waste plastics, there are still transportation equipment that is not equipment with labels, and the transport is not routinely cleaned every day. Still found discrepancies that the use of personal protective equipment (PPE) at the stage of storage and transportation is not appropriate, there has not been immunization tetanus and hepatitis b in housekeeping officers.

Recommendation

It is recommended to check and re-maintain all existing medical trash cans and transportst,the need to be re-maintained at the facilities and conditions of the building temporary storage medical closing the existing holes to prevent animals from entering, and cleaning every day to keep the temporary storage condition clean, more supervision and routine socialization should be carried out so that there are no compaction and binding errors in medical waste plastics, the need to evaluate the use of personal protective equipment (PPE) in waste handling officers to reduce the misuse of personal protective equipment (PPE) and It is recommended that the Hospital provide tetanus and hepatitis b immunization to housekeeping personnel in charge of medical waste storage and transportation to prevent infection and transmission of disease.

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

References

Amelia, A.R., A. Ismayanti., A.R. Rusydi. (2020). Solid Medical Waste Management in Mamuju Regional General Hospital, West Sulawesi Province. *Health Journal, Vol. 3 No. 1 (January, 2020) : 073-085.*

Biswas, Aruna.,ASM Amanullah.,S.C Santra. (2011). Medical Waste Management in the Tertiary Hospitals of Bangladesh: An Empirical Enquiry. *ASA University Review, Vol. 5 No. 2, July–December 2011.*

Dewi, Oktavia.,Sukendi.,Y.I. Siregar.,Elda Nazriati.(2019). Analysis of Medical Waste of Independent Dental Health Services and Their Potential Pollution in Pekanbaru City. *Indonesia's Environmental Dynamics, January 2019, p 14-19.*

Indonesian Departement Of Health. (2009). Undang-Undang Nomor 44 Tahun 2009 Tentang Rumah Sakit. Jakarta.

Indonesia Health Profile. (2019).Indonesia Health Profile 2019. Indonesian Ministry of Health .*Vol 42.*Jakarta.

Indonesian Minister of Environment and Forestry. (2015). Regulation of the Minister of Environment Number 56 in 2015 concerning Procedures for Technical Requirements for The Management of Hazardous and Toxic Waste from Health Care Facilities Jakarta.

Indonesian Ministry Of Health. (2020). Guidelines for Waste Management for Emergency Hospitals and Health Centers Handling COVID-19 Patients. Jakarta.

Irmawartini.,Nurhaedah. (2017). Research Methodology. Jakarta : Pusat Resource Education Center Human Health.

Kasumayanti, Erma. (2016). Factors Related To Nosocomial Infection In (Cleaning Service) At Bangkinang Hospital In 2016. *Ners Journal of Pahlawan Tuanku Tambusai University Vol 1, No 2, October 2017.*

Muhith, Abdul., M.H, Saputra., Nursalam. (2013). Marketing Mix by Bed Occupancy Ratio (BOR). *Ners Journal Vol. 8 No. 1 April 2013: 135–141.*

[Vol: 4 Issue: 4 | April 2021] E-ISSN: 2410-5171 | P-ISSN 2415-1246

The International Journal of Health, Education and Social
(IJHES)

Novita, C.F., Poppy, Andriany.,R.D Helmi. (2017). Description Of Clinical Student Compliance Of Faculty Of Dentistry, Syiah Kuala University In Terms Of Separation Of Medical And Non-Medical Waste. *Journal Of Syiah Kuala Dentistry Society, 2017, 2 (1):26-32.*

Putra, E.A. (2015). Children With Difficulties Studying In Elementary School In Kelurahan Kalumbuk Padang (Quantitative Descriptive Research). *Journal of Special Education Scientific Volume 4 Nomor 3 September 2015.*

Saghita, E.P.,Thamrin.,Dedi Afandi. (2017). Analysis of Medical Solid Waste Minimation in RS PB. *Photon Journal Vol.7 No.2, May 2017.*

Sutrisno, Hendri., Meilasari, Fitriana. (2020). Review: Medical Waste Management For Covid-19. *Journal of Environmental Health Vol.12 No.1 Special Issue September 2020 (104-120).*

Zuhriyani. (2019). Analysis of Sustainable Solid Medical Waste Management System at Raden Mattaher Jambi General Hospital. *Journal of Sustainable Development Volume 1. no (1) 2019* .