

# Evaluation Of Waste Management Of Covid-19 Health Service Facilities In Public Health Center X West Jakarta

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## **Abstract.**

*Health Facilities Waste Management Evaluation Covid-19 in Public Health Center X Central Jakarta. Health facility waste management is one of the essential things in handling the pandemic (Covid-19). Public Health Center X Central Jakarta is one of the health service facilities designated by the Health Service as a place for early detection of Covid-19 symptoms. This research is qualitative research with a descriptive case study design. This research was conducted in April 2022. The key informants in this study were sanitarians, nurses, and Covid-19 tracers. Health facility waste management at Public Health Center X Central Jakarta includes sorting, transportation, weighing, temporary storage, and handing over waste to third parties. Health facility waste management during a pandemic is similar to before. The number of patients visiting during the pandemic has decreased, but the waste generated has increased from the tracer waste of Covid-19 patients. Health facilities' waste in Covid-19 services includes needle waste, PPE waste such as masks, hazmat, gloves, alcohol swabs, and used rapid equipment. Covid-19 health facility waste increased in July and September, 642 Kg and 849 Kg. This differs from the increase in new Covid-19 cases, namely 56,757 cases, but less waste is generated. Public Health Center X Central Jakarta has collaborated with third parties in waste treatment with government permits to manage health facility waste.*

**Keywords:** Covid-19; Health Facility's Waste, Public Health Center and Waste Management.

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## **I. INTRODUCTION**

The community health center is a health service center that organizes community health efforts and individual health efforts at the first level by prioritizing promotive and preventive steps in their working area [1]. The community health center is a form of health service that plays a vital role in the community. Community health centres are spearheads of health services for the community because they effectively assist the community in providing first aid with standard health services [2]. The increase in the number of visitors to the Health Center impacts the rise in the amount of waste produced. Health service facility waste generated from public health centres has risks to the environment and public health, especially to waste management officers, health workers, patients and their families [3]. If the waste is not managed correctly, it can cause harm to health. Community Health Center environmental sanitation efforts aim to protect the community and health workers from the dangers of environmental pollution originating from health facility waste. All elements in the Puskesmas act as waste generators. The waste generated can be in the form of medical waste or non-medical waste. This will happen if the trash developed needs to be managed correctly. Public health centre waste management also requires good management, especially during the Covid-19 pandemic [4]. Hazardous and toxic waste is regulated in Government Regulation Number 101 of 2014 concerning Management of Hazardous and Toxic Waste. Poor waste management, especially during the Covid-19 pandemic, can be a public health hazard and has the potential to cause re-emerging infections [5].

One of the community health centers that carry out activities and produce waste is the X community health center in Central Jakarta. Based on data obtained from the Central Jakarta Public Health Center X, it can be seen that the waste generated by health service facilities has increased during the Covid-19 pandemic. Healthcare facility waste generated is the result of medical service activities generated from public health service rooms. The health facility waste includes liquid waste, injection waste, PPE waste for officers, waste masks and waste gloves. The resulting waste is considered a higher cause of environmental pollution than other wastes. Community health centers generate waste every day especially during the Covid-19 period. Strict supervision and in accordance with regulations set by the government is very important to do. In

March 2020, in Wuhan City, China, there was an increase in waste of more than 40 tons to 240 tons per day, the waste of healthcare facilities in Malaysia also increased by 10% from the previous month, and in Jakarta it increased by up to 30% [6]. At the X community health center in Central Jakarta, there was an increase in healthcare facility waste by 14.74% in July 2020 and 13.32% in September 2021. Waste management in health service facilities during the Covid-19 pandemic must be part of disaster management planning. It should be appropriately managed to reduce the risk of infection for the community and health workers [7]. Based on this background, working waste in healthcare facilities is necessary, especially during the Covid-19 pandemic. This aims to identify the description of the amount of waste produced by health service facilities and evaluate the waste management of health service facilities at the X Community Health Center in Central Jakarta.

## II. METHODS

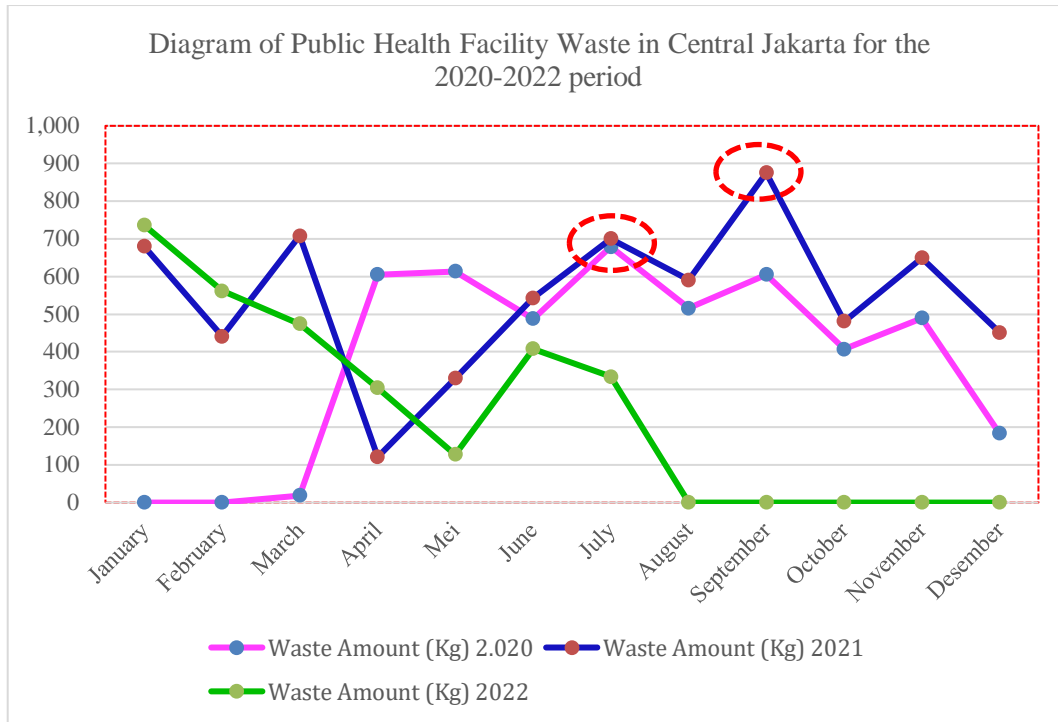
This research is qualitative research with a descriptive case study design. This research analyzes waste management in healthcare facilities during the Covid-19 pandemic. This study used purposive sampling. Data were obtained through interviews with sanitarians, nurses, cleaning service officers, covid-19 tracer officers and third parties. Informants in this study consisted of 4 nurses, three sanitarians, three cleaning service officers, 2 covid-19 tracer officers, and one-third party. The criteria for selecting informants were permanent employees at the X Public Health Center and parties directly involved in the Covid-19 waste treatment process, starting from sorting, transporting, storing and processing. Secondary data was obtained from the environmental health unit of the Community Health Center. This research was conducted in April 2022. The analysis was carried out by looking at the percentage of waste during the pandemic. Qualitative analysis is used to describe B3 waste management procedures.

## III. RESULT AND DISCUSSION

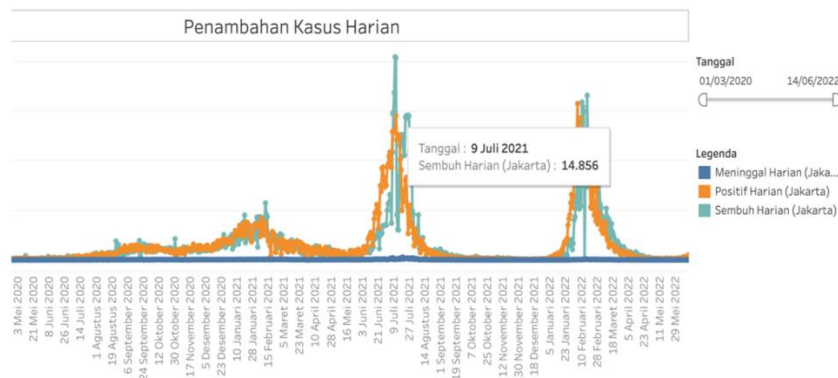
Collection, transportation, segregation, weighing of waste, temporary storage, and delivery of waste to third parties. The waste collection process is carried out in the places provided, namely medical, non-medical, organic, and inorganic waste. After that, the cleaning service transports the waste, which is then handed over to the sanitarian for re-sorting. If there is wrong waste, the waste is then sorted by type. Waste is separated into B3 or domestic waste; if the waste is included in medical waste, it is put in yellow plastic, which is accommodated in an infectious waste bin. Infectious waste (medical waste) is from health workers who handle Covid-19 patients, such as syringes, masks, used food and drink plastic, tissues, and personal protective equipment. Based on the results of interviews with nurses and sanitarians at the X Public Health Center in Central Jakarta, before the Covid-19 outbreak, medical waste was waste that came from outpatients only. During the occurrence of Covid-19 from 2020 – March 2022, there has been an increase in the intensity of the amount of waste from healthcare facilities. This is in line with the daily Covid-19 case data, which stated that there was an increase in the number of Covid-19 patients in July 2020 and September 2021.

**Table 1.** Data of Health Facilities Waste in Central Jakarta Period 2020 - 2022

Month	Total Waste (Kg)			Percentage of Waste (%)		
	2020	2021	2022	2020	2021	2022
Januari	0	680	736	0,00	10,35	<b>41,53</b>
Februari	0	441	562	0,00	6,71	31,72
Maret	19	708	474	0,41	10,78	26,75
April	605	121	304,4	13,14	1,84	10,33
Mei	613	330	128	13,32	5,02	4,34
Juni	488	543	408	10,59	8,26	13,85
Juli	<b>679</b>	700	334	<b>14,74</b>	10,65	11,34
Agustus	516	591	-	11,20	9,00	-
September	605	<b>875</b>	-	13,13	<b>13,32</b>	-
Oktober	407	481	-	8,84	7,32	-
November	490	649	-	10,64	9,88	-
Desember	184	451	-	3,99	6,86	-
<b>Total</b>	4.606	6570	1772			



**Fig 1.** Diagram of Health Facility Waste for Health Center X Central Jakarta



**Fig 2.** Diagram of Adding Daily Covid-19 Cases Based on DKI Jakarta Covid-19 Monitoring Data  
(Source: <https://corona.jakarta.go.id/en/data-pemantauan>)

Based on Table 1, it can be seen that the health facility waste generated during Covid-19 in 2020 had the highest peak in July 2020, namely an increase of 14.74%, September 2021 was 13.32%, and January 2022 was 41.53%. Compared with DKI's Covid-19 daily case data, the highest peak case occurred in July 2021 with 14,629 points and in February 2022, namely 15,825 [8]. The high and low amount of health service facilities waste generated depends on the condition of Covid-19.

".....the healthcare waste generated depends on whether the number of Covid-19 cases is high or low. If cases are high, fewer patients usually seek treatment, but for tracer patients it increases...." – Health center nurse.

The process of transporting waste during the pandemic remained the same; the wreckage was collected in one large bin and stored in a special room. Waste transportation is carried out by the cleaning service. Transport is carried out using full PPE. During the pandemic, there was an increase in waste from patients seeking outpatient treatment, but there was a significant increase in waste from patients who were tracer tests for Covid-19. Central Jakarta X Health Center is one of the places referred by the government to provide initial diagnosis of patients with Covid-19 symptoms. So that the waste generated includes used

infusions, masks, vaccine bottles, syringes, face shields, bandages, hazmat, personal protective equipment (PPE), medical clothing, gloves, PCR and antigen tools, and alcohol swabs for cleaning.

"...Waste is transported once a day, then stored in a special waste room, which will be transported every Wednesday by a 3rd party..." – Cleaning Service-

The sanitarian carries out the segregation of waste before weighing it. It is intended that the recording process in the log book follows the type of waste respectively. In the weighing process, the sanitarian considers the litter first and records it in the logbook. Destruction is recorded according to the style and where the waste is generated (treatment room). The documented waste includes liquid waste, solid waste of syringes, and Covid-19 waste. After recording, the waste is stored in TPS B3, a special room provided by Health Center X to hold the trash from the health facility temporarily. After being sorted, weighed and recorded, the waste is transported weekly, every Wednesday, by a 3rd party. PT carries out the waste carrier. Adipraya Hijau Lestari and processed by PT. Wastec Internasional.

"...At a time when the rate of Covid-19 was high, the amount of waste was not too high, because only a few outpatients came to the Public health center for treatment..."-Sanitarian-

Based on interviews with 3rd parties transporting the waste, the waste was thrilled when the rate of Covid-19 was not too much, but when the rate of Covid-19 had slowed down, more debris was transported.

"....When the Covid-19 numbers were high, less waste was transported, in contrast to when Covid-19 started to subside...." -3rd Party Waste Transporter-

The X community health center in Central Jakarta has carried out collection, sorting, storage, transportation and destruction, which is the final stage carried out by a third party through cooperation. This is in accordance with Health Government Regulation No. 18 of 2020 Regarding Medical Waste Management in Area-Based Health Service Facilities. The amount of waste in healthcare facilities when the number of Covid-19 patients is high is actually lower than when the number of Covid-19 patients is lacking. When transporting waste, the procedures for transporting waste are in accordance with Government Regulation No. 101 of 2014 concerning Hazardous and Toxic Waste Management. The use of PPE has also been referred to and is in accordance with previous research which explains that waste management must use shoes, aprons, long-sleeved gowns, thick gloves, masks, goggles or face shields [9] This means of transporting medical waste complies with government regulations because the routes used for food delivery are different.

This is in line with the research conducted by Yolarita and Kusuma that transporting waste with special trolleys and special lanes is different from food routes [6]. In the management of Covid-19 waste, prior to storing it in a special room it is disinfected and sealed first. The next stage is disinfection and filling [10]. The waste storage stage still needs to be following the regulations of the Minister of Health Regulation No. 7 of 2019, this is because the residence time of waste is more than 2x24 hours. Based on the waste yield data obtained, the increase in the amount of waste when the Covid-19 rate was high was insignificant. The waste storage room at the X Community Health Center in Central Jakarta follows Number 6 of 2021 concerning Procedures and Requirements for the Management of Hazardous and Toxic Waste, which states that waste is stored indoors, free from natural disasters and collected in a B3 waste pile. Waste treatment in healthcare facilities must be handled specifically, properly and correctly; the goal is to avoid contamination of the surrounding environment. Waste management during a pandemic requires special attention from the government, both in terms of infrastructure and operational personnel. This is because waste management in healthcare facilities requires training, systematic measurement, and cooperation with third parties [7].

#### IV. CONCLUSION

Waste management Health service facilities at the Central Jakarta Health Center X include sorting, transporting, weighing, temporary storage, and handing over waste to third parties. The number of patients visiting during the pandemic has decreased, but the waste generated has increased from tracer waste from Covid-19 patients. The amount of trash from Covid-19 health service facilities increased in July and September, namely 642 Kg and 849 Kg. This is different from the increase in the number of new cases of Covid-19, namely 56,757 points, but less waste is produced.

## V. ACKNOWLEDGMENTS

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