

# AWARENESS AND BEHAVIORS OF CLEANING STAFF TOWARDS INFECTIOUS AND HAZARDOUS WASTE MANAGEMENT AT SUAN SUNANDHA RAJABHAT UNIVERSITY, BANGKOK, THAILAND

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## ABSTRACT

At Suan Sunandha Rajabhat University, there are primary care services, having medical personnel, nurse and pharmacist on duty. Trash, infectious and hazardous wastes are disposed daily. The study is undertaken with a purpose to study the awareness and behavior of cleaning staff towards Infectious and Hazardous Wastes Management at the university. A questionnaire is used as the tool for collecting data from 46 staffs. The data is analyzed via statistical program and tools. The results reveal that the majority of staff is men (54.3%), aging between 18 to 59 years, and 50.0% holding primary education certificate. In terms of awareness, the low rate gains the highest level (43.5%), followed by the medium rate and minimal rate (37.0% and 19.6%), respectively. In terms of operation behaviors, 50% of staff covers their bodies entirely, puts on gloves, wears rubber galoshes, and wears masks during their operation. When considering on infectious and hazardous wastes management, the majority of staffs (43% – 46%) rates the level of the most frequently when part of their organs / body expose the infectious or hazardous wastes – they would clean themselves immediately; meanwhile, the area would be suddenly clean when those wastes are fallen during moving.

**Keywords:** Infectious Waste, Hazardous Waste, Solid Waste Management, Cleaning Staff

## INTRODUCTION

### 1. Suan Sunandha Rajabhat University

Suan Sunandha Rajabhat University is located in Dusit District, Bangkok, with a total of 27,776 students [1]. The university provides primary healthcare services under the name ‘Sunandha Clinic’; license number 10101026955 certified by the National Health Security Office (NHSO). The clinic opens Monday to Saturday from 08.00- am- 05.00 pm., serving school kids, university students and staff, and general public, with the professional staff available to provide primary medical services, including medical professionals, nurses, pharmacists and others. The average number of its clients per day is between 80 and 150, which implies a considerate quantity of infectious and hazardous wastes from clinical activities. Therefore, this study aimed to investigate awareness and behaviors of the university cleaning staff towards infectious and hazardous waste management. The result of this study could be useful for planning appropriate waste management strategies.



**Figure 1** Suan Sunandha Rajabhat University

### 2. Infectious and Hazardous Wastes

Department of Health, Thailand [2] defines infectious waste as waste contaminated with sufficient concentration or quantity of infectious agents resulting in causing disease in susceptible hosts. Infectious waste

is produced during human and animal healthcare activities such as diagnostic activities, treatments, vaccination, autopsy, and not excluding even laboratory research. World Health Organization (WHO), cited in Sukol Jiasakul [3] indicates that infectious waste includes all the equipment, both disposal and non- disposal, used in human and animal healthcare activities, with infectious agents known to be contagious to humans. This also embraces equipment used in curative and preventive activities and health status assessment in which there is exposure to blood or body fluids, tissues, fluid tissues, secretions, as well as infectious waste from activities involved with infected patients. According to Paiboon Jeamponk and Sivapan Choo-in [4], infectious waste is waste capable of producing infectious diseases; therefore, infectious waste is pathogens with sufficient virulence especially to susceptible hosts to get infected.

In conclusion, infectious waste is defined as waste left or disposed by medical service premises and laboratories; waste produced in curative and diagnostic activities, research and experimental activities in human and animal, which is pathogenic and contagious.

Anat Tapinta [5] gave the meaning of hazardous waste that it was waste in solid, sludge, fluid or gaseous forms which had chemical hazard from such as explosion, erosion or reactions that caused harms to human and environment. Pollution Control Department [6] stated that hazardous waste included solid waste, domestic sewage sludge or wastewater, waste from disposals of things no longer used or decayed ones, which could be in solid, fluid, gaseous or combined forms. This also includes containers contaminated with chemical matter harming human health and environment at present or in the future if there is no appropriate management.

In summary, hazardous waste is a result of disposals of things that is no longer used, things that are decayed, chemically hazardous containers; and they can be in solid, fluid, gaseous or combined forms; and they are harmful to human health and environmental well-being.



**Figure 2** The hazardous waste container.

Department of Health, Thailand [2] classifies hazardous wastes into 6 categories, as follows:

- (1) Wastes from human and animal surgeries, diagnosis and infectious disease research on non- human animals; equipment used in these activities are included.
- (2) Medical equipment and supplies waste such as cotton, gauze, feeding tube and others that are contacted or suspected to be contacted with blood or blood elements such as urine, lymph, saliva and other secretions.
- (3) Sharps waste or biomedical waste composed of used sharps or device or objects used in medication and laboratory research, such as needles, syringes, blades, glass tubes and other device made of glass
- (4) Pathogen, culture medium and devices used in labs, including diagnosis in which there are direct and indirect contacts with pathogen
- (5) Live attenuated vaccine such as poliomyelitis (polio) vaccine, rubella vaccine, mumps vaccine, and containers
- (6) All types of waste from activities in isolation rooms such as hemodialysis unit

## RESEARCH OBJECTIVES

The study aimed to investigate awareness and behaviors of cleaning staff of Suan Sunandha Rajabhat University towards infectious and hazardous waste management.

## RESEARCH METHODOLOGY

This study was a survey research conducted in order to apply the result in training the cleaning staff of Suan Sunandha Rajabhat University in managing infectious and hazardous wastes of the university. Questionnaire was utilized as the research tool for collecting the data with the survey sample size of 46 respondents. The collected data was tested for completeness and analyzed with statistical program package.

## FINDINGS

The study found that the majority of the respondents was male with 54.30 percent. An average age of all respondents was 46.52 years old (58.70 percent). Fifty percent of the respondents obtained primary school level, and all are Buddhist. Additionally, an average year of working experience as a cleaning staff was 7.60 years.

Furthermore, the study discovered awareness of the respondents towards infectious and hazardous waste management. In term of identification of the waste at point of production, the study revealed high average mean of awareness towards identification of the waste at point of production at 4.09, with an S.D. of 0.92. Regarding ways to collect infectious and hazardous waste, In general, the respondents showed high average mean of awareness towards ways to collect infectious and hazardous waste at 3.96, with an S.D. of 0.99. For the transport of infectious waste, Overall, the respondents had high level of awareness towards the transport of infectious waste at a mean of 3.93 and an S.D. of 1.14. In infectious and hazardous waste elimination and disposal, In general, the respondents had high average mean of awareness towards infectious and hazardous waste elimination and disposal at 3.86 with an S.D. of 1.05. The study reported that an average mean of all main items was 3.96 with an S.D. of 0.96.

However, after grouping the respondents by use of mean and standard deviation, the analysis reported that 43.50 percent of the respondents had low level of awareness towards infectious and hazardous waste management. Another 37.00 percent showed their medium level of awareness. The rest of them, 19.60 percent, had the lowest level of awareness. This was shown in Table 1.

**Table 1** Overall Level of Awareness towards Infectious and Hazardous Waste Management

Level of Awareness towards Infectious and Hazardous Waste Management	Number of Respondents	Percentage
Lowest	9	19.60
Low	20	43.50
Medium	17	37.00
<b>Total</b>	<b>46</b>	<b>100.00</b>

Regarding the behavior of the respondents towards infectious and hazardous waste management, the study found that the respondents had proper preparation at a mean of 3.76 and an S.D. of 1.25 about receiving advice and guideline for practices. The following item receiving medium level included using protective mask during work (mean = 3.37, S.D. = 1.33), wearing gloves (mean = 3.30, S.D. = 1.63), wearing closed, puncture and fluid resistant shoes (mean = 3.28, S.D. = 1.31), and dressing in impermeable full sleeve gown (mean = 3.28, S.D. = 1.48). Generally, the preparation of the respondents about infectious and hazardous waste management was in a medium level (mean = 3.40, S.D. = 1.20).

In term of the behavior at work of cleaning staff, the study found that an average mean was high, as shown in Table 2.

**Table 2** Respondents' Behavior at Work of Managing Infectious and Hazardous Waste

<b>Respondents' Behavior at Work of Cleaning Infectious and Hazardous Waste</b>	<b>Mean</b>	<b>S.D</b>
The respondents had an immediate wash at any parts of the body once having direct contact with infectious waste.	4.11	0.94
Common storage point was located in separation from storage point of other types of waste.	3.85	1.13
Sharps waste should be segregated from non- sharps waste before collecting process.	3.80	1.24
Container for non- sharp devices should be strong, leak- proof red opaque plastic bags with lid.	3.70	1.34
Common storage point should be located in a safe distance from sewer.	3.65	1.28
There must not be a mixed use of container for infectious and hazardous waste with other types of waste.	3.50	1.32
Specific routes and times must be planned in the process of infectious waste transport and the transport must be direct to the storage point.	3.50	1.45
Container for contaminated sharps should be rigid and impermeable.	3.46	1.36

Overall, the respondents' behavior showed high mean value in managing infectious and hazardous waste (mean = 3.52, S.D. = 0.99).

Lastly, the study covered the result of cleaning work addressing the management of infectious and hazardous waste. An average mean was 3.53 with an S.D. of 1.02. Each item was ranked respectively: the respondents were injured during collecting the waste such as needlestick injuries (mean = 3.87, S.D. = 1.06); the respondents' sickness as an effect of collecting the waste (mean = 3.61, S.D. = 1.20); the respondents immediately met medical staff after getting injured or sick from collecting the waste (mean = 3.11, S.D. = 1.55).

## DISCUSSION

Based on the findings of this study, it could be concluded that the majority of the university cleaning staff, or approximately 80 percent, were aware of problems concerning infectious and hazardous waste at low level. For the behavioral practices of the infectious and hazardous waste management, most of the cleaning staff were found not wearing proper clothing at work. This could lead to risk to the health condition of the staff. Staff dealing with infectious waste must be provided trainings on all aspects in the infectious waste management, including self- preparation before and after work. Plan, policy and appropriate procedure of infectious and hazardous waste management could be formed.

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