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**ANALYSIS OF LINEN MANAGEMENT EFFORTS IN MENUR  
MENTAL HOSPITAL SURABAYA IN 2022**

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**ABSTRACT**

Handling of linen and supporting facilities for linen management are not adequate at Menur Mental Hospital Surabaya. That condition causes clean linen to contain 500 CFU/Cm<sup>2</sup> of bacteria. The purpose of this study is to identify and analyse using SWOT analysis. This type of research uses a descriptive research design. Research variables include linen management, infrastructures, building space construction, personal hygiene, and personal protective equipment. Data collection techniques in this study are interview, observation, documentation and measurement techniques. Data analysis in this study is using SWOT analysis. The results show that the stages of transportation, receiving, washing, drying, ironing, packaging, storage and distribution had met the requirements. The stages of collecting, sorting, soaking has not met the requirements. Facilities for supporting linen management and personal protective equipment meet the requirements. Personal hygiene officers don't meet the requirements. The quality of clean linen produced by the laundry installation is not in accordance with the requirements of the Regulation Minister of Health Republic Indonesia Number 7 of 2019. The SWOT analysis in this study is located in quadrant II using the Conservative strategy. The conclusion of this study is that the management of linen, infrastructure, building space construction has met the requirements and the personal hygiene of the officers has not met the requirements. The linen management position at Menur Mental Hospital Surabaya is located in quadrant II.

**Keywords:** *Linen, Management, Quality, Supporting factors.*

**BACKGROUND**

The implementation of sanitation management activities in hospitals is one of the efforts to manage linen in the laundry installation (Alifah et al., 2019). The results of the 2019 Health Facilities Research show that 80% of Indonesian referral hospitals have separate infectious and non-infectious linen rooms, 80% have dirty linen rooms, 57% have ironing rooms, 68% have laundry facilities, 62% have draining rooms, 78% have linen carriage room. Non-referral

hospitals 76% have separate infectious and non-infectious linen rooms, 75% have dirty linen rooms, 55% have ironing rooms, 45% have laundry facilities, 76% have linen cart rooms.

Linen management must be of good quality and in accordance with linen service standards according to the Regulation of the Minister of Health of the Republic of Indonesia in 2019. Linen management that is not in accordance with standard operating procedures (SOP) can have a negative impact on human health and the environment. Linen management in hospitals is influenced by several factors, namely, the characteristics of linen management officers (characteristics of age, education, years of service, and training), facilities and infrastructure to support laundry installations, construction of hospital laundry rooms, personal hygiene officers, and availability of protective equipment (Mukhtar et al., 2018).

Based on a preliminary survey conducted, Menur Mental Hospital Surabaya has a special room for linen management. In the process of collecting linen, linen is not counted and recorded at the source. At the linen transport stage, the stroller is not washed with disinfectant after being used to transport soiled linen. Linen sorting stage, when sorting takes place non-infectious linen is placed on the floor. Linen washing stage, Infectious linen washing is not carried out in a special room. In the storage stage, the linen storage room is not exposed to air conditioning. The distribution stage, clean linen distribution officers and linen collection officers were no different. The results of microbiological examinations at the Surabaya Health Laboratory on linen samples in August and November 2019 with inspection results of 80 CFU/100 Cm<sup>2</sup> and 48,500 CFU/100 Cm<sup>2</sup>. In February and July 2020, the inspection results were 6,100 CFU/100 Cm<sup>2</sup>, and 64 CFU/100 Cm<sup>2</sup>. In October 2021, the results of the inspection were 138×10<sup>3</sup> CFU/100 Cm<sup>2</sup>. In February 2022, the results of the examination were 500 CFU/Cm<sup>2</sup>. The results of the microbiological examination of the linen did not meet the requirements according to the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019, namely the bacterial standard limit for linen does not contain 20 CFU/100 cm<sup>2</sup>.

Hospital laundry facilities and infrastructure, there is no separate room available according to use, such as no separate infectious and non-infectious linen washing rooms available, no storage room and clean trolley decontamination, no linen distribution room and no linen repair room. The laundry installation is not yet equipped with a special warehouse to store chemicals for washing linen. Laundry wastewater has not been pre-treated before being sent to the wastewater treatment plant. Regarding the personal hygiene of linen management officers, officers have not carried out regular health checks and have not received hepatitis B immunization every 6 months.

From the problems above, the researchers are interested in conducting research with the title "Analysis of Linen Management Efforts in Menur Mental Hospital Surabaya in 2022".

## **RESEARCH METHODS**

This type of research uses a descriptive research design. This research was conducted at the Menur Mental Hospital in Surabaya. The research variables include linen management, infrastructure, building space construction, personal hygiene, and personal protective equipment. Data collection techniques in this study are interview, observation, documentation and measurement techniques. Data analysis in this study is using SWOT analysis.

## **RESULT**

### **Overview of Linen Management in Menur Mental Hospital Surabaya in 2022**

The management of linen at the Menur Mental Hospital in Surabaya has met the requirements in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019 including the stage of transporting linen with a percentage of 75%, the stage of receiving linen with a percentage of 75%, the stage of washing linen with a percentage of 67%, and the stage of drying linen with a percentage of 100%, the stage of ironing and folding linen with a percentage of 100%, the stage of packaging linen with a percentage of 100%, the stage of storing linen with a percentage of 83%, the stage of distributing linen with a percentage of 67%. The stage of collecting linen with a percentage of 25%, the stage of sorting linen with a percentage of 50%, the stage of soaking and disinfecting linen with a percentage of 50% did not meet the requirements.

### **Linen Management Supporting Facilities**

The location of linen management with a percentage of 64%, the provision of clean water with a percentage of 67%, the availability and maintenance of linen management machines and tools with a percentage of 80% the wastewater management system in the laundry installation with a percentage of 67% meets the requirements.

### **Laundry Building Room Construction**

The construction of the laundry room includes walls, floors, ceilings, doors, ventilation and roofs with a percentage of 100% eligible.

### **Personal Hygiene Linen Management Officer**

Personal hygiene of linen management officers with a percentage of 33% did not meet the requirements.

### **Availability and Use of Personal Protective Equipment for Linen Management Officers**

The availability and use of personal protective equipment for linen management officers with a percentage of 88% met the requirements.

### **SWOT Analysis Calculation of Linen Management**

The relative position of linen management at Menur Mental Hospital Surabaya is in Quadrant II (conservative) with coordinates  $X = -0.2$  and  $Y = 0.8$ . The position of the development strategy in diagram II is S-T.

## **DISCUSSION**

### **Linen Management Overview**

The management of linen at the Menur Mental Hospital in Surabaya is not in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019 concerning hospital environmental health requirements which states that at the time of collection of linen, infectious and non-infectious linen are separated starting from the source

and putting the linen into a plastic bag according to the type. Based on the results of research conducted by researchers at the Menur Mental Hospital in Surabaya, at the linen collection stage, linen is not recorded in the source room. This is in line with research conducted by (Agustiani dkk, 2019) at the BLUD of Sekarwangi Hospital based on the results of interviews, observations and document reviews, almost all rooms do not count and record dirty linen in the room, no bag closure/sealing, no labelling on bags. .

Management of linen that is not in accordance with standards has a negative impact on patients and linen management staff. In facilitating the linen washing process, one of the methods that must be done is to do the linen sorting process first. Based on the results of the study, it is known that the linen sorting process in the laundry installation of Menur Mental Hospital Surabaya is distinguished by infectious and non-infectious linen. At this stage, the linen sorting process is also carried out by colour, but the linen officer does not select by colour but by the degree of dirtiness. This is not in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019, which states that linen sorting is carried out based on colour as well as to maintain linen quality.

The quality of clean linen distributed by the laundry installation of Menur Mental Hospital Surabaya still contains 500 CFU/cm<sup>2</sup> of bacteria. This is due to the inaccuracy of handling dirty linen in the laundry installation. In addition, the use of chemicals such as detergents and disinfectants that are not in accordance with the amount of linen and the level of soiled linen can also affect the bacteriological quality of clean linen. Linen containing bacteria that exceeds quality standards can potentially increase the spread of microorganisms, causing nosocomial infections.

### **Linen Management Supporting Facilities**

Facilities and infrastructure at the laundry installation of Menur Mental Hospital Surabaya include the location, tools and materials used for the implementation of linen management in the hospital. The availability of facilities and infrastructure for linen management is not adequate in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019. The linen management room has not been separated according to its function, such as the infectious and non-infectious linen washing rooms. The research is in line with research conducted by (Ardrianti et al., 2021) in the laundry installation of the Permata Hati Hospital, describing the hospital's laundry installation building as not meeting the standards. There is only 1 room in this installation, where all activities are carried out in the same room. Infectious linen rooms and non-infectious linen rooms that are not distinguished can lead to cross-contamination of linen. The laundry installation of the Menur Mental Hospital in Surabaya is not yet equipped with a sewing machine. Research conducted by (Retika dkk, 2021) found that the facilities that were not yet available for linen management at the Pringsewu Hospital laundry installation were sewing machines to repair damaged linen. Laundry installation that is not equipped with a sewing machine, when clean linen is found torn, it cannot be repaired because there is no sewing machine available to repair linen.

### **Laundry Building Room Construction**

Laundry room is part of a hospital building with the category of operational support services with certain technical requirements. The laundry room in the hospital can accommodate service needs whose physical facilities meet safe standards. Based on the results of research related to the construction of the Menur Mental Hospital Surabaya laundry room including floors, walls, roofs, ventilation, ceilings, doors, it meets the requirements in accordance with the Regulation of the Minister of Health of the Republic of Indonesia Number 7 of 2019 so as to be able to support linen management to produce linen quality. good and in accordance with the requirements.

### **Personal Hygiene Linen Management Officer**

The linen management officer at Menur Mental Hospital Surabaya does not receive hepatitis B immunization every 6 months and has not carried out regular health checks because the hospital has not facilitated these health services. Laundry workers who handle soiled linen are always in contact with materials and breathe air contaminated with pathogenic germs(Mungestie,t al.2016). Research conducted by (Agustiani et al., 2019) on the personal hygiene of linen management officers at BLUS Sekarwangi Hospital obtained a percentage of 75%, this is not in accordance with linen management guidelines because not all linen management officers have not received Hepatitis B immunization.

### **Availability and Use of Personal Protective Equipment for Linen Management Officers**

The availability of Personal Protective Equipment for Mental Hospital in Surabaya has met the requirements, but the linen management officer does not wear glasses when the linen management takes place because according to the officer it is considered to hinder vision. Improper use of personal protective equipment or even non-compliance by officers in the use of personal protective equipment can increase the risk of disease transmission. Research conducted by (Nurmandhani et al., 2017) revealed that regarding the compliance of linen management officers at the Semarang City Hospital to linen guidelines, most of the respondents were obedient, but there were still some respondents who were not compliant in using PPE.

### **Linen Management SWOT Analysis**

From the calculation of external and internal factors, it can be seen that from external factors, linen management has a greater opportunity value than the threats faced, and from internal factors, linen management has greater weaknesses than strengths. From the SWOT assessment that has been carried out, it can show the following results:

1. Analysis of the value of the calculation on external factors of linen management at Menur Mental Hospital Surabaya shows a total score of 5.6 opportunities and 4.8 threats. Where the opportunities for linen management are greater than the threats faced. The difference in the total score between opportunities and threats is 0.8. It can be seen that the opportunity for linen management is 0.8 points greater than the threats faced.
2. Analysis of the value of the internal factors of linen management at Menur Mental Hospital Surabaya showed a strength score of 5.2 and a total weakness score of 5.4. the difference between strengths and weaknesses is – 0.2.

Linen management at Menur Mental Hospital Surabaya is located in quadrant II Where in this quadrant uses a strategy of optimizing strengths by taking advantage of opportunities (S-OT

strategy. The S-T strategy is utilizing the strength of linen management in the laundry installation at Menur Mental Hospital Surabaya to deal with threats. The ST strategy can be done in the following ways:

1. Funds/budgets that have been provided for linen management can be utilized optimally to complement the supporting infrastructure for linen management in order to prevent nosocomial infections and environmental pollution.
2. Utilizing standard operating procedures and job descriptions for linen managers so as not to reduce hospital accreditation.
3. Utilizing human resources/organizations according to their duties and authorities for the management of linen according to the requirements to prevent environmental pollution and nosocomial infections.

Tabel 1. Matrix SWOT

<b>Internal Factor</b>	<p><b>Strength</b></p> <ol style="list-style-type: none"> <li>1. Standar operating procedures for linen management</li> <li>2. The existence of Human Resources</li> <li>3. There is a strategic location</li> <li>4. There is a Job Description.</li> </ol>	<p><b>Weakness</b></p> <ol style="list-style-type: none"> <li>1. Linen management is not in accordance with procedures</li> <li>2. Inadequate infrastructure</li> <li>3. Lack of compliance of linen management officers</li> <li>4. Lack of socialization regarding linen management procedures both in the room and in the laundry installation</li> <li>5. Lack of supervision of laundry officers by sanitarian officers</li> <li>6. There is no health service from the hospital regarding hepatitis B immunization for linen officers</li> <li>7. There are no awards and sanctions for employee work performance</li> </ol>
<b>Eksternal Factor</b>	<p><b>Strategy S-O (Strength-Opportunities)</b></p> <ol style="list-style-type: none"> <li>1. Utilizing a solid organizational structure and independent installations, to increase collaboration between agencies/institutions in optimizing the linen management system</li> <li>2. Optimizing the existing budget for providing health service facilities so that human resources/officers can get hepatitis B</li> </ol>	<p><b>Strategy W-O (Weakness-Opportunities)</b></p> <ol style="list-style-type: none"> <li>1. Increase cooperation with cross-sectors to form a more flexible bureaucratic system, in support of linen management</li> <li>2. Give awards to employees who excel in realizing environmental health condition</li> <li>3. Improving health services to realize the health of linen management officers in accordance with the Minister of Health of the Republic of Indonesia No. 7 Years 2019</li> <li>4. Increase compliance and awareness of officers, socialization and supervision of linen management officers through</li> </ol>
	<p><b>Oppurtinities</b></p> <ol style="list-style-type: none"> <li>1. There is cooperation with 3rd parties regarding machine maintenance and environmentally friendly detergents</li> <li>2. There is a budget from the hospital</li> <li>3. There is a training place to improve linen management skills</li> <li>4. Regulation of the Minister of Health of the Republic of Indonesia No. 7 years</li> </ol>	

2019	immunization 3. Optimizing training so that human resources/linen management officers are more trained to improve quality linen management services	training so that the budget funds can be utilized optimally and linen management in accordance with the requirements of the Minister of Health of the Republic of Indonesia No. 7 Years 2019
<p><b>Threats</b></p> <ol style="list-style-type: none"> <li>1. Pollution of the hospital environment</li> <li>2. Nosocomial infections</li> <li>3. Consequences of decreasing hospital accreditation</li> <li>4. Termination of the work contract of the linen management officer</li> <li>5. High operational and maintenance costs</li> </ol>	<p><b>Strategy S-T (Strenght-Threats)</b></p> <ol style="list-style-type: none"> <li>1. Funds/budgets that have been provided for linen management can be utilized optimally to complete supporting infrastructure for linen management in order to prevent nosocomial infections and environmental pollution.</li> <li>2. Utilizing standard operating procedures and job descriptions for linen managers so as not to reduce hospital accreditation.</li> <li>3. Utilizing human resources/organizations according to their duties and authorities for the management of linen according to the requirements to prevent environmental pollution and nosocomial infections</li> </ol>	<p><b>Strategy W-T (Weakness-Threats)</b></p> <ol style="list-style-type: none"> <li>1. Equip inadequate infrastructure</li> <li>2. Improve organizational bureaucracy to support linen management</li> <li>3. Improve the compliance of linen management officers to prevent nosocomial infections</li> </ol>

## CONCLUSION AND RECOMMENDATION

Linen management at Menur Mental Hospital Surabaya at every stage there is a stage of handling dirty linen in the room and in the laundry installation that is not in accordance with applicable operational standards. The supporting infrastructure for linen management at the Menur Mental Hospital in Surabaya is not adequate, such as the management room which is not in accordance with its function. The construction of the laundry room including floors,

ceilings, roofs, building walls, doors and ventilation is well structured. Personal hygiene linen management officers have not received health service facilities. The availability of Personal Protective Equipment is adequate but some officers have not used PPE (goggles) completely. SWOT analysis on linen management at Menur Hospital Surabaya is located in quadrant II which means it can optimize strengths with existing opportunities through the ST (strength-threats) strategy. It is hoped that the hospital will facilitate the room according to its utilization and function and facilitate health services for linen management officers. The linen management officer must verify the performance of the officers regarding the handling of dirty linen at each stage.

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