

Evaluation of sanitation in the Operating Room Ibnu Sina Hospital Gresik East Java Indonesia

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Abstract:- Hospital as a health care facility can be a place of disease transmission and nosocomial infections in patients and health care workers . Hospitals function in addition to providing health care to the patient , also in society in order to stay healthy . These conditions allow the presence of both risk factors for disease transmission to health care workers in hospitals and hospital visitors . Nosocomial infection is an indicator of poor sanitation in the hospital . This study aimed to evaluate the implementation of sanitation in the operating room at Ibn Sina Hospital Gresik with standard No. Ministry of Health Republik Indonesia . 1204/Menkes/SK/X/2004 on Hospital Environmental Health Requirements

The study was observational , descriptive explaining the process of the implementation of sanitation in the operating room Ibn Sina Hospital Gresik . The study was conducted January - February 2014 . Results of the study by calculating the Pearson correlation is higher the humidity the possibility of germs figure the greater the room air , the higher the percentage scoring at the lower rate lighting germs room air , the higher the percentage figure scoring on the lower floor room air germ rate , the higher the percentage figure scoring on the AC , the lower number of bacteria room air , the higher the percentage figure scoring on the wall , the lower the number of germs room air , the higher the operating room air temperature , the lower the number of germs room air . Health care workers at hospitals need protection from health problems as a result of microbiological hazards and indoor air germ rate facilities and infrastructure conditions that do not meet the standards.

Keywords:- Evaluation of hospital sanitation , germs in the air , operating room

I. INTRODUCTION

Evaluation of sanitation in hospitals was to determine the risk of disease transmission in the hospital environment, hospital is a health care institution individuals, families and communities with a core medical service curative , preventive and promotive integrated to achieve optimum health status . Hospitals function in addition to providing health care to the patient, also to the people who want to stay healthy . These conditions allow the presence of risk factors for disease transmission to health care workers at the hospital . Disease transmission to health care workers can occur through contact with the patient , as well as existing infrastructure within the hospital environment , such as the presence of objects or tools used for the treatment , healing and recovery of the patient (Emmanuel Kristanti , 2001; Barbara Ferrer *et al* , 2013) . Disease transmission from patient to health care workers in hospitals could result in a decrease in productivity, because many working days are reduced .

According to Mara D *et al* , 2010 and ministry of Health Republik Indonesia , 2001. The quality of the hospital environment must be considered, because transmission can occur through droplet infection -causing germs , airborne or direct contact . The cause of the disease may be in the air , floors , walls and medical equipment . Contaminated environment has a major role as the transmission of the disease and can cause nosocomial infections.

Ibn Sina Hospital Gresik to be competitive in the global era and the development of the Social Security Agency (BPJS) causes high loads hospital services to patients , visitors and employees at the hospital . Health care workers at hospitals need protection from illness and fatigue , as well as the impact of service process facilities and infrastructure conditions that do not meet the standards . Health care workers at hospitals are also facing the danger of microbiology from patients and visitors that would disrupt service .

According to Minister of Health Republik Indonesia , 2007. Hospital not be a safe place for their employees , because many hazardous materials gathered biological , chemical and physical at all times be exposed to the work force . nurse

daily direct contact with patients within 6-8 hours of exposure to pathogenic microorganisms always , so can nosocomial infections occur from one patient to another , or to another nurse .

II. MATERIALS AND METHODS

The study was a descriptive observational study that is an attempt to explain the process of the implementation of sanitation in the operating room Ibn Sina Hospital Gresik in East Java with standard Ministry

of health Republik Indonesia no 1204/MenKes/SK/X/2004 . The unit of analysis is the entire operating room studies I, II , III , IV , V , VI , VII has 7 rooms , 4 sanitation workers , 1 chief operating room , the nurse in charge of the operating room unit amounted to 7 people and 1 person in charge of sterilization .

III. RESULTS AND DISCUSSION

III.1 Humidity

Moisture or humid in the building in the form of water vapor or water droplets , can be felt , seen on the object or attached to the building materials . Moisture in the building structure can affect building materials leading to microbiological and chemical processes , for example by emitting smell and irritant substances or allergens that can affect the health of health care workers in an operating room .

The relationship between health and the humidity is discussion of health and safety sciences (K3) . Working in damp buildings increases the risk to have an impact on health with respiratory symptoms such as cough and asthma , non-specific symptoms include fatigue and headaches . The analysis showed a strong correlation between moisture and health effects (Ministry of Health Republik Indonesia, 2007).

Avoid moisture in the operating room Ibn Sina Hospital Gresik via

- 1 . Noting always positive pressure ventilation
- 2 . Ensure watertight floors and walls
- 3 . Operating room VI Ibnu Sina Hospital Gresik do repairs and avoid leaks

Emanuel Kristanti, 2001 on a study entitled " Assessment of Air Quality Some hospitals in the province of Maluku " , mentions that the humidity level is more than 60 % will lead to the growth of potentially pathogenic microorganisms causing nosocomial infections in patients and health care workers .

III.2 Exposure

Standard operating room lighting according to Minister of Health Republik Indonesia/. 1204/Menkes/ SK / X/2004 is 10000-20000 Lux , because surgery is the work with precision and accuracy are very high . Good lighting can cause eye fatigue , mental fatigue , soreness of the eyes and headaches to vision tool damage and improves workplace accidents .

The lighting in the operating room Ibnu Sina Hospital Gresik to reduce the number of germs room air and protection against health and safety health professionals need to do :

- 1 . Carry out inspection of each operating room lighting 2 times a year
- 2 . Lighting test results 10000-20000 Lux

III.3 Floor

The Ministry of Health and Occupational Diseases 2007, cited the exposure of microbiological pathogens in hospitals in small doses continuous , so these factors must be identified and assessed to determine the level of risk , which is a measure of the likelihood of Occupational Diseases and Occupational Accidents .

Based on the results of Pearson correlation test negative value , meaning the higher the percentage figure scoring on the floor , the lower the number of germs room air , then there must be improved :

- 1 . Investigated wipe the floor 2 times a year
- 2 . Examining bacterial pathogens 2 times a year
- 3 . Perform inspection of gas gangrene 2 times a year 4
- 4 . Periodic health examination in health workers
- 5 . Hepatitis B immunization of health care workers

III.4. Air conditioning

According Ministry of Health Republik Indonesia, 2007 , almost all air-cooled chamber minimal ventilation. This condition makes the air circulation is not smooth and only produce recycled air . When one of the residents carry the virus , the virus automatically be trapped in the room that has the potential to spread to other residents quickly and cause of nosocomial infections in health care workers.

Based on Pearson correlation test , AC variable negative correlation means the higher the percentage figure scoring on the AC , the lower the number of germs room air , Ibnu Sina Hospital Gresik should do :

- 1 . Conditioning treatments every month cleaning disinfection with aerosols (resorcinol , trietylin glycol) ,
- 2 . Treatments every month disinfection electron filter precipitator
- 3 . Perform checks dust levels 2 times a year 4
- 4 . Investigated AC swab 2 times a year
- 5 . Investigated mushrooms 2 times a year
- 6 . Uses UCA (Ultra Clean Air) system and bacterial filter 2 beds tool for the entire operating room

III.5. Wall

Emanuale Kristanti, 2001 ; Mara D *et al*,2010. Carbolic disinfection in isolation ICU Hospital Dr . Moewardi effective germ figure shows the results on the wall and the air , but is not effective on the floor.

Based on the results of Pearson correlation test , it can be seen that the negative correlation value means the higher the percentage figure scoring on the wall , the lower the number of germs room air , then there must be improvements in :

- a. IV operating room immediately made repairs to the leak in the wall
- b . Lining the walls with vinyl material porslin or as high as the ceiling , because it's easier to clean
- c . To examine the wall swab 2 times a year
- d . To examine the number of bacteria in the air of the room 2 times a year
- e . To examine bacterial pathogens 2 times a year
- f . Examination of gas gangrene 2 times a year

III. 6. Temperature

Ministry oh Health Republik Indonesia, 2007." The spread of bacteria in the Air " Environmental factors affecting microbial air is atmospheric temperature , humidity and air pressure . Temperature and relative humidity are two important factors that determine the viability of microorganisms in aerosols . Studies with E. coli and Serratia marcesens indicate that survival is closely related to air temperature. The increase in temperature causes a decrease in survival time .

Operating room Ibn Sina Hospital Gresik require ventilation systems as a means of airflow to flow smoothly by conditioning install air conditioning adequate for a minimum positive pressure of 0.10 mbar .

III.7. Education

.00 Power hospital sanitation is an element (provider) responsible major hospital sanitation services , including complex activities that require qualified personnel with the person in charge of environmental health sanitarian hospital grade B graduate degree in (S1) in the field of environmental health , environmental engineering , biology , chemical engineering , and civil engineering . (Ministry oh Haelh Republik Indonesia, 2007)

From the results obtained questioner sanitary education of the head unit is a graduate of Bachelor of Social that was not relevant to the qualifications , while 3 units sanitation educated staff suitably qualified sanitarian . In 2014 the head of sanitation unit retirement less than 2 years .

PPI Standards (Prevention and Control of Infection) , Standard PPI.1 . mention of Trustees oversees all infection prevention and control activities , qualified practice of infection prevention and control through education , training , experience or certification .

III.8. Materials Disinfectants

Definfektan Forset based chlorine can cause corrosion at low pH or dissolved in acid or hypochlorite. Chlorine can react with organic matter (organic carbon , C - org .) Into organic compounds of chlorination.

The reaction of chlorine are as follows :

- 1 . Concentration of organic substances , high concentrations raise the content of haloform
- 2 . Higher pH , the better haloform reaction .
- 3 . Higher dose of chlorine causes a greater likelihood haloform formed .
- 4 . Reaction with water containing high color (Tannin and Lignin) will form compounds klorolignin very difficult to degrade chlorinated organic compounds that contain a high molecular weight , on the receiving water body can break down into compounds klorolignin with lower molecular weight which is more toxic , mutagenic and carcinogenic .

From the observation of the use of deinfektan Forset table for i 1.5 liters of water , is not appropriate dose , the dosage should be appropriate Forset use , 1 tablet to 1 liter of distilled water deinfektan given the dangers of the use made of the chlorine , the use must be in accordance Forset dose , 1 tablet for 1 liter of distilled water

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