

Research Article**Study the Health status and waste management in Yasuj educational hospitals (Shahid Beheshti and Imam Sajjad) in 2017**

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SUMMARY

Introduction: The hospital is a medical institution that uses diagnostic, therapeutic, health, educational and research facilities to improve patients and hospitalization and provides comfort and safety to their patients and their staff. Increasing and developing health centers in the country has caused Increasing waste materials is a public health problem and their waste products are hazardous to the health of the population. They have the chemical and biological contamination and must be controlled in a special way. Since hospitals are organizations that by providing health care to individuals, in expanding the level of health and the health of the community is important, but due to the nature and diversity of the services they provide, there is a danger to patients, patients, and staff. The purpose of this research is to investigate the health status and waste management of educational hospitals in Yasuj city, as a questionnaire in different sections.

Method: This descriptive and cross sectional study was used to determine the status of the hospital in terms of health and waste management. The questionnaire (the total number of questions 41) was used. This questionnaire was obtained from the health ministry's checklist. The statistical population of this study was the different sections (11 sections) of the teaching hospitals in Yasuj. The responses to the initial questions (very good, good, moderate, weak) and other questions were (yes, no). A tool for collecting this research was a questionnaire that evaluated the status of waste and health. Data obtained from the questionnaire were reflected in the tables and analyzed statistically. As the data collection was an integer, therefore, the analysis of descriptive statistics are used. So, after recording the data in the software, spss 19 was used in computers from the frequency distribution table and also evaluated using parameters such as mean and standard deviation of the community.

According to the results of the questionnaire, the separation of infectious and non-infectious waste was performed on average in most sectors. Also, the contribution of services and nurses was modest in this regard. But the participation of doctors in the separation of infectious and non-infectious wastes was weak in most sectors. And in the rest of the cases related to the state of health and waste management of the hospital, most people had a satisfactory state of affairs. In 100% of the cases, infrared garbage bags are used and 100% of the waste sectors are collected daily. In 90.9% of the sections there are infectious and non-infectious garbage bags available. In 100% of the sectors waste separation is carried out at the start of production in each section.

Conclusion: Based on the results of the study on the health status and waste management of the educational hospitals in Yasuj, the study showed that it had a favorable and acceptable conditions, but due to the number of patients and the presence of various types of diseases in hospitals, there is a need for the cooperation of all personnel, from the services personnel to the doctors in every sections is specially responsible for keeping hygiene and proper waste management.

Keywords: Health, Waste Management, Hospital, Educational

INTRODUCTION:

The hospital is a medical institution that is being built with the help of diagnostic, therapeutic, health, educational and research facilities for the improvement of patients with inferiority and hospitalization, and provides the comfort and safety of patients and their staff (1). The development of health centers in the country, causes an increase in waste products and public waste, and their waste materials are hazardous to the citizens in terms of health. These materials, which have the chemical and biological contamination and which require special control (2). Expansion of the city, increasing population density, population growth, industrial progress and increasing production costs of waste transporting and disposing of waste into an important and complex issue that requires a regular system and the application of special rules. The proper disposal of hospital waste due to direct and indirect hazards for human health , animals and plants and the environment. (3) Some of the problems caused by the collection and disposal of inappropriate waste of the hospital are: environmental pollution due to unpleasant smells and the growth and proliferation of insects and beetles of rodents and worms and the transmission and spread of diseases such as fever, cholera, hepatitis and AIDS (4).

Failure to meet the standards for disposal of these wastes will not only reduce the health of the community, which will also increase the burden on the health facility, and both are contrary to the policies of health brokers. In 1992, the United Nations, the management, it recommended the collection and disposal of waste to all the member states, and also identified every waste producer as responsible for the proper disposal of its waste (5). As noted, hospitals are institutions that provide health care to people, but also due to the nature and variety of services they provide, which pose risks to patients , clients, and employees. (6). For example, an estimated 1.7 million hospitalized patients in the United States each year suffer from infectious diseases, and about 99,000 people die due to such infections, so that the number of deaths from hospital infections than

the number of deaths due to several causes is higher than the top ten deaths in America (7) . Studies in different countries have shown that hospital infections are highly prevalent, with about 5-10% of hospitalized patients in developed countries and about 20% in developing countries with nosocomial infections (8) based on a study by Zareii and his colleagues on the management of hospital waste management in three cities of Amol, Babol and Babolsar in 2012 showed that: in a large proportion, every household produces 360 kg of garbage, 57.3% of which are ordinary wastes, 42.65% infectious and 0.05% of sharp objects says the performance of all hospitals with regard to the collection of waste ten comply with existing standards. Separation of infectious waste in all hospitals is enclosed in yellow nilex bags and is being collected. All hospitals have an interim safety box, which holds objects that do not meet the environmental and health standards (9).According to Desford study, Ireland's health and safety standards in hospitals in Ireland in 2005 showed that: the average health status of the environment in Irish hospitals was 80% (10). Since hospitals are organizations that provide health care to individuals, they play an important role in expanding the health and community environment, but because of the nature and variety of services they provide, they pose risks to patients, clients, and employees, therefore we decided to carry out a research project on the health and waste management status of the Yasuj educational hospitals and, if necessary, provide information to the authorities concerned in order to help improve the health and waste management.

MATERIALS AND METHODS:

This descriptive and cross-sectional study was used to determine the status of educational hospitals in Yasuj in terms of health and waste management. The questionnaire (total number of questions 41) was used. This questionnaire was obtained from the health ministry's checklist. The statistical population of this study was the different sections (11 sections) of the

educational hospitals of Yasuj city ,There were also options for answering questions about elementary questions (very good, good, moderate, weak) and other questions (yes, no). A tool for collecting this research was a questionnaire that evaluated the status of waste and health. Data obtained from the questionnaire were reflected in the tables and analyzed statistically. As the data collection was an integer, therefore, the analysis of descriptive statistics are used. So, after recording the data in the spss 19 software, the computer used the frequency distribution table and also was evaluated using parameters such as average and standard deviation of the community.

FINDINGS:

The results of the analysis of the data of the questionnaire show that in different parts of educational hospitals in Yasuj which have 11 sections, the state of health and waste management are in perfect condition. The data are analyzed according to:

The separation of infectious and non-infectious waste was done on average in most sectors. Also, the participation of services and nurses was modest in this regard. But the participation of doctors in the separation of infectious and non-infectious wastes was weak in most sectors. And the rest of the questionnaire questions that

related to the state of health and waste management of the hospital were most satisfied. Overall, the answers to the questionnaire questions are as follows. In 100% of the sections, yellow bags of infectious waste are used, and in 100% of the departments, waste is collected daily. In 90.9% of the sections there are infectious and non-infectious garbage bags available. In 100% of the sectors, the waste is segregated at the start of production in each part. In 27.3% of the departments, waste is scattered around the site. In 63.6% of the departments, washing and disinfection are carried out after each discharge. In 90.9% of the departments, they know that the hospital has a waste incinerator and that it has a desirable function. In 100% of the sectors, there are garbage storage containers. And the sharp and wastes are collected in a standard box or compartment, and the medical waste recycling ban is also observed. In 81.8% of the departments, the waste-related staff uses personal protective equipment, as well as a well-informed and trained user for working with a non-hazardous device. In 63.6% of the departments, there is a suitable location with adequate space for hazardous waste management, infected and sharp and winning in the origin. In 90.9% of sectors, the types and locations of hazardous waste production listed in the hospital.

Table- Questions related to the questionnaire on health status and waste management in educational hospitals of yasuj

Row	questions	Options	Frequency	percent	Real percentage	The cumulative percentage
1	Is there an infectious and non-infectious waste garbage disposal facility available?	Yes No total	10 1 11	90.9 9.1 100.0	90.9 9.1 100.0	90.9 100.0
2	Have the garbage scattered around the seats?	Yes No total	3 8 11	27.3 72.2 100.0	27.3 72.2 100.0	27.3 100.0
3	Is there washing and disinfection of the place after each discharge?	Yes No Total	7 4 11	63.6 36.4 100.0	63.6 36.4 100.0	63.6 100.0
4	Is there a temporary Do the hospital for hospital waste storage in the city?	Yes No total	4 7 11	36.4 63.6 100.0	36.4 63.6 100.0	36.4 100.0
5	Is the hospital home a burning garbage dump?	Yes No total	10 1 11	90.9 9.1 100.0	90.9 9.1 100.0	90.9 100.0
6	Is the waste incinerator desirable?	Yes No total	10 1 11	90.9 9.1 100.0	90.9 9.1 100.0	90.9 100.0
7	Is there the related staff with personal protection equipment?	Yes No total	9 2 11	81.8 18.2 100.0	81.8 18.2 100.0	81.8 100.0

8	Is there awareness-stricken user for a safe and safe way of working?	Yes No total	9 2 11	81.8 18.2 100.0	81.8 18.2 100.0	81.8 18.2 100.0
9	Is there adequate space for safe disposal of infectious and sharp waste products in droplet production?	Yes No Total	7 4 11	63.6 36.4 100.0	63.6 36.4 100.0	63.6 36.4 100.0
10	Are the types and places of hazardous waste produced in the hospital listed?	Yes No Total	10 1 11	90.9 9.1 100.0	90.9 9.1 100.0	90.9 9.1 100.0
11	Is the smoking ban law in the hospital adhered to?	Yes No Total	4 7 11	36.4 63.6 100.0	36.4 63.6 100.0	36.4 63.6 100.0
12	Are there the law prohibits the supply and sale of tobacco in a hospital buffet?	Yes No Total	7 4 11	63.6 36.4 100.0	63.6 36.4 100.0	63.6 36.4 100.0
13	Is the hospital's collection and disposal network approved by the health authorities?	Yes No Total	8 3 11	72.7 27.3 100.0	72.7 27.3 100.0	72.7 27.3 100.0
14	Have healthy sanitary water pipeline network, with well-established health authorities, has the right pressure without water disruptions?	Yes No Total	9 2 11	81.8 18.2 100.0	81.8 18.2 100.0	81.8 18.2 100.0
15	Is there general cleaning in the hospital?	Yes No Total	10 1 11	90.9 9.1 100.0	90.9 9.1 100.0	90.9 9.1 100.0
16	Are there safe doors and windows are fitted with a healthy net?	Yes No Total	9 2 11	81.8 18.2 100.0	81.8 18.2 100.0	81.8 18.2 100.0
17	Are there dining halls and catering staff with health conditions?	Yes No Total	5 6 11	45.5 54.5 100.0	45.5 54.5 100.0	45.5 54.5 100.0
18	Have refrigerator for food stuffs sanitary and sanitary measures?	Yes No Total	10 1 11	90.9 9.1 100.0	90.9 9.1 100.0	90.9 9.1 100.0
19	Is the floor of the ceiling of the door and window wall a sanitary washcloth and enough space?	Yes No Total	4 7 11	36.4 63.6 100.0	36.4 63.6 100.0	36.4 63.6 100.0
20	The floor of the biochemistry room should be resistant to corrosive substances?	Yes No Total	10 1 11	90.9 9.1 100.0	90.9 9.1 100.0	90.9 9.1 100.0
21	Is the laboratory condition suitable?	Yes No Total	10 1 11	90.9 9.1 100.0	90.9 9.1 100.0	90.9 9.1 100.0
22	The operating room temperature is appropriate and is recorded daily?	Yes No Total	10 1 11	90.9 9.1 100.0	90.9 9.1 100.0	90.9 9.1 100.0

According to the table, as well as the responses given to the questionnaire, 41 questions indicate that the health and waste management status in the educational hospitals in yasuj is satisfactory.

DISCUSSION AND CONCLUSION:

The hospital is a medical institution that uses diagnostic, therapeutic, health, educational and research facilities to improve patients and hospitalization and provides comfort and safety to their patients and their staff. Increasing and developing health centers in the country has caused the increase of waste products is a public health problem and their waste materials are hazardous to the citizens in terms of health. These materials have the chemical and biological contamination and they need to be

controlled in a special way. The health of the environment of the hospitals due to the focus of the center diseases , in these centers are of particular importance since hospitals are organizations that provide health care to individuals, they play an important role in expanding the health and community environment, but because of the nature and variety of services they provide, they create a risk for patients, clients and employees who are seeking to this research project was carried out on the health status and waste management of

Yasuj educational hospitals. In this study and the data obtained from the questionnaire, it showed that in both terms, health status and waste management were at a level desirable and acceptable. The results show that the educational hospitals were in the optimum environment for environmental health, that is, in 11 sections, a high percentage of them had favorable conditions. However, in other studies such as Amrud's study in Environmental Health Management in Qom hospitals showed that overall the environmental health standards were lower than the optimal level, as well as non-governmental and non-medical, and non-teaching hospitals and public health were better than government, educational and specialized hospitals. (19)

At the same time, with more than one-fifth of the number of hospitals in the country, the management of health and safety at work is at the same time as the health and safety of healthcare professionals. In the study of Khaluie in educational hospitals of Kerman University of Medical Sciences, the health status of the environment was generally favorable in all area (18). In other studies, for example, Mossadegh Rad study in Isfahan University (60/80 percent desirable), Desford study in hospitals Ireland (80% desirable), in a study of travelers in East Azarbaiejan province hospitals, Almasi study was conducted in Ilam province educational hospitals regarding the health status of the environment (10, 12, 14). Our study, which is consistent with all studies, except for the study Amrud (11) in Qom province, where environmental health conditions were less than optimal. However, in terms of waste management, which was at the optimal level in Yasuj educational hospitals, in several studies such as Zareii's study on the study of hospital waste in Amol, Babol and Babolsar, it was shown that it is in a favorable situation and complies with the standards, except for one (all this Hospitals have temporary possession of sharp and wicked objects that do not match the distance between places to hospitals in accordance with environmental and health standards (9). Based on the study of Zozuly in the management of waste management of hospitals (Imam, Alavi, Bouali, Fatemi) Ardabil

city has all waste management requirements at the same time, except Imam Hospital, where infectious waste was burned in a double stove burner garbage, and only non-infectious waste was transferred by the municipality to the municipal landfill of Ardabil, in the other three hospitals, despite the separation of infectious and non-infectious waste in production, all waste products were shipped in bulk to the landfill. (11) In Dehghani study in Tehran's medical sciences hospitals, a free study of the waste management situation in Yasuj hospitals had a favorable status for waste management (16). However, in an Amini study on the waste management situation of educational hospitals covered by the University of Medical Sciences and Health Services Urmia treatment was not in desirable condition for different waste management situations. All studies in our study on waste management in educational hospitals in yasuj have been consistent except for cases where their cause was stated. Nevertheless, our study is also consistent with the Amini study in Urmia. Due to the fact that the different conditions of waste management were not favorable in the educational hospitals of Urmia University of Medical Sciences (17). Based on the results of the health and waste management situation in the hospitals, the educational hospitals in yasuj showed that they had quite favorable and acceptable conditions but due to the number of clients and the existence of various types of diseases in hospitals, there is a need for the cooperation of all the personnel, from services personnel to physicians in all sectors, in particular the maintenance of health and proper management of the wastes.

REFERENCES:

1. Abdoli M.A, Waste Management and Healthcare. Tehran: Municipality, December, 1996.
2. Firouz Manesh M, Qualitative and Quantitative Evaluation of the Collection and Disposal of Hospital Waste and Sanitary Welfare Centers in Sanandaj, Third National Conference on the Environment, Proceedings of Volume 3, 10-12 November of the Year, 2000, p.825-831.

3. Centers for Disease Control and Prevention. Healthcare Infection Control Practices Advisory Committee (HICPAC). Draft Guideline for Environmental Infection Control in Healthcare Facilities, 2001;96-101.
4. Henry G, Heinke GW_ Environmental science and engineering. 2nd ed. Englewood, NJ:Prentice-Hall, 1996.
5. Pruss A, Giroult E, Rushbrook D: Safe management of wastes from health-care activities. Geneva: World Health Organization, 1999.
6. Salimi M, Arab M, Akbari F, Zeraati H. A Survey on the status of environmental health management in Qom province hospitals. Journal of school of public Health and Institute of Public Health Research. 2007; 5(3): 59-66.
7. Curtis L. Prevention of hospital-acquired (nosocomial) infections: review of non-pharmacological interventions. J Hosp Infect 2007; 69: 204–219.
8. Allegranzi B, Baghri S, Combescure C, Graafmans W, Attar H, Donaldson L. Burden of endemic health care associated infection in develop countries systematic review and meta-analysis . J Lancet.2011; 377: 228-241
9. Zarei A, Amouy A.I, Dadpoor A.R, Tabasi S ,Observing removal of hospital waste in three cities of Amol, Babol and Babolsar in 2012 ,The 16th National Conference on Environmental Health in Iran. October. 2013, Tabriz University of Medical Sciences and Health Services. Tabriz. 14056.
10. Desford consultancy Limited.2005.Report on a national acute hospitals hygiene audit undertaken on behalf of national hospitals office .health service executive .Ireland .Available from <http://www.hse.ie>.(cited 5 March 2006).
11. Salimi Amroudi M, Arab M, Zeraati H, Farzianpour F , Study the Environmental Health Management Environment of Qom Province Hospitals, Faculty of Public Health and Institute of Public Health Researches Volume 5, Issue 3-Fall 2007.pp.59-66.,
12. Mosaddegh Rad M.A., Shirvani N., Ezati P , Study of Health Status of University Hospitals in Isfahan, 2003, in the Journal of Management and Information in Health Care, Vol. 1, Autumn and Winter 2004, Page 42-49.
13. Mossaferi M, Asghari Jafar Abadi M, Ghanbari ghuzikoli M, Rastgoo S , Analytical Study Type: Research | Article abstract: Environmental Health Conditions of Hospitals in East Azarbaijan Province - 16th National Conference on Environmental Health of Iran October 2013, Tabriz University of Medical Sciences and Health Services Tabriz, Iran 13538.
14. Almasi A, Namdari F , Study of the health status of the hospitals of Ilam province hospitals in 2012 , The 16th National Conference on Environmental Health in Iran 2013, Tabriz University of Medical Sciences and Health Sciences 11429.
15. Zozuly M.A, BagherYar Dabilian M, Review of waste management situation in Ardabil State Hospitals ,The first period , the second issue , the fall of 1988, pages 24 to 34.
16. Dehghani MH, Azam K, Changani F, DehghaniFard E. Assessment of medical waste management in educational hospitals of Tehran University Medical Sciences. Iranian Journal of Environmental Health Science & Engineering. 2008; 5:131-36.
17. Amini Tapuk F, Baqaei R, Ghader Pouri M, Ghanbari M, Shams Pour M, Study of waste management status of educational hospitals covered by Uromia University of Medical Sciences and Health Services in 2010, 16th National Conference on Environmental Health of Iran ,2013, Tabriz University of Medical Sciences and Health Services. 13273.
18. Mehdi Pour Raberi M, Khaluii A, Nakhie N, Nud Moradi H.A , Environmental Health Monitoring in Hospitals Educational Programs of Kerman University of Medical Sciences in 2010, Journal of Health & Health, Vol. 5, NO 2, summer 2014, pp.159-169.