



Assessment of Waste Management in Health Centers in the city of Ardabil

Shayan Khalili Arjaqy and Ebrahim Fataei

*Department of Environmental Sciences,
Ardabil Branch, Islamic Azad University, Ardabil, IRAN*

(Corresponding author: Ebrahim Fataei)

(Received 02 April, 2015, Accepted 15 June, 2015)

(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: Waste management in health centers, database and home health because of their major role in the spread of contagious diseases and environmental pollution due to storage, collection and disposal is of particular importance. This study is a cross-sectional study (cross-sectional), is to be aware of the practices of health maintenance and disposal of wastes, check Lists questionnaire was used. Check list provided in 19 health centers, 16 health centers and 65 health centers in the city of Ardabil were completed through observation and interviews. The results showed that the waste of case centers are infectious waste with 6/15 percent, medicinal and poisonous with 3/0% , general waste (like home) with 79% and 1.5% of waste is sharp. After collecting waste from Imam Khomeini hospital in Ardebil city disinfecting is done by the autoclave. Based on the results obtained and the importance of separation, collection, storage and transport of hospital waste on the health of employees and customers and the public community health, it is necessary to make changes in collection equipment and transportation, temporary storage sites, separation of the through the use of standard containers and bags made appropriate in color.

Keywords: Waste Management of Ardabil health centers.

INTRODUCTION

Medical waste includes waste that with content of environmental hazardous waste, sharp waste, and the waste produced by the disease, treatment, or immunization of human beings or animals or during investigation or the hospital operations (Sadraty *et al.*, 2007]. Health centers as the first level of government services in the city are in charge of presenting health services to the people in the pHC (primary health care) (Pilevary, 1999, Rezai, 2003). Ghahramany *et al* 2013 about the management of waste produced in health centers in Ardabil, reported that a major activity for the reduction, separation and recycling of waste in these centers is not done. And main produced waste with municipal waste is collected and is transferred to disposal of municipal waste (title *et al.*, 2013). Studies of waste produced in 20 hospitals and health center in the city of Acury in Nigeria, by babatola indicated that of total waste generated, 75% of domestic waste, 25% and 5% sharp infectious winner and only 35 percent of these were addressed to separate waste babatola (2006). In another study by Sabooto et al in Yasooj `s medical science University in 1999 the volume of infectious waste as well as pharmaceutical and chemical and sharp waste were examined. The target group in this study was Yasouj public hospitals. The results show that the infectious waste was 1,235 kilograms per liter daily, the amount of sharp garbage was 435 kg and

pharmaceutical waste was determined to be about 52 kg (Proof *et al.*, 1999). The results of Habibzade *et al* about waste management in hospitals of Bukan, Mahabad and Saghez showed that 61 percent of public waste is hospital type , 23% is infections and 16 percent of waste is sharp (Habib Zadeh *et al.* , 2005). The results of Taghi Pour *et al.* (2009) showed that 44/29% of waste in hospitals in Tabriz city of is Infectious, 11/70% is public and 45/0% of waste is sharp (Taghipur *et al.*, 2009]. The results of Sadegh Tabrizi *et al* (2012) showed that in the city of Tabriz, 100% of public and private hospitals use the colored coded bins for collecting infected and general waste separately. In 75% of public hospitals and 37.5 percent of private hospitals infectious waste was observed in public bins and 66.5% of the public hospitals and 25 % of private hospitals, public waste was in infectious waste. Clothes of people responsible for the collection of waste in 100% public and private hospitals were non-standard (Sadeq Tabrizi *et al.*, 2012). In 1992, the United Nations suggested correct management of waste collection and disposal system to all Member States and introduced the producer of waste responsible for the correct disposal of waste (Prussian 1999). Gayatri also on the results of his research stated that insanitary medical waste disposal will bring problems for patients, staff and the public Gayatri *et al.*, 2005. In this context, the waste management of health centers in Ardabil city was studied.

MATERIALS AND METHODS

This was a cross-sectional study to assess the waste disposal system management of Ardabil health centers, 19 health centers, 16 health bases and 65 healths home that in total, including all health centers, health posts and health Home of Ardebil city's subsidiaries were studied. To provide the required information a check list was completed regarding the amount of waste produced, the knowledge of people involved, the standards collection, storage status, temporary storage status, type of collection device and method of disposal of waste collected through observation and interview. To determine the mean values and specific data in questionnaire excel software was used.

RESULTS AND DISCUSSION

The results showed (Table 1), the amount of waste production in the health center is 2.95 kg, in health bases is 17 kg and in home health is 76 kg per day. Infectious waste, pathological in centers was 17 kg, in bases was 3.5 kg and in home health was 45/10 kg per day. Sharp Waste in health centers was 3.5 kg, in health bases was 91/1 kg, and in health houses was 4.3 kg per day. Medical and toxins waste used in health centers was 55/0 kg per day and was not in the rest. Mercury Waste (Malkam, mercury sphygmomanometer, etc.) in health centers was 06/0 kg per day and was not in the rest.

Table 1: Frequency of the waste produced in health centers, Bases and home health in city of Ardabil (kg / d) in 2014.

Total waste	Wastes containing mercury kg	Radioactive waste	Medical , pharmaceutical and chemical toxins waste, kg	Infectious and pathological waste kg	General waste kg	Waste kg sharp	Center
80/31	0/06	0	0/55	17	59/2	3/5	Community health centers
22/41	0	0	0	3/5	17	1/91	Health bases
89/85	0	0	0	10/45	76	3/4	Health homes
192/57 1/92	0/0006	0	0/0055	0/3	1/52	0/0981	average

The results of the study (Table 2) showed that 100% of the sharp Safety box is collected and shipped to the disposal centers. The hygiene and the use of suitable clothing by staff in health centers is 65/52 percent and 75/68 percent in health bases and 5/48 percent in health home. Using trash and standard colored bags for health centers was 5/37 percent, in health bases was 1/42 and in Health Home was 12.20 percent. The results showed for the collection of waste from of the studied various sections, 95% in health centers was done manually and in base and health home it was 100% manually. The results showed that to keep the waste, there was temporarily waste sites in 1/42 percent of health centers, 25/31% of base and 3% of health home. In 100% of health centers and bases and health houses disinfecting of infectious waste is not done. 6.1 percent of the centers use Special vehicles carrying waste and in other, for carrying waste in home health, bases and health homes it was pickup and truck. Infectious and pathological waste produced in health centers is 85/36 percent, health bases is 5/37 and in health home is 12/30 percent that are in collected Bin

and suitable colored -bag with Safety box and then are Excreted And are burned with other normal waste. Alternation collection of waste in health centers is 68 percent daily and the rest is every other day, in health bases is 25% daily, and 25/56 is every other day and other is collected once a week in health homes is 86/13% daily and 46/58% weekly and the rest is collected once a month.

Collecting in these centers is done almost 100% manually and carrying of almost 100% of waste is not done by Special vehicles for carrying hospital waste that According to the approved Commission of the infrastructure, industry and the environment, vice president planning and strategic monitoring, Hospital waste producing centers are required to comply with the terms of waste management and the use of vehicles for transportation (strategic presidential commission (2007). Infectious and pathological waste with a total of 96/30 kg per day for health centers was 17 kg and for health bases was 3.5 kg in a day As well as general waste in centers was 2/59 kg per day and in health bases was 17 kg per day.

Table 2: Frequency percent of general profile of the personnel of health centers, bases and health home in city of Ardabil in 2014.

Center	Population coverage	The number of customers	Number of Staff	The number of centers disinfecting system	Centers have temporary storage location	Use safety box	Trash bins and colored bags	The use of clothing for those responsible for collecting	The percentage use of mechanical device to collect waste	Use the vehicle to transport waste from the center
Rural and urban health centers	254/03	1045	281	0%	42%	100%	42/1%	52/65%	5.2%	5.2%
Health bases	162945	727	58	0%	31%	100%	37/5%	68/75%	0%	0
Health home	79060	837	138	0%	03%	100%	37/5%	48/5%	0%	0
average	496108	2619	477	0%	25/3%	100%	30/63%	56/63%	1.6%	1.6%

With the study that was performed by the Fazl Zadeh *et al* in 1388 in 14 health centers and 14 health bases in Ardabil stated that The daily production of infectious waste in health centers is 55/13 kg and in health bases is 155/1 kg per day, and the amount of normal waste produced by health centers is 45/36 kg per and in health bases is 2 / 11 kg per day, and reflects similar findings in this regard. (Fazl Zadeh Doyle, 2009). The amount of waste containing mercury which amounts to 6.0 kg per day, mainly enters through dental unit into wastewater or even is collected or excreted with normal waste. The results show that 100% of the studied hospitals use safety box containers, Mitha and Anglhard research in this area suggests that the most attention in the medical waste and medical health centers is to collect sharp objects separately (Mitha, *et al.*, 2005; Anglhard *et al.*, 2003]. The results show that only 63/56% of the personnel involved in the collection and transportation of hospital waste use appropriate clothing and facilities. The results of Birpinar *et al* (2009) in Istanbul, Turkey, given that only 77 percent of employees use appropriate personal protective equipment That do not match with the conditions and standards of the World Health Organization (who) (Byrpnar *et al.*, 2009).

CONCLUSIONS

Finding the results obtained in this study indicate that the management of the waste produced in health centers and health bases and health home in Ardabil is an average of 92/1 per kg per that 3.0 kg of the waste is infectious, which does not have favorable conditions for the collection, storage, transportation, with

domestic waste. Use appropriate containers and colored bags is 63/30% healthy and temporary storage location is 3/25 healthy, Despite the legal obligation to use disinfecting system suitable with production capacity, especially for active centers with a high volume of medical waste, the basic measures are not taken that should be followed by the relevant and responsible organs. Providing Vehicle and using trained people are necessary. Presenting Regular programs, training, follow-up and monitoring the implementation of a public Circulars and available standards-could help to solve this problem to make.

REFERENCE

- Pilevari, Syrus, (1999). City Health Network, published by UNICEF, the summer of 1999.
- Rezaei Shirpak, Khosro, (2003). Textbook of Preventive Medicine, Volume 2, published by Ilia, 2003.
- Sabooti, Minou and Mohammadi, Maryam, (1999). New technologies for the disposal of hospital waste, *Yasouj University of Medical Sciences Journal*, No. 7.1999.
- Commission of the infrastructure, industry and the environment, vice president of strategic planning and monitoring, regulation and enforcement, medical waste management methods and dependent waste, 2007.
- Sadegh Tabrizi, Javad; Taghipur, Hassan, Seifi, Samira and Amini, Hassan., (2012). Check the status of waste separation and collection of all public and private hospitals in Tabriz 2012, the Sixteenth National Congress of Environmental Health, 1392, Tabriz, Iran.
- Sadraty, Alireza Mohseni Mohammad Javad, (2007). New technologies for the disposal of hospital waste, waste management congress, 2007, Tehran, Iran.

- Fazl zadeh, Doyle, Mehdi., Sadeghi, Hadi, Hazrati, Sadegh, Alighadr, Morteza. and Habib zadeh, Salim, (2009). Check the status of medical waste management, health centers and health bases in city of Ardabil, Yazd Fourteenth National Conference of Environmental Health.
- Ghahmani, Ahad., Dashti, Fasihi, Mohsen., Pour Ali., Behnam., Alipanah, Azizeh and Alighadr, Morteza., (2013). Assessment of waste management in health centers in Ardabil, the fifth annual Student Research Conference, University Research Committee medical sciences.
- Babatola jo, (2008). A study of hospital waste generation and management practice in akure, nigeria, African Research Review Vol. **2**(3) 2008: pp. 292-305.
- Birpinar ME, Mehmet Sinan B, Tuiba E. (2009). Medical waste management in Turkey: A case study of Istanbul. *Waste Manag* 2009; **29**(1):445-448.
- Englehardt JD, A.H, Fleming Le, Bean JA. (2003). Analytical predictive Bayesian assessment of occupational injury risk: municipal solid a waste collectors. *Risk Anal.*2003 oct; **23**(5): 917-2.
- Habib Zadeh S, Adib Hesami M, Mahmoudfar Y, (2007). Hospital waste management in Bukan, Mahabad, Saghez and Miandoab hospitals in 1384] Persian. *Sci Res J* 2007; **9**(26): 52-67.
- Gayathri , Patil and Kanala pokhrel. (2005). Biomedical Solid Waste management in a Indian hospital. *Waste manage* 2005; **25**(6): 592-99.
- Meta A , Rrodrigues C , Ghag S, Bavi P, Shenals, Dasturf. (2005). Needle stick injuries in a tertiary care center in mubal. *J Hos Infect.* 2005 Aug; **60**(4): 368-73.
- Pruss A, Giroult E, Rushbrook (1999).:Safe management of waste from health-care activities. Geneva: World health organization, 1999.
- Taghipour H, Mosaferi m. (2009). Chare cterization of medical waste from haspitals in Tabriz, Iran . *Sci otal environ;* **407**: 1527-1535.