ORIGINAL | INDEPENDENT JOURNAL OF ALLIED HEALTH SCIENCES

IJAHS-0289

# AWARENESS ABOUT BIO-MEDICAL WASTE MANAGEMENT AMONG HEALTHCARE WORKERS IN DHQ HOSPITAL FAISALABAD

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**Date of Received:** 08/05/2019 **Date of Acceptance:** 24/08/2019

## ABSTRACT

**Background:** Hospital waste is a special type of waste produced in small quantities carrying a high potential of infection and injury. Inadequate and improper handling of Bio-medical waste can have serious consequences for public health and have a significant impact on the environment. Disposal of Hospital Waste Treatment of waste generated in hospitals using methods that control the spread of diseases. **Objective:** The main objectives of this study were to identify awareness level of healthcare professionals and to identify the preventive measures used for waste management in hospitals. **Study Design:** Cross Sectional Study. **Setting:**DHQ Faisalabad. **Period:** Jun 2017 to Mar 2018. **Method:** This research was conducted and A questionnaire was designed to be filled by 168 nurses working in the hospital. The gathered data was processed and analyzed by SPSS to examine their results and to view. **Result:** The sample size of this research was 170healthcare workers are working in hospitals. The results indicated that different color bags are used to manage medical waste in hospitals. Study shows that 99% of healthcare workers are well aware of the BMW and 78% of nurses have received proper training for BMW management. **Conclusion:** The study showed the results about the knowledge relevant to Biomedical waste management and practices which are used to manage the biomedical waste management.

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**Keywords:** Medical Waste, Bio-medical waste management

**Article Citation:** Taj S. Awareness about Bio-Medical Waste Management among Healthcare Workers in DHQ Hospital Faisalabad. **IJAHS,** Apr-Jun 2020;02(90-96):01-07.

## INTRODUCTION

Hospital waste is a special type of waste produced in small quantities carrying a high potential of infection and injury. Inadequate and improper handling of Bio-medical waste can have serious consequences for public health and have a significant impact on the environment. Disposal of Hospital Waste - Treatment of waste generated in hospitals using methods that control the spread of diseases. In developing countries, there is no knowledge of how to dispose of hospital waste in terms of its separation, collection, storage, transport and disposal. Surveys conducted in Pakistan show that around 2.0 kg of waste / bed per day is produced. Hospital waste includes hazardous or hazardous waste and non-hazardous waste. The different types of waste are: infectious waste, pathological waste, sharp, pharmaceutical waste, genotoxic waste, chemical waste and radioactive waste. Non-risky waste consists of other types of waste, such as food residues, cartons, packaging, etc.[1]

Thus, the unwise treatment of intense waste in the clinic may result in airborne pathogenic microorganisms, which may adversely affect clinical emergency conditions. The risks of human immunodeficiency infection in the network, especially among health care providers, have led to an increase in the risks associated with BMW's mistreatment. This highlights the need to advance and implement technologies for conservation and rational strategies to create waste transfers at various destinations in the health care transport framework. Proper management of medical waste relies on good organizations and associations, as well as adequate development, financing and dynamic

support for prepared and educated employees. Everyone who submits to unsafe waste may be at risk. The basic gatherings of danger are those with medical calls, patients in emergency clinics, guests in emergency clinics, medical staff in medical clinics (clothing, waste handlers and transport), and experts in waste transfer offices. For example, landfills or incinerators, including.[2]

Proper management of medical waste relies on good organization and associations, as well as satisfactory promulgation, financing and dynamic investment of prepared and educated staff. Anyone who is wasted by risk may be at risk. Dangerous principles include those with medical calls, patients in emergency clinics, guests in emergency clinics, workers in medical clinics, and specialists in waste transfer offices, such as landfills or incinerators.

The types of infections that can be transmitted are diverse, but the most critical are hepatitis B, hepatitis C and acquired immunodeficiency syndrome (AIDS). Medical waste will be waste that is created by health care laborers while completing health care exercises in health foundations. Health care specialists produce different sorts of waste over the span of rendering health care administrations. Emergency clinic waste is grouped into medical waste, concoction waste, radioactive waste, cytotoxic waste, pharmaceutical waste and general waste. Medical waste incorporates sharps, lab and related waste, human tissue and bodies utilized for research purposes. Every characterization must be arranged by the recommended rules (Health Professions Council of South Africa, 2008).

### Objectives of the research study

- To identify the awareness level of healthcare professionals towards medical waste management
- To identify the preventive measures used for medical waste in hospitals

## MATERIAL AND METHODS

Present research study was cross sectional. This research was conducted in the DHQ hospital Faisalabad. For this purpose, a questionnaire was developed by using the five likert scale. Data was collected randomly from 168 nurses working in the hospital. Briefly interview survey method was used for the collection of data. Each item has five response options like strongly disagree, disagree, agree, neutral and strongly agree against their perceptions and experiences.

## RESULTS

The descriptive analysis indicated that the respondents between age 18-23 years were 15, 23-28 were 38, 28-33 were 42, 33-38 were 31 and the respondents Above 38 were 48.The results indicated that whose experience between 1-3 years were 26 respondents, 3-6 years were 32 respondents, between 6-9 years experienced respondents were 37 and the remaining 79 respondents were found having the experience more than 9 years.Above table indicated that 121 were found females and the 53 respondents were male in this research.The respondents whose education level is secondary were 13, diploma

**Table 1. Demographic Information**

| Demographic Information | | Results | |
|---|---|---|---|
| | | Frequency | % |
| Age | 18-23 years | 15 | 8.6 |
| | 23-28 years | 38 | 21.8 |
| | 28-33 | 42 | 24.1 |
| | 33-38 | 31 | 17.8 |
| | 18-23 years | 15 | 8.6 |
| Marital Status | Single | 76 | 45.2 |
| | Married | 85 | 50.6 |
| | Widow | 2 | 1.2 |
| | Divorced | 5 | 3.0 |
| Gender | Female | 121 | 69.5 |
| | Male | 53 | 30.5 |
| Education | secondary | 13 | 7.5 |
| | Diploma | 157 | 90.2 |
| | Degree | 3 | 1.7 |
| | Masters | 1 | .6 |
| Job Status | Nurse | 104 | 59.8 |
| | Technician (OT staff, Dispenser etc) | 51 | 29.3 |
| | sanitary workers | 19 | 10.9 |

**Table 2. Knowledge about Biomedical Waste**

| Statement | | Frequency | Percent |
|---|---|---|---|
| Do you know about Bio Medical Waste (BMW) | Yes | 173 | 99.4 |
| | No | 1 | .6 |
| | I Don't Know | 0 | 0 |
| Have you Received any training for BMW management? | Yes | 137 | 78.7 |
| | No | 36 | 20.7 |
| | I Don't Know | 1 | .6 |
| Is present hospital generating BMW | Yes | 156 | 89.7 |
| | No | 9 | 5.2 |
| | I Don't Know | 9 | 5.2 |
| Knowledge about the BMW management categories | Yes | 155 | 89.1 |
| | No | 12 | 6.9 |
| | I Don't Know | 7 | 4.0 |
| Is there any BMW management/ disposal policy currently implemented in your hospital? | Yes | 146 | 83.9 |
| | No | 1 | .6 |
| | I Don't Know | 27 | 15.5 |
| Any health hazard associated with BMW | Yes | 152 | 87.4 |
| | No | 1 | .6 |
| | I Don't Know | 21 | 12.1 |
| Can BMW transmit any disease? | Yes | 171 | 88 |
| | No | 1 | .6 |
| | I Don't Know | 2 | 1.1 |
| Different colored bags are used to dispose BMW | Yes | 171 | 98.3 |
| | No | 1 | .6 |
| | I Don't Know | 2 | 1.1 |
| Guidelines are provided for color coding at work area | Yes | 174 | 100.0 |
| | No | 0 | 0 |
| | I Don't Know | 0 | 0 |
| You can easily Identify all color codes (bags) used for BMW collection | Yes | 173 | 99.4 |
| | No | 1 | .6 |
| | I Don't Know | 0 | 0 |
| Do you know about Safety Precaution about Biochemical waste? | Yes | 171 | 98.3 |
| | No | 1 | .6 |
| | I Don't Know | 2 | 1.1 |
| Do you believe that Biochemical waste can cause serious infectious diseases? | Yes | 174 | 100.0 |
| | No | 0 | 0 |
| | I Don't Know | 0 | 0 |
| Are there any universal standard guidelines about Biomedical waste management / removal? | Yes | 152 | 87.4 |
| | No | 1 | .6 |
| | I Don't Know | 21 | 12.1 |
| Is there any implementation to maintain BMW records at your work place? | Yes | 99 | 56.9 |
| | No | 72 | 41.4 |
| | I Don't Know | 3 | 1.7 |

holders were 157, having degree were 3 and the respondent having master's degree or qualification was only one. The respondents whose job is nursing are 104, 51 technicians, OT staff, dispensers and 19 doing jo as sanitary workers in DHQ hospital Faisalabad.

Above table showed the frequency distribution of knowledge about biomedical waste management. The results indicated that 173 respondents have the knowledge about the biomedical waste management and 1 respondent having no knowledge about biomedical waste management.

137 respondents have the training experience about biomedical waste management, 36 respondents having no training and 1 respondent don't know about the statement156 respondents have knowledge, 9 having no knowledge and 9 don't have any opinion or idea about the statement.12 respondents having no knowledge about biomedical waste management. Moreover, 7 respondents don't know about biomedical waste management categories.1 answered no and 27 answered don't know about the biomedical waste management policy used in the hospital. and 1 respondent having no knowledge about biomedical waste management.152 respondents having health hazards about the biomedical waste management and 1 respondent having no knowledge about biomedical waste management. 21 respondents showed neutral response against the above statement.165 respondents have the knowledge about the biomedical waste management and 9 respondents having no idea about disease transmission during biomedical waste management.

171 respondents have the knowledge about the biomedical waste management and 1 respondent having no knowledge about biomedical waste management and 2 don't know about colored bags used for biomedical waste management.174 respondents have the received or provided guidelines about the biomedical waste management 173 respondents have the knowledge about the biomedical waste management and 1 respondent having no knowledge about biomedical waste management.171 respondents have the knowledge about the biomedical waste management, 1 respondent having no knowledge

**Table 3. Practices used for Biomedical Waste Management**

| Statements | Strongly disagree | disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|
| | Freq % | Freq % | Freq % | Freq % | Freq % |
| Is there any implementation to maintain BMW records at your work place | 0<br>0 | 0<br>0 | 3<br>1.7 | 72<br>41.4 | 99<br>56.9 |
| Do you maintain the BMW at your workplace | 0<br>0 | 4<br>2.3 | 6<br>3.4 | 64<br>36.8 | 100<br>57.5 |
| Segregation of BMW is done at work place according to different categories | 0<br>0 | 0<br>0 | 1<br>.6 | 106<br>60.9 | 67<br>38.5 |
| Proper storage facility provided for collecting and disposing off the BMW at work place | 0<br>0 | 0<br>0 | 0<br>0 | 87<br>50 | 87<br>50 |
| Have you been provided proper equipment / facilities which are used to manage BMW e.g. hub cutter for needles and syringes? | 0<br>0 | 3<br>1.7 | 13<br>7.5 | 79<br>45.4 | 79<br>45.4 |
| Do you regularly use supportive equipment to manage BMW? | 93<br>53.4 | 66<br>37.9 | 3<br>1.7 | 12<br>6.9 | 0<br>0 |
| A separate and isolated area has been designated for BMW management and disposal in hospital | 105<br>60.3 | 68<br>39.1 | 0<br>0 | 0<br>0 | 1<br>.6 |
| Do you practicing correct methods for collecting used disposable plastic items | 0<br>0 | 1<br>.6 | 2<br>1.1 | 82<br>47.1 | 89<br>51.1 |
| Do you Practicing correct method for collecting soiled dressings/plaster casts/linen? | 0<br>0 | 0<br>0 | 0<br>0 | 87<br>50 | 87<br>50 |
| Do you Practicing correct method for collecting sharps and needles? | 0<br>0 | 0<br>0 | 0<br>0 | 87<br>50 | 87<br>50 |
| Do you dispose of needles and sharps to the correct safety box | 0<br>0 | 0<br>0 | 0<br>0 | 95<br>54.6 | 79<br>45.4 |
| Do you recap the needles after use? | 0<br>0 | 0<br>0 | 116<br>66.7 | 57<br>32.8 | 1<br>.6 |

about biomedical waste management and 2 don't have knowledge about the statement174 respondents have the knowledge about the biomedical waste management.152 respondents have the knowledge about the biomedical waste management and 1 respondent having no knowledge about biomedical waste management. 21 respondents don't know about the standards and guidelines about biomedical waste management.99 respondents have the knowledge about the biomedical waste management and 72 respondents having no knowledge about biomedical waste management. 3 respondents remained neutral and answered don't know about BMW management.

The results indicated that 99 respondents strongly agreed with the given statement. 72 respondents agreed with the given statement; 3 respondents marked the neutral response. 100 respondents strongly agreed with the given statement. 64 respondents agreed with the given statement; 6 respondents marked the neutral response. 4 respondents disagreed with statement.106 respondents strongly agreed with the given statement. 67 respondents agreed with the given statement; 1respondents marked the neutral response.

87 respondents strongly agreed with the given statement. 87 respondents agreed with the given statement.79 respondents strongly agreed with the given statement. 79 respondents agreed with the given statement; 13 respondents marked the neutral response. 3 respondents disagreed with statement.93 respondents strongly agreed with the given statement. 66 respondents agreed with the given statement; 3 respondents marked the neutral response. 12 respondents disagreed with statement.105 respondents strongly agreed with the given statement. 68 respondents agreed with

the given statement.89 respondents strongly agreed with the given statement. 82 respondents agreed with the given statement; 2 respondents marked the neutral response. 1 respondent disagreed with statement.76 respondents strongly agreed with the given statement. 89 respondents agreed with the given statement; 8 respondents marked the neutral response. 1 respondent disagreed with statement.87 respondents strongly agreed with the given statement. 87 respondents agreed with the given statement.87 respondents strongly agreed with the given statement. 87 respondents agreed with the given statement.95 respondents strongly agreed with the given statement. 79 respondents agreed with the given statement.57 respondents agreed with the given statement. 116 showed neutral response about the above-mentioned statement.

## DISCUSSION

Oweis et al., 2005,[4] investigated incorrect waste management resulting in biodegradation; an unpleasant smell; and bugs, repair and the development of rodents and worms and the type of abdomen, cholera and hepatitis due to human blood supply Infection spread. Medical waste management is a creative problem that is exacerbated by the lack of useful activities, care and budgeting. An ideal key is the optimal accumulation and exchange of these wastes, as it can directly and cyclically affect health risks, including general health and land.

Al-Khatib, et al., 2009.[5] have analyzed the fact that waste generated by salvage offices is increasingly seen as an annoying problem that can have harmful impacts on the Earth or on people through contact. fast or itinerant. A few health effects, since the introduction in office waste of doctor at risk, consolidate the effects of mutagenic, methanogenic and malignant growth, respiratory damage, the effects of the tangible central framework, the harms of the conceptual system etc. Current and medical waste generates a greater share of what is called "hazardous waste". The age of this waste is and will remain a marvel in progress as long as the human promotion will continue. The age of this waste is and will remain a persistent wonder as human advancement progresses.

Ketlogeswe et al, 2004,[6] review worldwide that the management of hazardous waste has been the subject of much thought since the early 1980s, mainly because of its seriousness and compelling nature. But no special importance has been given to "hazardous waste", substances at risk are considered as substances harmful to the health of individuals, living beings and the planet.

According to Baraka et al., 2006 Reviews, 80% of medical waste is friendly and equivalent to family waste, while the remaining 20% is considered hazardous because it can be powerful, dangerous and radioactive. Heavy waste deals with the vast majority of hazardous waste (up to 15%) from health care. Cutting articles, genotoxic waste, heavy metals (1% each), manufactured mixtures and pharmaceutical products (3%) are the scattered remains of hazardous waste.

Lee et al. In 2007,[7] the evaluation of true plastic waste fragments consisted of cafeteria plastics, cutting elements, medical packaging, blood bags, tubes and IV bags. The huge sources of plastic waste created by the recovery centers were workplaces, offices, workrooms and cafeterias. The introduction of medical waste can lead to illness or damage. As they have shown, all health personnel (e.g, authorities, nurses, subject matter experts and waste management experts), exposed to medical waste, are threatened with death. Care masters dealing with waste containing blood-soaked items from patients in different units of the physician's office must be protected from transmission of hepatitis B. Recovery staff have often been shown to have a high rate of hepatitis B three at higher occasions than common risks.

Jang et al 2006.[8] demonstrated the Interest in the field of execution science among healthcare specialists and general health experts has developed in the previous decade. In 2006, Implementation Science, an open access, peer-investigated online diary, started distribution of articles that explicitly center around expanding learning about strategies for usage inquire about and the interpretation of examination into training. One reason for making another diary was to give a "leader home" for usage investigate since beforehand this examination was distributed over a wide scope of diaries making it hard to get to. Indeed, even now, various articles keep on republishing a few strength territories that try to comprehend the purposes behind execution achievement and disappointment and recognize factors that impact usage adequacy.

Huffman, 1996 inspected that in the previous decade, various precise writing audits were distributed on execution inquiring about the health field. Four of these audits tended to enter territories in execution: best practices in scale-up and manageability of advancements in health administration conveyance and associations; usage forms and the staggered effects on execution viability; the effect of usage on program results; and the center parts required for compelling network-based mediations. In spite of the fact that these audits tended to various inquiries and distinctive kinds of projects, each of the four efficient surveys distinguished eleven basic factors that impact execution: subsidizing, ability capability, work atmosphere, shared basic leadership, coordination with different offices, detailing of undertakings, administration, program champion, management backing, preparing and specialized help.

Azadi et al., 2011.[9] examined based on other distributed examinations, various usage systems, models and hypotheses have been created and used to control execution investigate. One survey discovered tamanol these hypotheses had covering builds and each missed some vital components. Another survey integrated data from 25 execution structures to develop the Quality Implementation Framework, a "theoretical diagram of the basic advances that include the procedure of value usage". The latest efficient survey evaluated the exhaustiveness of 49 existing usage structures to decide the kinds of systems being used, the likenesses and varieties in systems crosswise over developments and whether the systems tended to every one of the ideas that could influence execution of an advancement.

Yadavannavar et al.[10] 2010 demonstrated that a considerable lot of the structures were development explicit and needed center ideas identified with execution. The investigation offered a choice device for scientists and developers that can be utilized to choose a proper system or a blend of structures to direct research or extend execution.

## CONCLUSION

The study showed the results about the knowledge relevant to Biomedical waste management and practices which are used to manage the biomedical waste management. 99% of Technicians, nurse and OTT staff have knowledge and awareness regarding the biomedical waste management. 78% have received proper training for BMWM. 89% of healthcare workers know about different categories of BMW. 88% of staff knows that BMW can cause serious disease. 87% knows about the industry standards about BMW.

## REFERENCES

1. Al-Khatib, I. A., Al-Qaroot, Y. S., & Ali-Shtayeh, M. S. (2009). Management of healthcare waste in circumstances of limited resources: a case study in the hospitals of Nablus city, Palestine. *Waste Manageme.*
2. Azadi, A., Anoosheh, M., &Delpisheh, A. (2011). Frequency and barriers of underreported needlestick

injuries amongst Iranian nurses, a questionnaire survey. *Journal of clinical nursing*, *20*(3 4), 488-493.

3. Basu, M., Das, P., & Pal, R. (2012). Assessment of future physicians on biomedical waste management in a tertiary care hospital of West Bengal. *Journal of natural science, biology, and medicine*, *3*(1), 38.

4. Jang, Y. C., Lee, C., Yoon, O. S., & Kim, H. (2006). Medical waste management in Korea. *Journal of environmental management*, *80*(2), 107-115.

5. Jang, Y. C., Lee, C., Yoon, O. S., & Kim, H. (2006). Medical waste management in Korea. *Journal of environmental management*, *80*(2), 107-115.

6. Ketlogetswe, C., Oladiran, M. T., & Foster, J. (2004). Improved combustion processes in medical wastes incinerators for rural applications. *African Journal of Science and Technology*, *5*(1).

7. Lee, B. K., Ellenbecker, M. J., & Moure-Ersaso, R. (2004). Alternatives for treatment and disposal cost reduction of regulated medical wastes. *Waste management*, *24*(2), 143-151.

8. Oweis, R., Al-Widyan, M., & Al-Limoon, O. (2005). Medical waste management in Jordan: A study at the King Hussein Medical Center. *Waste management*, *25*(6), 622-625.

9. Patil, G. V., & Pokhrel, K. (2005). Biomedical solid waste management in an Indian hospital: a case study. *Waste management*, *25*(6), 592-599.

10. Rao, C. V., & Lei, Z. M. (2007). The past, present and future of nongonadal LH/hCG actions in reproductive biology and medicine. *Molecular and cellular endocrinology*, *269*(1-2), 2-8.

11. Yadavannavar, M. C., Berad, A. S., &Jagirdar, P. B. (2010). Biomedical waste management: A study of knowledge, attitude, and practices in a tertiary health care institution in Bijapur. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*, *35*(1), 170.

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