

## Knowledge, Attitude, Practices among Sanitary Workers Regarding Waste Disposal at Nishtar Hospital Multan

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### Abstract:

*Biomedical waste collection and proper disposal has become a significant concern for both the medical and general community. Effective management of biomedical waste is not only a necessity but also a social responsibility.*

### Keywords

*Sanitary workers, waste management, infectious waste, KAP.*

### Objectives

To determine the knowledge, attitude and practice among the sanitary personnel working at Nishtar hospital Multan.

### Methods

Descriptive observational cross sectional study. Study participants were the sanitary workers performing their duties in the hospital setting.

### Results

Study participants were 75. Out of these 72% were males, and 28% were females. Out of the total, 60% were illiterate, 25% were primary, 9.3% were middle, and 5.3% were matric. Only 36.62% received training for bio—medical waste management. 63.33% received training from master trainer, 13.33% from staff nurse, and 23.33% from doctor.

### Conclusions

The importance of training regarding bio—medical waste management cannot be overemphasized. Lack of proper and complete knowledge about biomedical waste can promote the transmission of different communicable diseases.

### 1. Introduction

Infectious waste is produced in a hospital setting during the provision of medical services to the patients. Meticulous and Proper attention is required for disposal of this infectious waste. Mismanagement regarding waste disposal is a major environmental and public health issue, worldwide<sup>1</sup>.

Infectious waste is composed of materials that are produced from the medical treatment in the medical units such as clinics of medical practitioners, dental sections, and treatment centers for drug addicts, maternity homes, diagnostics laboratories, immunization and scientific research<sup>2</sup>.

Mismanagement of infectious waste results in the environmental pollution and unpleasant odors due to harmful pathogens that may cause many infections such as typhoid, cholera, tuberculosis, and other diseases namely, Hepatitis, HIV, AIDS<sup>3</sup>.

Although, the quantity of infectious waste is less as compared to the overall health care waste, but the poor waste management practices by the health care workers together with mixing of this waste with non- infectious waste contaminates whole lot as infectious waste<sup>4</sup>.

Health workers, patients, waste handlers, waste pickers and general masses are prone to develop these infections. Hence this is an urgent need to have all kinds of wastes be treated properly. Health care waste is the most dangerous waste in the world that needs to be properly disposed of by trained health care staff. Knowledge and safe practices of medical staff is very important while managing this waste<sup>5</sup>.

Recycling and reuse of syringes is one of the serious public health problem reported globally, resulting in potential threats to the general public. The main threat is the needle prick injuries especially

among the health care workers, who are handling the waste. It has been reported that health care waste generation rate range from 0.5 to 2.0 kg per bed per day globally<sup>6</sup>.

Approximately, 1.35 kg/bed/day of waste is produced on average in Pakistani hospitals which produce about 250000 tons of HCW per year. HCW comprises of 15-20% of general waste but due to improper segregation by hospital staff resulting in the contamination of general waste that lead to the emergence of many infectious diseases and other environmental hazards if not disposed properly<sup>7</sup>.

General waste disposal mechanism in communities has not been of standards and is subject to many scavengers, who collect items such as papers and cause spread of many components of trash within the surrounding atmosphere and risking the health of the communities. Hence hospitals which do not have the comprehensive mechanism for waste disposal within their own system such as lack of incineration can lead to open dumping of human organ waste in the communities<sup>8</sup>.

## 2. Materials & Methodology

- 1) **Study Design:** Cross-Sectional, Descriptive Study
- 2) **Duration of Study:** 20 Days (10 May, 2017 to 29 June, 2017)
- 3) **Study Population:** Sanitary Workers at Nishtar Hospital, Multan.
- 4) **Study Area:** Nishtar Hospital, Multan.
- 5) **Sampling Technique:** Non-Probability Convenient Sampling.
- 6) **Inclusion Criteria:** Sanitary worker at Nishtar Hospital, Multan
- 7) **Exclusion Criteria:** Any other worker or worker outside the Nishtar Hospital.
- 8) **Sample Size:** Seventy Five Workers (75) were included in our study.

9) **Data Collection Procedure:** A self-designed Questionnaire was used to carry out the survey after proper informed consent. Data was collected and was analyzed in the Department of Community Medicine, using IBM SPSS Statistics Version 23.0.

## 3. Objectives

- 1) To assess knowledge of Sanitary Workers about Waste disposal at Nishtar Hospital, Multan.
- 2) To determine attitude of mothers regarding waste disposal At Nishtar Hospital, Multan.
- 3) To determine the practices of sanitary workers working at Nishtar Hospital, Multan.

## 4. Results

Study group comprised of 75 persons. 72% were males, and 28% were females (Table1 /Graph1). Mean age was 36.67 with standard deviation 9.919 (Table A). 60% illiterate, 25.33% were primary, 9.33% were middle pass, and 5.33% were matric (Table 2/Pie Graph 2).

When asked about health risks of waste management, 40% answered hepatitis, 26% GI, 4% GI and hepatitis, and 5.33% Tetanus, which shows that more than 50% sanitary workers are not aware about health risks associated with improper waste management. (Table 3/Pie Graph 3).

About the use of self- protective measures, less than 50% knew about the Gloves/masks, only 26.67% knew about the vaccination, 5.33% about long shoes, and 14.67% about Gloves (Table 4/Graph 4).

Respondents when asked about the availability of protective measures to them, 57.33% replied "YES", while 42.67% replied "NO", which is a matter of great concern for the authorities (Table 5 / Pie Graph 5).

As far as the response of the question what type of vaccination hospital workers should receive,

about 29.33% did not know about any type of vaccination workers should receive. Only 24% answered both Tetanus and HBV. 41.33 answered as HBV only. (Table 6 /Pie Graph 6).

When asked whether they should receive vaccination for HBV, and TETANUS, 65% replied “YES”, and 34.67% replied “NO”. (Table 7 /Graph 7).

Regarding status of their own vaccination, “Have you been vaccinated”. Only 45.33% replied “YES”, while 54.67% replied “NO”. (Table 8 /Pie Graph 8) When asked whether they report when they get a needle prick or injury with sharp object. 50.67% replied “YES”, while 49.33% replied “NO”. A matter of great concern. (Table 9 / Graph 9).

After the injury by the sharp the needle or sharp object, only 33.93% of sanitary workers report to doctor only, 51.79% to head Nurse, and only 14.29% to sanitary inspector. (Table 10 / Graph 10).

Response to the question, “do you segregate the risk waste from non- risk waste”? 60% replied in affirmative, and 40% replied “NO” which indicates a positive attitude, on the part of workers. (Table-11 / Graph 11).

Regarding the knowledge about the color coding of waste, 60.33% knew about color coding and 30.67% did not, which is also a matter of great concern for the hospital authorities.(Table 12 / Pie Graph 12) 30.62% of the study group was trained for waste disposal, while, 63.38% was not trained for hospital waste disposal. (Table 13 / Pie Graph 13).

Response of the question “who trained you”, 63.33 got training from master trainer, 13.33% from staff nurse, and 23.33% from doctor (Table 14 /Graph 14 ) When questioned that how often they dispose of waste from ward, 85.33% responded on “daily” basis, while 14.67% responded on “weekly” basis, which is a healthy sign. (Table 15 / Pie Graph 15).

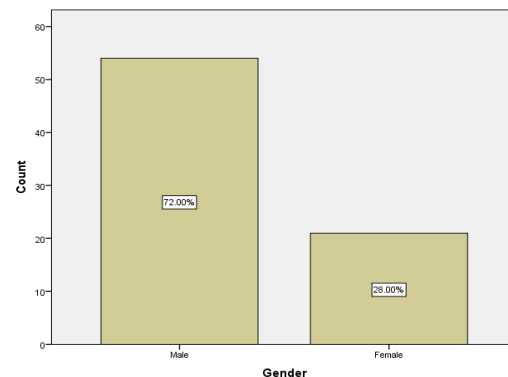
“Which trolley do you use for transportation of the waste” 40% replied as “3 wheeled”, 21.33% replied as “4 wheeled” trolley and 38.67% as “2 wheeled”. (Table 16 / Graph 16).

When questioned about their physical examination, and base-line profile tests, 21.33% replied “YES” while 78.67% replied “NO” and how

often, 21.05 replied monthly, 36.84% annually and 21.05% as half- yearly.( Table 17/ Pie Graph 17, and Table 18 /Pie Graph 18 ). It is very dangerous sign for the hospital authorities, and they must educate their workers as to at least they should undergo their medical examination on regular basis.

**Table 1. Frequency Distribution Table Showing Gender of Sanitary Workers  
N=75**

Gender	Frequency	Percent
Male	54	72.0
Female	21	28.0
Total	75	100.0



**Figure 1. Frequency Distribution Table Showing Gender of Sanitary Workers**

**Table 2. Frequency Distribution Table Showing Educational Status of Sanitary Workers  
N=75**

Educational Status	Frequency	Percent
Illiterate	45	60.0
Primary	19	25.3
Middle	7	9.3

Matric	4	5.3
Total	75	100.0

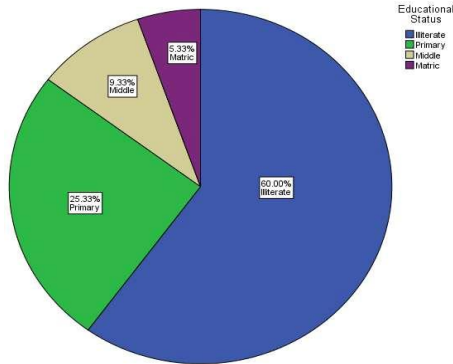


Figure 2. Frequency Distribution Table Showing Educational Status of Sanitary Workers

Table 3. Frequency Distribution Table Showing Health Risks associated with Waste Disposal N=75

Health Risks	Frequency	Percent
GI	20	26.7
Hepatitis	30	40.0
Tetanus	4	5.3
Congo	4	5.3
GI/Hepatitis	3	4.0
GI/Hep/Tetanus	14	18.7
<b>Total</b>	<b>75</b>	<b>100.0</b>

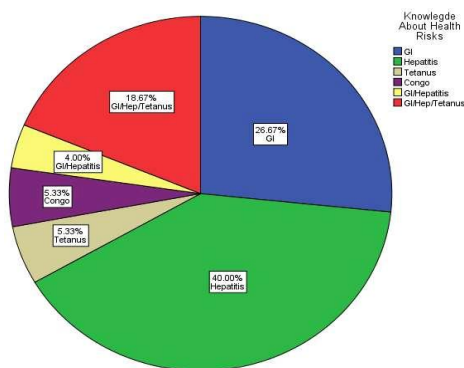


Figure 3. Frequency Distribution Table Showing Health Risks associated with Waste Disposal

Table 4. Frequency Distribution Table Showing Types of Protection Received by the Sanitary Workers N=75

Protection	Frequency	Percent
Vaccination	20	26.7
Gloves	11	14.7
long shoes	4	5.3
Mask	4	5.3
None	4	5.3
Gloves/mask	32	42.7
<b>Total</b>	<b>75</b>	<b>100.0</b>

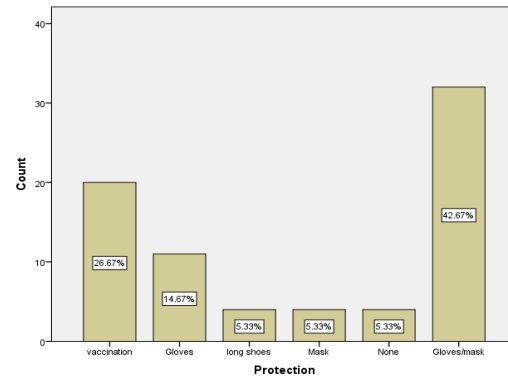


Figure 4. Frequency Distribution Table Showing Types of Protection Received by the Sanitary Workers

Table 5. Frequency Distribution Table Showing Protection Availability to Sanitary Workers N=75

Protection Availability	Frequency	Percent
Yes	43	57.3
No	32	42.7
<b>Total</b>	<b>75</b>	<b>100.0</b>

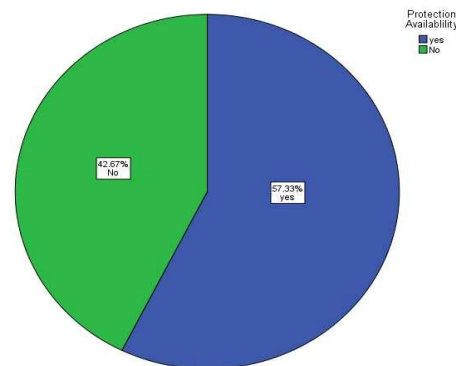
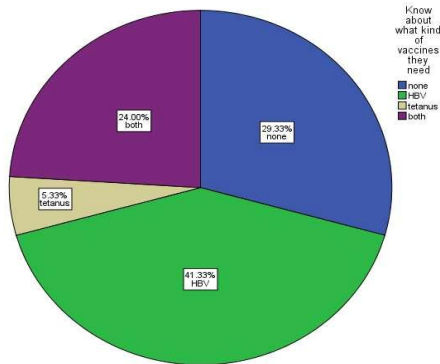


Figure 5. Frequency Distribution Table Showing Protection Availability to Sanitary Workers

Table 6. Frequency Distribution Table showing Knowledge of Sanitary workers about vaccines N=75

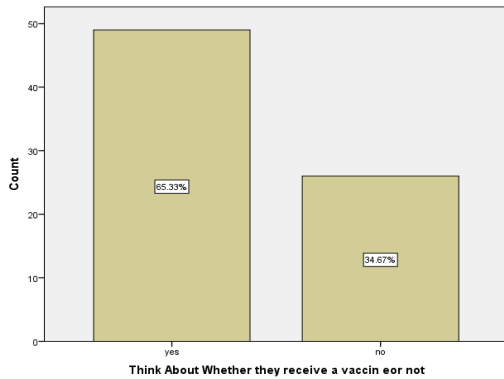
Knowledge About vaccines	Frequency	Percent
None	22	29.3
HBV	31	41.3
Tetanus	4	5.3
Both	18	24.0
Total	75	100.0



**Figure 6. Frequency Distribution Table showing Knowledge of Sanitary workers about vaccines**

**Table 7. Frequency Distribution table Showing Thoughts about Receiving of vaccine M=75**

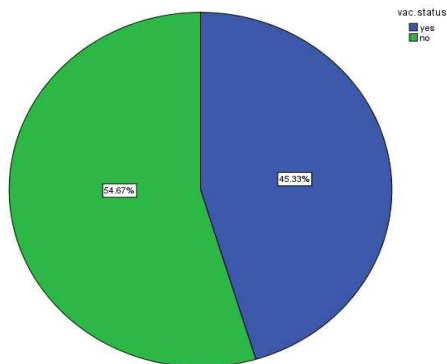
Thoughts about receiving of vaccines	Frequency	Percent
Yes	49	65.3
No	26	34.7
Total	75	100.0



**Figure 7. Frequency Distribution table Showing Thoughts about Receiving of vaccine**

**Table 8. Frequency Distribution Table showing Vaccination status of Sanitary Workers N=75**

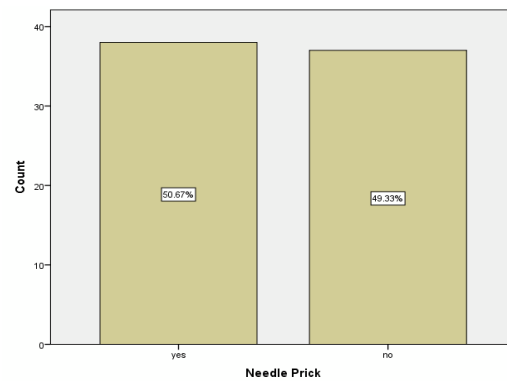
Vaccination Status	Frequency	Percent
Yes	34	45.3
No	41	54.7
Total	75	100.0



**Figure 8. Frequency of students who submitted the vaccination certificate at time of admission**

**Table 9. Frequency Distribution Table showing Cases of Needle Pricks among Sanitary Workers N=75**

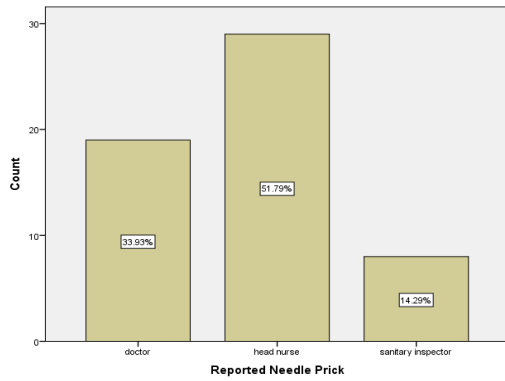
Needle Pricks	Frequency	Percent
Yes	38	50.7
No	37	49.3
Total	75	100.0



**Figure 9. Frequency Distribution Table showing Cases of Needle Pricks among Sanitary Workers**

**Table 10. Frequency Distribution Table Showing Needle Pricks Reported To Different Personnel N=75**

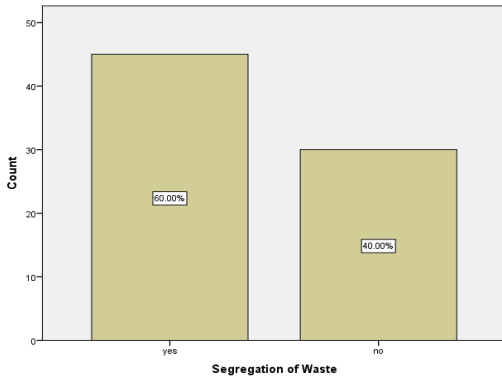
Reported Pricks	Frequency	Percent
Doctor	19	25.3
Head Nurse	29	38.7
Sanitary Inspector	8	10.7
Not Reported	19	25.3
Total	75	100.0



**Figure 10. Frequency Distribution Table Showing Needle Pricks Reported To Different Personnel**

**Table 11. Frequency Distribution Table Showing Segregation of Waste**  
N=75

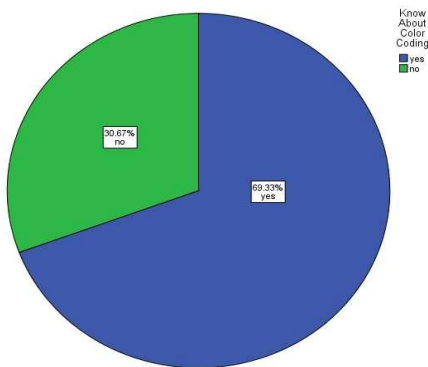
Segregation of Waste	Frequency	Percent
Yes	45	60.0
No	30	40.0
Total	75	100.0



**Figure 11. Frequency Distribution Table Showing Segregation of Waste**

**Table 12. Frequency Distribution Table Showing Knowledge of Sanitary Workers about color coding for waste disposal**  
N=75

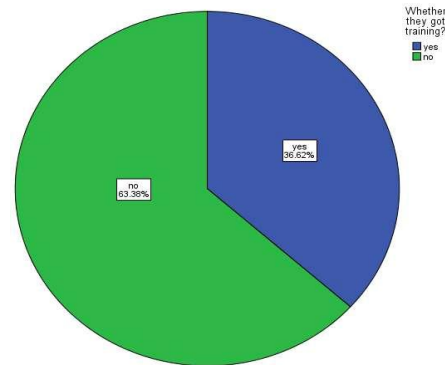
Know About Colour Coding	Frequency	Percent
Yes	52	69.3
No	23	30.7
Total	75	100.0



**Figure 12. Frequency Distribution Table Showing Knowledge of Sanitary Workers about color coding for waste disposal**

**Table 13. Frequency Distribution Table Showing Training Received by the Sanitary Workers**  
N=75

Training	Frequency	Percent
Yes	26	34.7
No	45	60.0
Do not know	4	5.3
Total	75	100.0



**Figure 13. Frequency Distribution Table Showing Training Received by the Sanitary Workers**

**Table 14. Frequency Distribution Table Showing Personnel Who Trained Sanitary Workers**  
N=75

Trained by	Frequency	Percent
Master Trainer	19	25.3
Staff Nurse	4	5.3
Doctor	7	9.3
No One	45	60.0
Total	75	100.0



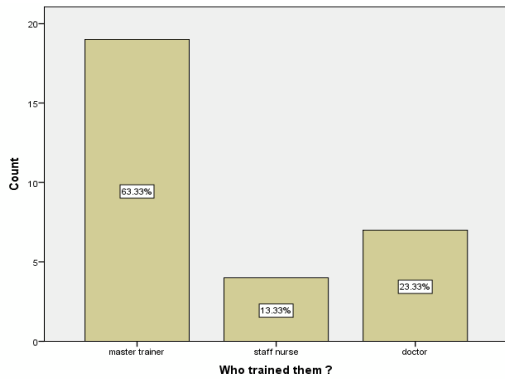


Figure 14. Frequency Distribution Table Showing Personnel Who Trained Sanitary Workers

Table 15. Frequency Distribution Table Showing Frequency of disposal of waste  
N=75

Disposal of waste	Frequency	Percent
Daily	64	85.3
Weekly	11	14.7
Total	75	100.0

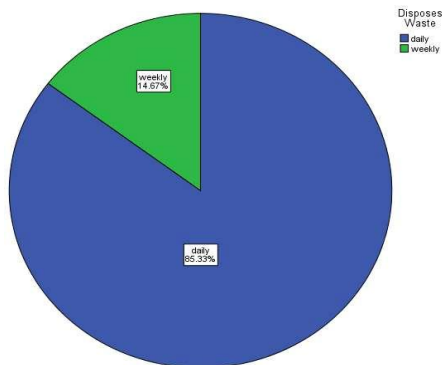


Figure 15. Frequency Distribution Table Showing Frequency of disposal of waste

Table 16. Frequency Distribution Table Showing Type of Trolley Used by Sanitary Workers  
N=75

Trolley Type	Frequency	Percent
3 wheeled	30	40.0
4 wheeled	16	21.3
2 wheeled	29	38.7

Total	75	100.0
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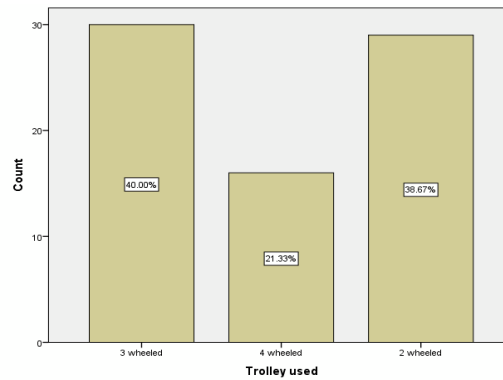


Figure 16. Frequency Distribution Table Showing Type of Trolley Used by Sanitary Workers

Table 17. Frequency Distribution Table Showing Medical Checkups Received by the Sanitary Workers  
N=75

Medical Checkups	Frequency	Percent
Yes	16	21.3
No	59	78.7
Total	75	100.0

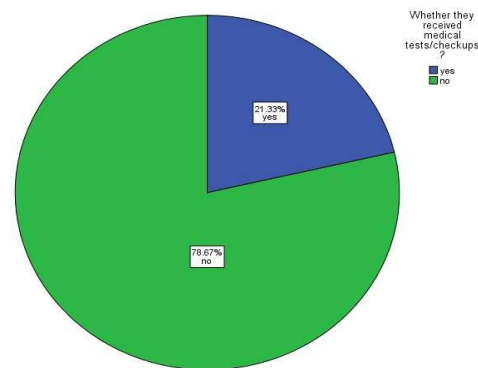
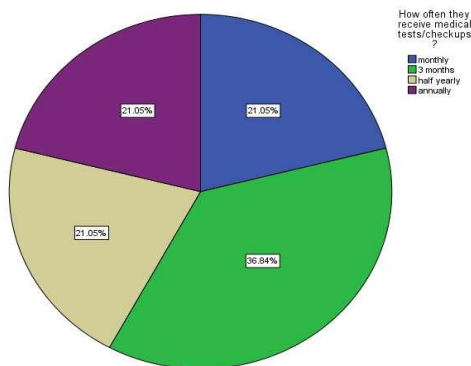


Figure 17. Frequency Distribution Table Showing Medical Checkups Received by the Sanitary Workers

Table 18. Frequency Distribution Table Showing Frequency of Medical Checkups Received by the Sanitary Workers  
N=75

Medical Checkups	Frequency	Percent
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Monthly	4	5.3
3 Months	7	9.3
Half Yearly	4	5.3
Annually	4	5.3
Do not Receive	56	74.7
Total	75	100.0



**Figure 18. Frequency Distribution Table Showing Frequency of Medical Checkups Received by the Sanitary Workers**

## 5. Discussion

Knowledge on the infectious waste management among the sanitary workers is usually poor as shown in this study. This is also supported by other studies on the same subject<sup>12</sup>.

This is due to many factors like the level of education, working experience, training and their practical involvement in the hospital waste handling<sup>13</sup>.

Similarly knowledge about the color coding during infectious waste management was not found up to the mark. This finding is supported by the similar study<sup>14</sup>.

It was noted that the practices regarding infectious waste management of sanitary workers were found very poor. Many of the sanitary workers were deficient in practicing the segregation of waste according to the color coding and the use of personal protective equipment. Practices could only be improved by proper training and by allocating the proper budget for the concerned staff<sup>15</sup>.

Educational background is an important

factor for improving the practices of an individual regarding infectious waste management<sup>16</sup>.

Practices can be improved with proper regular training for sanitary workers in any organization<sup>17</sup>.

Study conducted by Gupta V at pt B. D. Sharma PGIMS, Rohtak, showed that the level of awareness about Biomedical waste management (BMW) was found lowest among the sanitary workers. Attitude score was found poor. Knowledge regarding segregation at the work place, use of personal protective measures, attendance of training for BMW, record available for injuries related to BMW, practice regarding different categories (sharps and needle, soiled dressings, glass plastic waste and human anatomical waste) was found poor as in our study at Nishtar hospital multan<sup>18</sup>.

## 6. Conclusion

Practices among HCWs are not found up to the standards in this tertiary care hospital and not following the proper guidelines and WHO rules. Knowledge and attitude was also found poor among sanitary staff. Training of the sanitary staff need to be improved on all aspects of biomedical waste management. It is recommended that continuous training should be given for the proper improvement of their practices among HCWs. Moreover, master trainer of the hospital should be earmarked for training of the staff.

## 7. Recommendations

Improvement of overall knowledge, attitude and practices related to Bio Medical Waste Management and its handling of steps like strict implementation of bio medical waste rules; compulsory training for their health care personnel, from accredited training centers. Proper BMW disposal practices could be accentuated in health care personnel if they are put under strict supervision and direct surveillance. It is not possible to depute one person for this work in each ward or OPD etc. To overcome such impossibility, there should be surveillance with the help of CCTVs (closed- circuit televisions) especially where is most of the BMW generations, segregation, and disposal.

Those who are found doing incorrect

practice should be given additional attention and training.

Easy color coding for BMW disposal bags should be developed in local language for the betterment of sanitary workers and general public awareness. Local language should be used for coding method for segregation of BMW.

The education of the general public is also indispensable. Yielding posters with and leaflets should be used for providing such education.

### **8. Limitations:**

Research was limited to Nishtar hospital, Multan. There was difficulty in conveying and getting required information due to difference in languages. Some workers were non co-operative and they did not give answers to questions. Some workers were in a hurry because of their appointment. Overcrowding in Hospital rendered to in-efficient communication. Time period was limited for the study.

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