



## Assessment of Knowledge, Attitude, Practices Regarding Hospital Waste Management Among Nursing Staff in A Rural Medical College And Corporate Hospital in The City.

## KEYWORDS

Hospital waste, Waste disposal, Nursing staff

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**ABSTRACT** Hospital waste has always been considered as potentially hazardous in view of the inherent potential for dissemination of infection. The study was conducted to evaluate awareness about Biomedical Waste Management practices in nursing staff in a rural medical college and a corporate hospital with the help of pretested semi structured questionnaire. The survey result showed that almost 100% of nursing staff were aware about presence of regulation for hospital waste disposal. There was no significant difference between nursing staff of tertiary care & corporate hospitals regarding knowledge about definition of waste, time of generation & quantity of infectious waste. The study showed that the knowledge, attitude and practice regarding the biomedical waste generated and its proper management is better in nursing staff of the corporate hospital than the tertiary hospital. However the precautions to be taken while handling the waste are better known in the tertiary hospital nursing staff.

**Introduction:**

Hospital waste has always been considered as potentially hazardous in view of the inherent potential for dissemination of infection. The indiscriminate disposal of untreated waste can spread infection. A good amount of biomedical wastes such as disposable syringes, IV fluid bottles are picked up by rag pickers and are recycled into market without disinfection<sup>(1)</sup>.

Biomedical waste (BMW) is waste generated during diagnosis, treatment or immunization of human beings or animals, or in research activities<sup>(2)</sup>. Though 75-80% of waste generated from hospitals is non-infectious, 20-25% is hazardous<sup>(3)</sup>. Inadequate management of biomedical waste can be associated with risks to healthcare workers, patients and communities at large. Hospital infection control committee & team are responsible for monitoring of proper implementation of biomedical waste management rules. The issue is not only related to quality waste management but also to safety of health care workers i.e. universal precautions and immunization<sup>(4)</sup>. For proper management of bio-medical waste the Government of India under the provision of Environmental Act 1986 notified the Bio-Medical Waste (Management and Handling) Rules on 20<sup>th</sup> July 1998<sup>(5)</sup>. Biomedical waste should be segregated into containers / bags at the point of generation in accordance with schedule II of Biomedical Waste (management and handling) Rules 1998. These rules are meant to improve the overall waste management of health care facilities in India. It has been emphasized that for the proper disposal of bio-medical waste, introduction of laws is not sufficient but awareness of these laws among the health care workers and general public is essential<sup>(6)</sup>.

The study was conducted by the department of Microbiology, to evaluate awareness about Biomedical Waste Management practices in nursing staff in a rural medical college and corporate hospital in the city with the help of pretested semi structured questionnaire. The study was a part of short term undergraduate research for a period of two months.

A Hospital based cross sectional study was carried out in a 910 bedded tertiary care hospital attached to a rural medical college and a 150 bedded corporate hospital in the city in 15<sup>th</sup> July – 15<sup>th</sup> September 2014. 50 nursing staff each from rural medical college and corporate hospital, working in various departments in the hospital was selected by random sampling. After taking informed consent, the data was collected by using a pretested semi structured format. It had 20 items based on knowledge, attitude and practices regarding hospital waste management and 3 items based on observation by investigator. Questionnaire was analyzed. Percentage of awareness per group was calculated.

**Result:**

The survey result showed that almost 100% of nursing staff members were aware about presence of regulation for hospital waste disposal. There was no significant difference between nursing staff of tertiary care & corporate hospitals regarding knowledge about definition of waste, time of generation & quantity of infectious waste. Knowledge about steps of waste management was poor (28% & 38%). Knowledge about handling of soiled linen was 44% in tertiary care nursing staff where it was 78% among nursing staff of corporate care hospital. This difference is significant (P value = 0.001). Knowledge regarding recapping and discarding of needles was 34% in tertiary care hospital nursing staff and 66% in corporate care hospital nursing staff. This difference is significant (P value = 0.001). Knowledge regarding final disposal of waste collected in yellow bag was 54% in tertiary care hospital nursing staff and 78% in corporate hospital nursing staff. The difference is significant (P value = 0.011). Knowledge regarding treatment of waste disposed in red bags was more in tertiary care hospital nursing staff (90%) as compared to corporate care hospital nursing staff (74%), which is significant (P value = 0.04) (O.R.=3.107, C.I.=1.041-10.58).

**Table 1: showing presence of knowledge regarding hospital waste management amongst nursing staff.**

Questions	Tertiary care hospital nursing staff (n=50)	%	Corporate hospital nursing staff (n=50)	%	X <sup>2</sup> value	P Value
Definition of infectious medical waste	21	42%	23	46%	0.1623	0.69
Time of Waste Generation	44	88%	49	98%		0.11 (fisher exact)
Quantity of infectious waste generated	30	60%	33	66%	0.39	0.53
Knowledge about regulations of waste disposal	48	96%	50	100%		0.49 (fisher exact)
Steps of waste management	14	28%	19	38%	1.13	0.289
Knowledge about precautions to be taken while handling waste	33	66%	32	64%	0.04	0.83
Reason for segregation of waste	35	70%	40	80%	1.33	0.25
Handling of soiled linen	22	44%	39	78%	12.15	0.001
Should needles be recapped and then discarded	17	34%	33	66%	10.24	0.001
Incineration of Pressurized gas containers or radioactive wastes	40	80%	48	96%	6.061	0.013
Handling of spillage of blood	19	38%	26	52%	1.98	0.16
Waste disposed in yellow bags	21	42%	29	58%	2.56	0.109
Tubings and catheters are disposed off in which bags	41	82%	44	88%	0.71	0.401
Method of final disposal of waste collected in yellow bags	27	54%	39	78%	6.42	0.011

Treatment of waste discarded in red bags	45	90%	37	74%	4.34	0.04
Treatment of anatomical and pathological wastes	31	62%	39	78%	3.05	0.08
Knowledge about spreading of infection by accidental Needle injury	44	88%	46	92%	0.44	0.50
Diseases transmitted through used sharps	42	84%	48	96%	4	0.0455

**Table 2: showing attitudes regarding hospital waste management amongst nursing staff.**

Questions	Tertiary care hospital nursing staff (n=50)	%	Corporate hospital nursing staff (n=50)	%	X <sup>2</sup> value	P Value
Place where segregation of waste should be done	24	48%	30	60%	1.45	0.229
Responsibility of disposal of waste	46	92%	49	98%	1.895	0.168

**Table 3: Showing practice of hospital waste management amongst nursing staff.**

Obsevation regarding	Tertiary care hospital nursing staff (n=No of staff )	%	Corporate hospital nursing staff (n= No of staff )	%	X <sup>2</sup> value	P Value
Using of color coded bags for waste disposal	40	80%	45	90%	1.961	0.162
Using of Needle cutter	45	90%	48	96%	1.382	0.24
Using of spill kit	25	50%	30	60%	1.01	0.317

Investigator visited the workplace of subjects and with the help of checklist observed the practices followed.

**Following were the observations:**

- Almost all wards had Color-coded bags for waste disposal, needle cutter and spill kit.
- 80% of places in tertiary hospital and 90% of that in corporate hospital, in spite of having color coded bags segregation was not done at the point of generation and was later done by attendant/sweeper.
- Investigator asked regarding the use of spill kit and 50% of nursing staff of tertiary hospital and 60% of nursing staff of corporate hospital was aware about the correct use.
- There was no significant difference observed regarding attitude towards waste management and practices of hospital waste management amongst both sets of nursing staff.

**Discussion:**

The biomedical waste has always been considered potentially hazardous. The disposal of untreated waste poses, an environmental and public health hazard. It also presents an occupational health hazard to healthcare personnel who handle this waste at the point of generation, and those involved with their management i.e. segregation, storage, transport, treatment and disposal. The indiscriminate disposal of untreated waste leads to spread of infectious diseases. Apart from this a good amount of biomedical waste such as disposable syringes, I.V. fluid bottles, etc. are picked up by the rag pickers and are recycled back into the market without any disinfection hence it is imperative to adopt appropriate system for the safe collection, storage, transport, treatment and disposal of hospital waste.

Kulkarni M.V. et al<sup>(1)</sup> found that 67% nurses were having right attitude and practices regarding hospital waste management. S. Saini et al<sup>(6)</sup> found that nursing staff was found to be having less knowledge but they were having a right attitude and practicing the guidelines in more responsible manner. The findings were similar to the present study.

In our study we found that 42% of the tertiary hospital nursing staff and 46% of the corporate hospital nursing staff were having knowledge about the biomedical waste management whereas 66% of tertiary hospital nursing staff and 64% of corporate hospital nursing staff were practicing the handling of the biomedical waste management correctly. This may be due to the repeated instructions, training and the responsibility given to them regarding following of rules of hospital waste management by hospital authorities.

**Conclusions:**

Awareness of nursing staff regarding Hospital waste management was assessed. A comparison of awareness regarding Hospital waste management among nursing staff in a teaching hospital and a corporate hospital was done. This study shows that the knowledge, attitude and practice regarding the biomedical waste generated and its proper management is better in nursing staff of the corporate hospital than the tertiary hospital. This could be because of regular training programs and work discipline proper documentation in corporate hospitals. The precautions to be taken while handling the waste are better known in the tertiary hospital nursing staff. Intensive training programs at regular interval for all hospital staff should be arranged and Orientation sessions regarding hospital waste management should be arranged for the nursing staff. All hospital staff should be made aware of their responsibility regarding hospital waste management. Hence training programs regarding this should be carried out regularly.

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