

Original Article

Awareness Among Sanitary Workers Regarding Their Job: A Survey at Tertiary Care Hospital

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ABSTRACT

Objective: A cross sectional study to assess the level of awareness and knowledge of sanitary workers about infectious diseases, handling and disposal of hospital waste material.

Study Design: A cross sectional study.

Place and Duration of Study: A 600 bed tertiary care hospital of Rawalpindi district.

Methodology: All sanitary workers working in the hospital for more than three months were interviewed by a doctor in the language which they understand. An anonymous, self descriptive, comprehensive questionnaire was designed containing all information's regarding experience, training of job and awareness regarding types and disposal of waste material etc.

Results: Among 88 workers interviewed, (47.72%,n=42) were males and (52.28%,n=46) were females. Among them (39.78%,n=35) were having more than 5 years of experience as a sanitary worker. Only 4.54% had some training before joining their job. None of them were having medical checkup or vaccination before or during job. Majority were not using heavy duty gloves (76.14%,n=67), Apron (72.73%,n=64), industrial long shoes (93.19%,n=82), and masks (87.50%,n=77). Thirty one (35.32%) workers were dumping waste material in open and (64.78%,n=57) workers were dumping in isolated open place specified for the purpose. Forty eight (54.55%) workers were not using antiseptic or detergents for cleaning bedpans. Regarding hand washing practice, only (7.95%,n=07) workers were using some antiseptic. Majority were totally ignorant about infectious diseases (72.73%,n=64), handling of waste (81.81%,n=72), disposal of patient secretions (86.37%,n=67), used dressings, blood samples/bags (90.78%,n=79), injection vials/syringes (86.37%,n=76) and disposable items (82.96%,n=73).

Conclusion: Handling of waste from the source to its final disposal should be done carefully under the supervision of trained staff. Training of the sanitary workers of the hospitals is required for this purpose. It will not only reduce the spread of infectious diseases, but also improve the health and efficiency of the workers.

Key words: Sanitary workers, Waste disposal, Hospital wastes

INTRODUCTION

Hospital waste poses potential threat to the human health and the environment. With the increasing incidence of deadly diseases like AIDS, Hepatitis B and C, SARS, Avian Flu and ever deteriorating quality of drinking water due to environmental degradation by chemical pollutants, the proper disinfection and disposal of hospital waste is even more relevant today.^{1,2} With the world becoming a global village, chances of spread of infections are on the increase and would cause widespread disturbances in a society. Improper management of hospital waste also has far reaching socio-economic impact.

The hospital waste may contain infectious agents, genotoxic material, chemical toxins, radioactive material and sharp objects. Major portion of this is contained in syringes, intravenous needles, blood, body

fluids, human tissues, dressing, drainage bags and frequently use disposable items.^{2,3} The quantity of solid waste generated by hospital is increasing day by day due to increase in use of disposable items, increase number of health care facilities and advancement in healthcare techniques.^{4,5}

The management of waste from hospitals, other health facilities and health related research laboratories has gained increased attention in recent years. Waste management procedures even in many European facilities and most of the developing countries are unorganized because of poor coordination and cooperation between health authorities and environmental protection agencies. Lack of funds and untrained staff are the major causes. This poor management of the health care waste exposes health care workers, waste handlers and the community to severe infections, toxic effects and injuries. Effective

waste management can reduce health risk, save money and protect environment.^{2,6}

In our country, it is unfortunate that standard measures for the safe disposal of hospital waste are not being followed or implemented in most of the hospitals in public sector, nursing homes and private clinics. Proper segregation of waste, use of incinerators for disposing dangerous waste is not being done in majority of hospitals. Majority of it being handled along with general municipal waste by ordinary methods and part of it being recycled and reused, exposing the common public to health risks.⁶ The sanitary workers are one of the key persons in the chain of disposal of hospital waste, who had an important role in collection, segregation, disposal and dumping of waste. The aim of this study is to assess the level of awareness and knowledge of sanitary workers about infectious diseases, handling and disposal of hospital waste material.

MATERIALS AND METHODS

This cross sectional study was carried out over the full time sanitary workers from a 600 bed tertiary care hospital of Rawalpindi district. An anonymous, self descriptive, comprehensive questioner was designed containing all information regarding experience, training of job and awareness regarding disposal of waste material etc. Sanitary workers who had joined recently within three months as a first job or working as part-time were excluded from the study. All sanitary workers, working for more than three months, were interviewed by a doctor in their own language and were suppose to answer in yes/no or in the form of duration which was specified in questioner. Informed cosent from the sanitary workers for the study was taken. All the data analyzed by using software EPI 6 at the end of study.

RESULTS

A total of 88 workers were interviewed, among them (47.72%,n=42) were males and (52.28%,n=46) were females. Only (4.54%,n=04) had some training before joining this job, (47.72%,n=42) were having experience less than 5 years and (39.78%,n=35) were having more than 5 years of experience as a sanitary worker. Majority (69.31%,n=61) among them were working in wards. None of them were having any sort of medical checkup or vaccination against any infectious disease before or during the job. Only (15.90%,n=14) had given history of vaccination during childhood. Regarding use of protective measures during job, majority were not using heavy duty gloves(76.14%,n=67)), Apron (72.73%,n=64), industrial long shoes(93.19%,n=82)), or masks(87.50%,n=77). About dumping of waste, none had given any evidence of dumping in polythene

bags/drums according to standard color coding. Whereas (35.32%,n=31) workers were routinely dumping in open and (64.78%,n=57) were dumping in an isolated open place specified for this purpose. All were using antiseptic/detergents in the wards for cleaning the floor. Whereas (54.55%,n=48) were not using antiseptic/detergents for cleaning bedpans and (18.19%,n=16) were not using it for cleaning washrooms. Regarding hand washing practice, (39.77%,n=35) were using simple water only, (52.27%,n=46) were using soap and only (7.95%,n=07) were using some antiseptic to clean their hands after work. Awareness about infectious diseases ,(72.73%,n=64) had no knowledge about it, (81.81%,n=72) were not aware about handling of waste, and (86.37%,n=76) were totally ignorant about hazards of improper handling of waste. Majority of workers (86.37%,n=76) were having no knowledge of disposal of patient secretions, empty injection vials and syringes, (90.78%,n=79) were unaware how to dispose off used dressings, blood samples and bags and (82.96%,n=73) were ignorant about disposal of disposable items.

Table-I: Demographic data of sanitary workers n = 88

		<20	21 to 30	31 to 40	41 to 50	> 50	Total	95% Confidence limits
Sex	Male	4	16	11	11	-	42 (47.72%)	50.22 to 43.08
	Female	-	22	16	8	-	46 (52.28%)	56.13 to 48.34
Experi-ence	Nil	4	6	1	-	-	11 (12.50%)	14.56 to 10.23
	<5 yrs	-	22	12	8	-	42 (47.72%)	50.22 to 43.08
	>5 yrs	-	10	14	11	-	35 (39.78%)	42.95 to 36.58
Traini- ng of Job	Before joining	-	-	1	3	-	4 (4.54%)	3.46 to 5.25
	During job	-	-	-	-	-	-	
Place of job	Ward	4	22	19	16	-	61 (69.31%)	74.12 to 64.43
	OT	-	7	4	-	-	11 (12.50%)	14.56 to 10.23
	Other Hospital Area	-	8	5	3	-	16 (18.19%)	20.13 to 16.76

Table – II: Summary of response of sanitary workers to different questions**n = 88**

Questions		YES	NO
Medical check up	At enrolment	--	88(100%)
	During job	--	88(100%)
Vaccination	In child hood	14(15.90 %)	74(84.10%)
	During job	--	--
Use of protective measures during work	Gloves	21(23.86%)	67(76.14 %)
	Apron	24(27.27%)	64(72.73 %)
	Long shoes	6(6.81%)	82(93.19%)
	Masks	11(12.50%)	77(87.50%)
Waste segregation before dumping		--	88(100%)
Dumping of waste	In open	57(64.77%)	31(35.32%)
	In polythene bags	--	88(100%)
	In isolated place	31(35.22%)	57(64.78%)
	Through drums	--	--
Use of detergent/ antiseptic	In cleaning floors	88(100 %)	--
	Bed pans/utensils	40(45.45%)	48(54.55%)
	Wash rooms/toilet	72(81.81%)	16(18.19%)
Washing hands after handling waste	With water	35(39.77%)	53(60.23%)
	With soap	46(52.27%)	42(47.73%)
	With antiseptic	7(7.95%)	81(92.05%)
Knowledge of awareness regarding	Infectious diseases	24(27.27%)	64(72.73%)
	Handling of waste	16(18.19%)	72(81.81%)
	Hazards of improper handling	12(13.63%)	76(86.37%)
Knowledge of disposal of	Patient secretions	12(13.63%)	76(86.37%)
	Used dressings	9(10.22%)	79(90.78%)
	Blood samples/bag	9(10.22%)	79(90.78%)
	Injections/syringes	12(13.63%)	76(86.37%)
	Disposable items	15(17.04%)	73(82.96%)

DISCUSSION

Hospitals protect and restore health and save lives but on the other hand they are major producer of potentially harmful waste and byproducts. Medical waste is divided usually into three groups i.e. infectious or “red bag”, hazardous or “yellow bag” and general waste or “black bag”. It is essential that risk waste (infectious and hazardous) is separated at the source from non-risk waste (general). Non-risk waste usually forms the greatest proportion of the total waste and can amount to as much as 80% of the total waste.⁷ As this waste presents no greater risk than ordinary domestic garbage so it does not require some special or costly arrangements for its disposal. So it can be disposed through ordinary disposal route. Infectious waste is usually defined as consisting of pathological wastes, human blood and blood products, contaminated sharp

instruments, anatomical wastes and wastes from isolation units.⁸

To differentiate between risk and non-risk waste, it is necessary that segregation must be done at the source i.e. in wards, bedside, operation theater, laboratory, and delivery room etc. This should be done by a trained person involved in the handling of waste disposal under the supervision of a nurse or a doctor in order to immediately secure the waste and to avoid dangerous secondary sorting. This segregation must remain intact from the point of production to the point of final disposal and all transportation and storage methods must also follow this segregation system.⁹ Sanitary workers play an important role in keeping this chain of disposal intact and reliable. It is noticed in our study that none of the sanitary workers had an idea of types of waste and neither they were trained nor practice segregation of waste dumping. Separate bags/drums were not used and most of the sanitary workers dump the waste at open place in the hospital. Similarly another survey conducted by Rasheed and his colleagues in Karachi reveals that in only 25% of teaching hospitals, segregation and proper disposal of waste material is being practiced.¹⁰

Training programme of sanitary workers or persons involved in the handling of waste is important. Training should comprises of awareness regarding types of waste, segregation, storage, transportation, dumping, hazards of improper disposal of waste and knowledge about infectious diseases etc.^{9,10} In our study, only 4.54% of sanitary workers had some formal training regarding their job in the past. Majority of the sanitary workers (93.46%) doesn't have any type of training regarding standard procedures of waste handling and disposal. Lack of training programme of sanitary workers at institutional levels is an area of major concern in our setup. Same observation was reported in the literature in which out of eight major teaching hospital in Karachi only one (12.5%) hospital arrange training sessions of waste handling staff.¹⁰

Basic personal hygiene of sanitary workers is also important for reducing the risks from handling biomedical waste. A program of immunization for all staff coming into contact with risk waste should be carried out. None of the persons in our study had any sort of medical checkup at the time of induction or during service at regular intervals. Only 15.90% of workers remember some vaccination in childhood but none of them gave any history of vaccination during job. Similarly same observation is also given in different studies from different hospital nationally and internationally.^{7,8,10,11} In our study we observed that only 7.95% workers use antiseptic, 52.27% use some soap to wash their hands after handling of waste. Similarly Bedpans and other utensils used by patients were washed with antiseptics by 45.45%. Washrooms

and toilets were washed with antiseptic by 81.81% of cases. Almost same observations were also made in other studies conducted at other hospitals.^{8,10,11}

Protective clothing like heavy duty gloves, sturdy/industrial shoes, aprons, leg protectors, eye protectors, mask, and gloves etc are not usually issued by the authorities.¹² In our study we observed that only 23.86% were using gloves (surgeon's gloves), 27.27% were using apron, 6.81% were using long shoes and only 12.50% were using masks during their duty. Proper heavy duty gloves, long industrial shoes/ leg protectors etc were not issued from the hospital authority. They were using gloves used in operation theater, and long shoes used only by those who were working in operation theater. Same observation was also reported by Chaudhary and his colleagues in their study.¹³

Hospital waste should not be dumped in open or used as landfill. Open dumping of hospital waste is hazardous, which is a major source of Polychlorinated Dibenz--Dioxins and Poly Chlorinated Dibenzofuranes in soil and water. These are potential carcinogens as reported in the literature.^{14,15,16} Eighty percent of hospital waste is non-hazardous and does not require any special disposal procedure. About 20% of hospital waste contains hazardous material which require special disposal. There are three disposal options i.e. in house incineration, autoclaving and carting, and offsite incineration. Although autoclaving is the least expensive but incineration continues to be the option of choice. It is important to determine the kind of incineration system to use, its size and its configuration.^{17,18} Unfortunately incinerators are not available in all hospital all over the country. In Rawalpindi/Islamabad city, among 14 major tertiary care hospitals, only three hospitals are having functional incinerators. In a study done at Karachi, it was reported that among eight major teaching hospitals, 62.5% were using incinerators, 25% dispose off as municipal landfill and 12.5% was burning the waste in open air without sufficient treatment.¹⁰

CONCLUSION

Handling of waste from the source to its final disposal should be done carefully under the supervision of trained staff. Training of the sanitary workers of the hospitals is required for this purpose. The key aim of an acceptable waste management system is to develop technical guidance for assessing the quantities and types of wastes produced in different facilities. It will not only reduce the spread of infectious diseases, but also improve the health and efficiency of the workers.

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