Original Research Article

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20173191

Awareness and practices regarding standard precautions for infection control among the hospital support staff in a tertiary care hospital in South India: a cross sectional study

Anusha Taarinie Jha¹, George P. Jacob²*, Mahathi Ramireddy², Yogesh Kini K.¹

Received: 24 June 2017 Revised: 09 July 2017 Accepted: 11 July 2017

*Correspondence: Dr. George P Jacob,

E-mail: georgejacobkmc@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Compliance with standard precautions reduces the risk of exposure to blood and body fluids. The awareness regarding infection control and appropriate practices among hospital support staff is critical to prevent HAIs. Hence this study was conducted with the objectives of evaluating the awareness regarding standard precautions for infection control among hospital support staff and to identify the barriers, if any, to comply with standard infection control protocol among them.

Methods: A cross-sectional study was conducted in a tertiary care hospital after obtaining the necessary ethical clearance and required permissions. Sample size was calculated to be 80. Written informed consent was taken from the participants. A questionnaire in the local language was used to collect the data. The statistical analysis was done using SPSS version 15. The results were expressed as proportions. Chi-square test was applied to study the association.

Results: 81 workers participated in the study. 91.4% knew that hand washing is the most effective way to prevent health care associated infections. 75.3% were aware about categories of wastes. Among 59 staff who were liable to come in contact, 57 (96.6%) used protective barriers while serving HIV/TB patients. 51.9% of the participants were vaccinated against Hepatitis B infection.

Conclusions: The awareness and practices of the hospital support staff regarding standard precaution for prevention of infection was inadequate.

Keywords: Standard precautions, Hospital support staff, Health care associated infection, Hospital waste disposal

INTRODUCTION

Health Care Associated Infection (HCAI) presents a major challenge for patient safety and its prevention must be the first priority for institutions and individuals committed to making health care safer for all concerned. Although the risk of acquiring HCAI by the patient or the care giver is universal and encompasses every health-care facility, the global burden is not known because of

difficulty in obtaining reliable diagnostic data. Overall estimates indicate that more than 1.4 million patients worldwide are affected at any time.¹

The need of the hour is a paradigm shift from a narrow individual patient- based approach to a more inclusive approach targeting infection control during health care processes. Only then a significant improvement in this vital area of healthcare will be possible. Change is

¹Kasturba Medical College, Manipal, Udupi, Karnataka, India

²Department of Community Medicine, Kasturba Medical College, Manipal, Udupi, Karnataka, India

urgently required at the organizational and administrative levels in terms of integrating all factors that go into effective and economical infection control practices.²

Healthcare workers are at risk of exposure to blood and other body fluids. Hence are at the risk of acquiring life threatening infections like hepatitis B, hepatitis C, and human immunodeficiency viruses. Compliance with standard precautions have been shown to reduce the risk of exposure to blood and body fluids.³

Hand hygiene is one of the most important elements of infection control activities. If properly implemented, hand hygiene alone can significantly reduce the risk of cross-transmission of infection in healthcare facilities.⁴ Prevention of HCAIs is the responsibility of all individuals and services providing health care.⁵

The hospital support staffs forms an indispensable framework in the hospital which is vital to its functioning, and therefore their awareness regarding infection control and appropriate practices is critical to prevent HAIs. However, there are many reasons for poor compliance to guidelines. In India, very few studies, with varying focus, have been conducted in this area ⁶. The present study had been planned so that it may throw more light in this regard to take appropriate actions. Hence the aim of the study was to evaluate the awareness and practices regarding standard precautions for infection control among hospital support staff.

Objectives

- To evaluate awareness regarding standard precautions for infection control among hospital support staff.
- To identify the barriers, if any, to comply with standard infection control protocol among them.

METHODS

A cross sectional study was conducted in a tertiary care hospital. The data was collected during April and May, 2016

Inclusion criteria were house-keeping staff, general duty workers and ward clerks of the hospital.

Exclusion criteria include those workers who were unwilling to participate in the study.

Sampling method: Purposive sampling

Sample size estimation

Anticipating prevalence of correct knowledge regarding standard precautions among support staff to be 25%

(based on previous literature) ⁷, with absolute precision of 10% and 95% confidence interval, the sample size worked out to be 72. Considering a non-response rate of 10%, the final sample size of 80 was obtained.

Data collection

After obtaining the ethical clearance from the Institutional Ethics Committee, the required permission from the concerned authorities was taken. The list of all the people working in the hospital as support staff, i.e., ward clerks, house-keeping staff and general duty workers and the details of their respective work stations was obtained. The investigator visited the hospital department wise. Once the rapport was established with the workers, the purpose of the study was explained to them. Written informed consent was taken from all who agreed to participate in the study. Anonymous, semi-structured questionnaire, translated into the local language was used to collect the data.

Complete confidentiality was maintained and the same was assured to the participants.

The questionnaire included questions on demographic details, knowledge of the support staff on standard precautions and practices related to implementation of standard precautions by the hospital staff. The investigator asked the questions and marked the responses of the subjects appropriately. After the data was collected, the participants were given a feedback regarding their responses. Those who complied with the guidelines were appreciated and efforts were made to educate those in need.

Data analysis

The data was entered in the SPSS (Statistical Package for Social Sciences) version 15.0 and analysed. The results are expressed as proportions. Chi-square test was applied to study the association and p-value obtained. The p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 101 people working as support staff in the hospital was approached requesting to participate in the study. 81 of them participated in the study, giving an overall response rate of 80%. The socio-demographic characteristics of respondents are presented in Table 1.

The mean age (SD) of respondents was 37.98 ± 9.7 years (range 18-56 years). Majority (72.8%) of the workers were females. 33.3% of workers were educated up to primary school and 34.6 up to high school. Of the respondents, 58 (71.6%) were housekeeping staff. 65.4% of staff had experience of 5 years or more (range 1-37 years).

Table 1: Baseline characteristics of the respondents (n=81).

Sl. No.	Variable	No.	%
	Age in years		
1.	18-40	43	53.1
	41 and above	38	46.9
	Sex		
2.	Male	22	27.2
	Female	59	72.8
	Education		
	Illiterate	5	6.2
3.	Primary school	27	33.3
3.	High school	28	34.6
	Higher secondary	3	3.7
	Graduate	18	22.2
	Designation		
	Attender	1	1.2
	Canteen worker	2	2.5
4.	Clerk	15	18.5
4.	Food caterer	1	1.2
	House keeping	58	71.6
	Lift operator	3	3.7
	Linen department worker	1	1.2
	Experience		
	Less than 2 years	9	11.1
5.	2-4 years	19	23.5
	5-9 years	29	35.8
	10 and above	24	29.6

Table 2: Awareness regarding standard precautions (n=81).

Sl. No.	Variable	No.	%
1.	Aware of infection control committee in hospital		
	Yes	60	74.1
	No	12	14.8
	Don't know	9	11.1
	Hand washing is the most effective way to prevent health care associated infection		
2.	True	74	91.4
	False	7	8.6
	Wearing gloves eliminates the need to wash hands		
3.	True	10	12.3
	False	67	82.7
	Not applicable	4	4.9
	Aware of Biomedical waste management rules		
4.	Yes	45	55.6
	No	36	44.4
	Categories of waste	_	
5.	Yes	61	75.3
	No	20	24.7
6.	Method of storage of hazardous waste		
	Yes	48	59.3
	No	33	40.7
	Biohazard symbols		
7.	Yes	44	54.3
	No	37	45.7

	Waste segregation in colour containers		
8.	Yes	62	76.5
	No	19	23.5
9.	Terminal waste disposal methods		
	Yes	31	38.3
	No	50	61.7
	Disease spread by improper waste management		
10.	Yes	44	54.3
	No	37	45.7

Table 3: Attitude towards standard precautions (n=81).

Sl. No.	Variable	Number	Percentage
1	Healthcare associated infection is a significant problem		
	Yes	40	49.4
1.	No	30	37.0
	Don't Know	11	13.6
2.	Assumption that all body fluids are infectious		
	Yes	49	60.5
	No	24	29.6
	Don't know	8	9.9

Table 4: Practice of standard precautions.

Sl. No.	Variable	Number	Percentage
1.	Wash after coming in contact with secretion of patient (n=59)*		
	Yes	53	89.8
	No	1	1.7
	Sometimes	5	8.5
2.	Attended training Program regarding infection control (n=81)		
	Yes	49	60.5
	No	32	39.5
	Wash hands before touching patient (n=61)*		
2	Yes	42	68.9
3.	No	13	21.3
	Sometimes	6	9.8
	Use gloves to clean up waste Material (n=64)*	59	92.2
4.	Yes	5	7.8
	No		
	Wash hands after touching patient (n=61)*		
_	Yes	58	95.1
5.	No	1	1.6
	Sometimes	2	3.3
	Use protective barriers while serving HIV/TB patients (n=59)*		
6.	Yes	57	96.6
•	No	2	3.4
	Injury with sharp object (n=81)		
7.	Yes	8	9.9
	No	73	90.1
	Reported to Supervisor after injury (n= 8)*		
8.	Yes	4	50.0
	No	4	50.0
	Reported to supervisor if had any infection		
9.	Yes	59	72.8
	No	22	27.2

	Wear a gown if soiling with blood or body fluids is likely (n=59)*			
10.	Yes	42	71.2	
	No	13	22.0	
	Sometimes	4	6.8	
11.	Cover broken skin before work (n=81)			
	Yes	68	84.0	
	No	4	4.9	
	Sometimes	9	11.1	

^{*}n varies as per the relevance of the question to the study subject.

Among 81 study participants, only 60 (74.1%) were aware of infection control committee. 91.4% knew that hand washing is the most effective way to prevent health care associated infections. 10 respondents were of the opinion that wearing gloves during the procedure eliminated the need for washing hands. Only 55.6% of the staff knew the existence of BMW management & handling rules. 75.3% knew about categories of wastes, 45.7% per cent did not know about biohazard symbols. Among all respondents, only 54.3% were aware regarding the diseases spread by improper waste management (Table 2).

50% of the workers believed that Healthcare associated infection is a significant problem (Table 3). The practices of the workers regarding standard precautions to prevent infections are shown in Table 4.

51.9% of workers had received vaccine against Hepatitis B infection while 54.3% were immunized against tetanus.

No statistical significance was observed on awareness and attitude regarding standard precaution questions with the years of experience and education levels of the study subjects on doing chi square test. However statistical significance was seen for the practice aspect questions like washing hands after touching the patient (χ^2 =21.93, p=0.007) use of gloves while cleaning up waste material (χ^2 =21.69, p=0.006) and use of protective barriers while serving HIV/TB patients (χ^2 =17.47, p=0.026) with education levels of the participants.

There was association between receiving vaccination and years of experience on performing chi square test (χ^2 =17.551, p=0.007).

Barriers to comply with standard infection control protocol among supporting staff of the hospital

- Only 40% of the respondents were educated only up to primary level or were illiterates.
- 39.5% had not attended training on infection control.
- Half of the study participants, did not feel that healthcare associated infection is a major concern.
- 25.9% were unaware of the existence of infection control committee in the hospital.

DISCUSSION

This study was taken up to know the level of awareness and practices regarding standard precautions for infection control among the hospital support staff in a tertiary care hospital. Though there are many KAP studies regarding standard precautions among doctors, nurses, technicians, medical and nursing students, hardly any study on standard precautions has been conducted among hospital support staff (housekeeping staff, general duty workers etc.) that may come in contact with patients or their body fluids. Studies have been conducted regarding biomedical waste management at different sites.

Among the 81 respondents, only 60 (74.1%) were aware of infection control committee. 91.4% knew that hand washing is the most effective way to prevent health care associated infections. 55.6% of the staff knew the existence of BMW management and handling rules. However, in a study conducted by Sehgal et al, in Army's Base Hospital at Delhi, awareness regarding the exact legislative act/BMW rules was found to be nil for sanitary staff.⁸ A study conducted by Chudasama et al, in Rajkot found that only 3.7% of sanitary workers were actually aware about the BMW act.⁹

In the present study, 75.3% of respondents knew about categories of wastes. This was similar to the results from the study conducted by Sehgal et al, where correct color coding for waste disposal was known to 80% of sanitary staff.⁸

However in the present study, 45.7% did not know about biohazard symbols and only 54.3% were aware of the diseases that are spread by improper waste management. In the study conducted by Mathur et al in Allahabad, knowledge regarding the potential of transmission of diseases through biomedical waste was found among only 27% sanitary staff.⁷ The authors also mention that the low level of knowledge is mainly attributed to poor training facilities and also to relatively low educational level of the sanitary staff.

In the study conducted by Sehgal et al, the awareness about transmission of HIV infection and hepatitis B was known to only 20% of sanitary staffs.⁸

A study conducted by Sarika et al in Dhule in Maharashtra found that 67.6% sanitary workers had not

heard and were not aware of BMW and hazards of improper management. 10

In our study 50% of the workers believed that Healthcare associated infection is a significant problem. The study conducted by Sehgal et al, found that 6.6% of sanitary staff felt that BMW management is not an issue at all.⁸

Our study also brought out the practices of the support staff with regard to standard precautions. With regard to the practice of hand hygiene, 53 workers (89.8%) always practiced hand hygiene after coming in contact with blood or other body fluids of patients, 42 (68.9%) before touching patients and 58 (95.1%) after touching the patients. Out of 64 staff who actually handled patients, 59 wore gloves while cleaning waste material. Among 59 staff who were liable to come in contact, 57 (96.6%) used protective barriers like masks, gloves, aprons and goggles while serving HIV/TB patients.

Varying results have been reported by other studies. Sehgal RK et al., reported that the use of protective clothing to prevent infections was found to be 100% among all the categories of health care workers whereas a study conducted by Chudasama et al, in Rajkot reported that use of personal protective measures while handling biomedical waste was 74.1% among sanitary workers. 8.9

In the present study, 51.9% of workers had received vaccine against Hepatitis B infection while 54.3% were immunized against tetanus. Kumar et al, from a study in Nainital reported that 75% of the sanitary staff were not vaccinated against Hepatitis B.¹¹

This study found that 60.5% of the workers had undergone training in infection control whereas in a study conducted by Sarika et al, it was found that only 32.4% of sanitary workers were trained for BMW management. 10 Chudasama et al, reported that only 25.9% sanitary staff had received this training. 9

But Kumar et al, reported that none of the sanitary staff had any training in relation to BMW.¹¹

CONCLUSION

The awareness and practices of the hospital support staff regarding standard precaution for prevention of infection was inadequate. Education has a role in the practice of following standard precautions to prevent infections. Training programmes and refresher courses need to be conducted on a regular basis to improve the situation.

ACKNOWLEDGEMENTS

We acknowledge the cooperation of the support staff of the hospital. We are thankful to the concerned authorities for giving approval to conduct the study. Funding: Funded by ICMR Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of Kasturba Hospital, Manipal

REFERENCES

- 1. WHO guidelines on hand hygiene in health care. World Health Organization. 2009.
- 2. Saxena P, Mani RK. Preventing hospital acquired infections: a challenge we must accept. Indian J Crit Care Med. 2014;18:125-6.
- 3. Amoran OE, Onwube OO. Infection Control and Practice of Standard Precautions among Healthcare Workers in Northern Nigeria. J Glob Infect Dis. 2013;5(4):156–63.
- 4. Mathur P. Hand hygiene: Back to the basics of infection control. Indian J Med Res. 2011;134(5):611–20.
- Prevention of hospital-acquired infections. A practical guide. 2nd edition. World Health Organization; 2002.
- 6. Kotwal A, Taneja DK. Health care workers and universal precautions: Perceptions and determinants of non-compliance. Indian J Community Med. 2010;35:526-8.
- Mathur V, Dwivedi S, Hassan MA, Mishra RP. Knowledge, Attitude and Practices about Biomedical Waste Management among Health care Personnel: A Cross-Sectional Study. Indian J Community Med. 2011;36(2):143-5.
- Sehgal RK, Garg R, Dhot PS, Singhal P. A study of knowledge, attitude, and practices regarding biomedical waste management among the healthcare workers in a multispeciality teaching hospital at Delhi. Int J Med Sci Public Health. 2015;4(11):1540-4.
- Chudasama RK, Sheth A, Rangoonwala M, Joshi N, Zalavadiya D, Bhola C. Awareness and Practice of Biomedical Waste Management Among Different Health Care Personnel at Tertiary Care Centre, Rajkot, India. Online J Health Allied Scs. 2014;13(1):1.
- Sarika PP, Tambe MP, Patil PJ, Bhagwat VR. Awareness of Healthcare Workers Regarding Biomedical Waste Management (BMW) At Tertiary Care Government Hospital in Dhule (Maharashtra). NJIRM. 2013;4(4):74-9.
- 11. Kumar M, Singh RK, Umesh, Rawat V. Awareness and practices about bio-medical waste among health care workers in tertiary care hospital of Haldwani, Nainital. NJMR. 2015;5(1):47-51.

Cite this article as: Jha AT, Jacob GP, Ramireddy M, Kini YK. Awareness and practices regarding standard precautions for infection control among the hospital support staff in a tertiary care hospital in South India: a cross sectional study. Int J Community Med Public Health 2017;4:2690-5.