

An assessment of awareness and practices towards standard precautions among staff nurses at a tertiary care hospital in South Karnataka: A cross sectional study

L. Bhageerathi¹, Trupti B. Naik^{2*}

¹Assistant Professor, ²Associate Professor, Dept. of Microbiology, Chamarajanagar Institute of Medical Sciences, Chamarajanagar, Karnataka, India

***Corresponding Author: Trupti B. Naik**

Email: truptinaik01@gmail.com

Abstract

Introduction: Hospital acquired infections (HAIs) are defined as infections occurring in patients admitted in hospital or any other health care facility in whom the infection was neither present nor incubating at the time of admission. They also include infections acquired in the hospital but appearing after discharge and also infections occurring among health care staff of the facility. In all health care settings nurses being significant contributors of care, their knowledge and practices play an important role in the control/prevention of HAIs.

Objective: To estimate the level of awareness and practices towards standard precautions among staff nurses in the study setting.

Materials and Methods: The present study was a hospital based descriptive study conducted at Chamarajanagar Institute of Medical Sciences, Chamarajanagar, from Jan 2017 to March 2017. A total of 40 staff nurses were selected by simple random sampling and pretested and semi structured questionnaire was used to collect data. Statistical analysis was done using Microsoft Office Excel 2007.

Results: Majority i.e 35 (87.5%) were aware of Infection control committee (ICC) and Central supply and sterilisation department (CSSD) and > 90% knew segregation and disposal as per BMW rules. Majority i.e. 38 (95%) of staff nurses washed their hands before and after handling patients and used personal protective measures. More than half i.e. 23 (57.5%) of study participants had a history of needle stick injury, while only 19 (82.60%) among them reported and took treatment. Hepatitis B vaccination was taken by 24 (60%) of staff nurses.

Conclusion: The present study demonstrates satisfactory level of knowledge and practices towards standard precaution in the study setting and also finds many areas where educational interventions are necessary.

Keywords: Awareness, Nurses, Practices, Standard precautions.

Introduction

Hospital-acquired infection (HAI) or nosocomial infection is an infection occurring in patients in a hospital or other health-care facility in whom the infection was not present or was not incubating at the time of admission. This includes infections acquired in the hospital but appearing after discharge, and also infections occurring among staff of the facility.¹ HAIs contribute to significant morbidity and mortality, longer duration of hospitalization as well as increased expenditure of treatment in both developed and developing countries. The prevalence in the developed world is reported to be 15% among inpatients with levels as high as 37% among patients admitted in Intensive Care Units (ICU). The prevalence in developing countries however is higher with 19% prevalence among inpatients and is due to poor infection control practices and overcrowding in hospitals. Abuse and misuse of antibiotics has further worsened the situation with development of antimicrobial drug resistance among organisms, which can flourish and may get transmitted as HAIs.²

Due to occupational exposures resulting from mucocutaneous injury (splash of blood or other body fluids into the eyes, nose or mouth), percutaneous injury (needle stick or other sharps injury), or contact of non-intact skin with pathogenic organisms, health care professionals are at a higher risk of acquiring infections such as HIV, Hepatitis B, Hepatitis C etc.³ Standard precautions are based on the principle that all blood or body fluids may contain transmissible infectious agents and are recommended to be practiced when caring for all patients regardless of the diagnosis. They are simple set of effective practices

designed to protect health workers and in turn patients from hospital acquired infections.^{4,5} Standard precautions include hand hygiene, use of gloves, gown, mask, eye protection or face shield etc. and also include safe handling of equipment or items in the patient's environment that are likely to have been contaminated.⁶

A significant proportion of health care activities are done by nurses like parenteral administration of medications, bed making, feeding, handling of patients, dressing of wounds etc.⁷ and are exposed constantly to the risk of HAIs. Strict adherence to infection prevention protocol by nurses therefore is crucial to avoid spread of infections among patients and health careworkers.⁸ Hence, the present study was conducted to assess the level of awareness and the extent of practice of standard precautions among staff nurses.

Objective of the Study

To estimate the level of awareness and practices towards standard precautions among staff nurses in the study setting.

Materials and Methods

This cross sectional descriptive prospective study was conducted at Chamarajanagar Institute of Medical Science hospital, Chamarajanagar from January 2017 to March 2017 for a period of 3 months involving 40 staff nurses. Participants were selected by random sampling.

Permission from the concerned authorities was obtained before conducting the study. The details of 40 staff nurses in the hospital and their respective work stations were obtained. The investigator visited the hospital department

wise and the purpose of the study was explained to staff nurses once the rapport was established with them. Written informed consent was taken from staff nurses and Semi-structured questionnaire 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, awareness of the staff nurse on standard precautions and practices related to implementation of the same. 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.

Statistical Analysis

Microsoft excel 2007 was used for statistical analysis.

Results

Table 1: shows the socio-demographic profile of staff nurses. Female staff nurses were in majority i.e. 36 (90%) and maximum of the staff nurses i.e. 23 (57.5%) were of age group of 20-30 years. Maximum i.e. 36 (90%) of staff nurses had diploma degree in Nursing and more than half had work experience of >5 years as seen in the table.

Table 1: Socio-demographic characteristics of Study participants (n=40)

Characteristics	Classification	Frequency (No.)	Percentage (%)
Age group (Years)	20-30	23	57.5
	31-40	16	40
	41-50	1	2.5
Gender	Male	04	10
	Female	36	90
Professional Qualifications	DGNM (Diploma in general nursery and midwifery)	36	90
	Post basic BSc nursing	03	7.5
	MSc nursing	01	2.5
	Clinical Working Experiences (Years)		
	1-5	17	42.5
	>5	23	57.5
Area of Working	Surgical ward	10	25
	Gynaec / Maternity ward	06	15
	Orthopaedic ward	06	15
	Medical ward	12	30
	Emergency ward	06	15

Table 2: depicts level of awareness among study participants towards standard precautions. Among 40 staff nurses included in the present study, majority i.e 35 (87.5%) were aware of Infection control committee (ICC) and Central supply and sterilisation department (CSSD) and more than 90% agreed to have knowledge about the segregation and disposal as per BMW rules in the present study.

Table 2: Distribution of study subjects according to awareness towards standard Precautions (n=40)

S. No.	Questions	No. of subjects	
		No.	%
1	Is there any Infection Control Committee (ICC) in the hospital? (Yes)	35	87.5
2	Is there any Central Supply and Sterilization Department (CSSD) in the hospital? (Yes)	35	87.5
3	Are there any written policies for Hand hygiene in the hospital? (Yes)	20	50
4	Are there any Decontamination and Sterilization policy in the hospital? (Yes)	17	42.5
5	Are you aware of segregation and disposal as per BMW protocols? (Yes)	38	95

Note: Correct responses are mentioned at the end of questions inside brackets

Table 3: Distribution of staff nurses according to their practice of standard precautions. As shown in the table, majority i.e. 38 (95%) of staff nurses in the present study admitted to wash their hands before and after handling patients and used personal protective measures. Majority i.e. 35 (87.5%) accepted to clean the area before giving injections, 36 (90%) of nurses disinfected the skin before intravenous catheterisation and also 37 (92.5%) of them accepted to cover their own broken skin before coming to work. More than half i.e. 23 (57.5%) of study participants had a history of needle stick injury, while only 19 (82.60%) among them reported and took treatment. 24 (60%) of staff nurses had been vaccinated against hepatitis B.

Table 3: Distribution of study subjects according to practice of standard precautions (n=40)

S. No.	Variables	No. of subjects	
		No.	%
1	Do you wash hand with soap and water or antiseptic solution before and after handling patients? (Yes)	38	95
2	Do you wash hands after removing gloves? (Yes)	37	92.5
3	Do you use glove and protective gear, when carrying out procedures and handling patients? (Yes)	38	95
4	Do you wear gloves while handling blood or body fluids? (Yes)	35	87.5
5	Do you protect eyes while handling blood and body fluids? (Yes)	19	47.5
6	Do you clean the area with sterile swab before giving injections? (Yes)	35	87.5
7	Do you disinfect skin before intravenous catheterisation? (Yes)	36	90
8	Do you cover broken skin before coming to work? (Yes)	37	92.5
9	Do you use disposable needles, intravenous sets, etc.? (Yes)	35	87.5
10	Do you take extra care while handling sharp objects like needles? (Yes)	37	92.5
11	Do you recap used needles? (No)	32	80
12	Did you ever sustain needle injury? (Yes)	23	57.5
13	Did you report and take treatment for needle injury? (Yes)	19	47.5
14	Have you observed or assisted sterilization process in hospital? (Yes)	36	90
15	Have you been trained to use autoclaved linen and instruments as per protocol? (Yes)	32	80
16	Do you practice high level disinfection policy? (Yes)	27	67.5
17	Do you always wipe spills?(Yes)	35	87.5
18	Do you dispose needles and sharps into designated container? (Yes)	37	92.5
19	Have you been vaccinated against Hepatitis-B? (Yes)	24	60

Note: Correct practices are mentioned at the end of questions inside brackets except 12, 14.

Discussion

Healthcare workers play significant role in spread of HAIs, besides acquiring themselves, which can be easily prevented with good Infection control practices or Standard workplace precautions or Universal precautions. In the present study, more than 80% of the staff nurses were aware of ICC and CSSD and more than 90% agreed to know about segregation and disposal rules similar to the findings of studies done in and outside country.⁹⁻¹¹

Majority (95%) of the participants declared to use hand rub or soap for washing hands after handling patients in confirmation with other studies^{12,13} whereas some other studies have reported poor compliance to hand washing practices.^{8,9,14,15} Similarly, practice of covering their own broken skin by staff nurses was higher (92.5%) in line with findings of a study from Iran¹⁶ and was better than other studies.^{6,13,17} 92.5% of the participants accepted to follow needle safety precautions in the present study similar to findings of many studies done in different parts of the world.^{6,13,14,17,18} More than half of the study participants however had a history of needle stick injury and nearly 80% of them reported it, which is way higher than a study done in developed country.¹⁹

Studies have reported 84% to 95% compliance with the correct disposal of sharps into designated sharps containers^{6,13,20,21} and the practice reported in our study population was almost similar (92.5%). In spite of the perceived risk of getting exposed to blood borne infections, 40% of the staff nurse had not received hepatitis B vaccination in confirmation with other studies.^{9,17,22}

The present study was an attempt to assess the level of awareness and the practices towards universal/ standard precautions to prevent HAIs among patients, their attendees as well as among health care professionals in the study setting. The findings in the present study were based on self-reporting by staff nurses, which can lead to overestimation of level of better practices, due to bias towards reporting, which is one of the major limitation of the study. Despite this, the present study will act as proxy indicator of knowledge and practices of staff nurse towards standard precautions.

Conclusion

The present study demonstrates satisfactory level of knowledge and practices towards standard precaution among staff nurses in the study setting and also finds many areas where educational interventions are necessary.

Orientation programs for the new staff and on job training for existing employees are the needs of the hour. Hospital management in this regard, has a larger role to play in devising stringent and well-defined work place policies.

Conflict of Interest: None.

References

- Giri PA, Kamble MG, Kasat VO, Phalke DB. Knowledge about hospital-acquired infections amongst nursing staff of tertiary care teaching hospital in rural western Maharashtra, India. *Int J Med Sci Public Health* 2015;4(10):839-41.
- Iliyasu G, Dayyab FM, Habib ZG, Tihamiyu AB, Abubakar S, Mijinyawa MS. Knowledge and practices of infection control among healthcare workers in a Tertiary Referral Center in North-Western Nigeria. *Ann Afr Med* 2016;15(1):34-40.
- World Health Organization. Health care worker safety. Available at: http://www.who.int/injection_safety/toolbox/en/AM_HCW_Safety_EN.pdf.
- Siegel JD, Rhinehart E, Jackson M, Chiarello L. The Healthcare Infection Control Practices Advisory Committee. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. 2007. Available at: <http://www.cdc.gov/ncidod/dhqp/pdf/isolation2007.pdf>
- Vaz K, McGrowder D, Alexander-Lindo R, Gordon L, Brown P, Irving R. Knowledge, awareness and compliance with universal precautions among health care workers at the University Hospital of the West Indies, Jamaica. *Int J Occup Environ Med* 2010;1(4):171-81.
- Holla R, Kanchan T, Kumar N, Unnikrishnan B, Rekha T, Mithra P, Kulkarni V, Darshan BB. Perception and practices of standard precautions among health care professionals at tertiary care hospitals in coastal south India. *Asian J Pharm Clin Res* 2014;7(2):101-4.
- Manyele SV, Ngonyani HA, Eliakimu, E. The status of occupational safety among health care providers in hospitals in Tanzania. *Tanzan J Health Res* 2008;10(3):159-65.
- Gichuhi AW, Kamau SM, Nyangena E, Otieno-Ayayo ZN. Health care workers adherence to Infection prevention practices and control measures: A case of a level four District Hospital in Kenya. *Am. J. Nurs Sci* 2015;4(2):39-44.
- Sukhlecha AG, Vaya S, Parmar GG, Chavda KD. Knowledge, attitude, and practice regarding sterilization among health-care staff in a tertiary hospital of western India. *Int J Med Sci Public Health* 2015;4(10):1377-82.
- Keah KC, Jegathesan M, Tan SC, Chan SH, Cheong YM, Suleiman AB. An evaluation of knowledge and awareness of disinfection and sterilization among health care workers. *Southeast Asian J Trop Med Public Health* 1995;26(1):51-6.
- Uti OG, Agbelusi GA, Jeboda SO, Ogunbodede E. Infection control knowledge and practices related to HIV among Nigerian patient. *J Infect Dev Ctries* 2009;3(8):604-10.
- Singh S, Malhotra AK, Verma SK, Yadav R, Gupta S. A study on prevalence of practice of Universal Precautions among health care workers in Medical College, Jhansi (U.P). *IJIMS* 2015;2 (9):121-4.
- Sessa A, Giuseppe GD, Albano L, Angelillo IF. An investigation of nurses' knowledge, attitudes, and practices regarding disinfection procedures in Italy. *BMC Infect Dis* 2011;11:148.
- Yamini, Jain A, Mandelia C, Jayaram S. Perception and practice regarding Infection control measures amongst health care workers in District Government Hospitals of Mangalore, India. *IJHAS* 2012;1(2):68-73.
- Acharya AS, Khandekar J, Sharma A, Tilak HR, Kataria A. Awareness and practices of standard precautions for infection control among nurses in a tertiary care hospital. *Nurs J India* 2013;104(6):275-9.
- Vaziri S, Najafi F, Miri F, Jalalvandi F, Almasi A. Practice of standard precautions among health care workers in a large teaching hospital. *Indian J Med Sci* 2008;62(7):292-4.
- Kotwal A, Taneja D. Health care workers and Universal precautions: perceptions and determinants of non-compliance. *Indian J Community Med* 2010;35(4):526-8.
- Sadov WE, Fawole AO, Sadov AE, Oladimeji AO, Sotiloye OS. Practice of universal precautions among healthcare workers. *J Natl Med Assoc* 2006;98(5):722-6.
- Stein AD, Makarawo TP, Ahmad MF. A survey of doctors' and nurses' knowledge, attitudes and compliance with infection control guidelines in Birmingham teaching hospitals. *J Hosp Infect* 2003;54:68-73.
- Gershon RM, Vlahov D, Felknor SA, Vesley D, Johnson PC, Delclos GL, Murphy LR. Compliance with universal precautions among health care workers at three regional hospitals. *Am J Infect Control* 1995;23(4):225-36.
- Sangwan BR, Kotwal A, Verma AK. Occupational exposure to blood and body fluids amongst health care workers in a teaching hospital of the Armed Forces. *Med J Armed Forces India* 2011;67(1):21-4.
- Simard EP, Miller JT, George PA, Wasley A, Alter MJ, Bell BP, Finelli L. Hepatitis B vaccination coverage levels among healthcare workers in the United States, 2002-2003. *Infect Control Hosp Epidemiol* 2007;28(7):783-90.

How to cite this article: Bhageerathi L, Naik TB. An assessment of awareness and practices towards standard precautions among staff nurses at a tertiary care hospital in South Karnataka: A cross sectional study. *Indian J Microbiol Res* 2019;6(2):158-61.