

# Practice and its determinants of universal precaution among nursing staff in a tertiary hospital of Manipur

Susmita Chaudhuri<sup>1</sup>, Omkar Prasad Baidya<sup>2</sup>, T Gambhir Singh<sup>3</sup>

<sup>1</sup>Department of Community Medicine, ESI-PGIMS and ESIC Medical College, Joka, Kolkata, West Bengal, India.

<sup>2</sup>Department of Physiology, I-Care Institute of Medical Sciences, Haldia, West Bengal, India.

<sup>3</sup>Department of Community Medicine, Regional Institute of Medical Sciences, Imphal, Manipur, India.

Correspondence to: Susmita Chaudhuri, E-mail: schaudhuri1986@gmail.com

Received November 26, 2015. Accepted December 2, 2015

## Abstract

**Background:** Health workers are at higher risk of infection with blood-borne viruses including human immunodeficiency virus, hepatitis B virus, and hepatitis C virus. Successful implementation of universal precaution can effectively control these infections in health-care setting.

**Objective:** To assess the practice of universal precautions among nurses and factors influencing its use in a tertiary-health center of Manipur.

**Materials and Methods:** A cross-sectional study was conducted among the nursing staffs in a tertiary health-care center of Manipur from October 2011 to September 2013. Respondents were purposively selected, and data were collected using structured questionnaire. Descriptive statistics such as percentage was used to describe the findings.

**Result:** Total respondents were 446 nurses. Response rate was 98%. Only 24% of the nurses always used gloves whenever contact with blood and body fluid was likely. Five in 100 nurses never washed hands after removing gloves. One-third of the nurses never used gown, 22% of the nurses never used mask, 69.3% never used goggles when blood and body fluid splash was likely. Seven in 10 of the respondents always recapped needles immediately after use. Majority of the respondents used sharp and liquid proof container as a method of disposal of sharp materials after removing needle (61.2%). But, three in 100 nurses mixed sharps with general waste, and around 2% of them threw sharps in open pail. Reasons behind not practicing universal precaution were work stress (10.3%), time constraint (28%), lack of supply of personal protective equipment (67%), lack of display of guidelines (2.5%), and emergency situations (4%).

**Conclusion:** Practice of universal precaution was not satisfactory. Training of the health-care workers, proper equipment supply, posters displaying guidelines, and proper hospital policy of patient load management would significantly help both quantitatively and qualitatively for effective implementation of universal precaution in this premier health-care institution of Manipur.

**KEY WORDS:** practice, determinants, universal precaution, personal protective equipment, health-care worker

## Introduction

Health workers are at higher risk of infection with blood-borne viruses including human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV).<sup>[1]</sup> The WHO estimation shows that about 2.5% of HIV cases and 40% of HBV and HCV cases among health-care workers (HCWs) globally are because of working exposure to blood-borne pathogens. Globally, two million hepatitis B, 900,000 hepatitis C,

### Access this article online

Website: <http://www.ijmsph.com>

DOI: 10.5455/ijmsph.2016.26112015264

Quick Response Code:



and 300,000 HIV exposures happen in place of work.<sup>[2]</sup> Risk of obtaining infections are estimated as HBV (2%–40%), HCV up to 10%, and HIV approximately 0.3%.<sup>[3]</sup> Among the blood-borne pathogens, HBV is emerging as a global public health threat by being the tenth major deaths-causing disease.<sup>[4]</sup> In a developing resource-poor country such as India, the situation is worse, and occupational safety of HCWs remains a neglected issue.<sup>[5,6]</sup>

Most of these blood exposures in health settings are preventable. Implementation of universal precautions (UPs) is one of the leading strategies of prevention.<sup>[1]</sup> UP is defined as a method of infection control—recommended by the Center for Disease Control (CDC)—in which all human blood, certain body fluids, and fresh tissues and cells of human origin are handled as if they are known to be infected with HIV, HBV, and/or other blood-borne pathogens.<sup>[7]</sup>

Practice of UP has not been pronounced among HCWs, particularly in developing countries. In India, very few studies, with varying focus, have been conducted in this field. Therefore, this study is conducted to assess the practice of UP among nurses and factors influencing its use at a tertiary-health center [i.e., Regional Institute of Medical Sciences (RIMS), Imphal].

## Materials and Methods

This cross-sectional study was conducted among the nursing staffs in a tertiary health-care center of Manipur from October 2011 to September 2013. In this study, respondents were purposively selected, and data were collected using a structured questionnaire. The questionnaire was divided into three sections, which included questions on baseline characteristics, practice of UP, and factors influencing their practice. Those who refused to participate and who could not be contacted even after three successive visits were excluded from the study. After obtaining the permission from the respective Head of the Departments, nurses working at RIMS, at the time of their duty, were approached. They were initially informed about the study, and those who consented were given a questionnaire. An appointment for 30 min was made with each of the individual respondent to answer questionnaire, and any doubt regarding the topic and questions was clarified. Data so collected were checked for consistency and completeness and fitted in data base software. Descriptive statistics such as percentage was used to describe the findings. The study was approved by Institutional Ethics Committee, RIMS, Imphal. Informed consent from the study participants was taken. Confidentiality of the respondents was maintained.

## Result

Total respondents were 446 nurses. Response rate was 98% excluding six respondents who did not give consent and four of them who could not be contacted. Among them, 119 nurses were 40 years and older (30%). All nurses were

**Table 1:** Baseline characteristics (N = 446)

Characteristics	Number	Percentage
Age (years)		
20–24	58	13.0
25–29	82	18.4
30–34	119	26.7
35–39	53	11.9
≥40	134	30.0
Gender		
Male	0	0
Female	446	100
Job experience (years)		
<5	253	56.7
≥5	193	43.3

female subjects. A total of 253 respondents had job experience of <5 years, (i.e. 56.7%) [Table 1]. Only 24% of the nurses always used gloves whenever contact with blood and body fluid was likely. Five in 100 nurses never washed hands after removing gloves. One-third of the nurses never used gown. About 22% and 69.3% of the nurses never used mask and goggles, respectively, when blood and body fluid splash was likely. Around seven in 10 of the respondents always recapped needles immediately after use [Table 2]. Majority of the respondents used sharp and liquid proof container as a method of disposal of sharp materials after removing needle (61.2%). But, three in 100 nurses mixed sharps with general waste, and around 2% of them threw sharps in open pail [Table 3]. Reasons behind not practicing UP were work stress (10.3%), time constraint (28%), lack of supply of personal protective equipment (67%), lack of display of guidelines (2.5%), and emergency situations (4%) [Table 4].

## Discussion

In this study, only one-fourth of the nurses used gloves. Majority of them washed hands. Gown and mask use were low by the nurses in this study. Around three in 10 participants of the nurses wore mask. Only nine in 100 of the nurses wore goggles. Around 70% nurses practiced recapping, and majority disposed the sharps in puncture-proof container. Time constraint, lack of supply of personal protective equipment, work stress, lack of display of guidelines, and emergency situations were considered as the reasons of not practicing UP.

Use of glove was less when compared with a study conducted by Chopra *et al.*,<sup>[8]</sup> where 80.4% of the nurses used gloves. Jawaid *et al.*,<sup>[9]</sup> in their study, reported that 79% of the respondents wore gloves. This could be explained by lack of supply of gloves, which had been documented by many of the respondents. Findings of handwashing were consistent with the studies by Chopra *et al.*<sup>[8]</sup> and Mukherjee *et al.*<sup>[10]</sup> Gown use was comparable to study findings by Mukherjee *et al.*<sup>[10]</sup>

**Table 2:** Practice of universal precaution (*N* = 446)

Practice	Always, <i>n</i> (%)	Usually, <i>n</i> (%)	Sometimes, <i>n</i> (%)	Seldom, <i>n</i> (%)	Never, <i>n</i> (%)
Gloves use	107 (24.0)	77 (17.3)	231 (51.8)	19 (04.3)	12 (02.7)
Handwashing after removal of gloves	355 (79.6)	38 (8.5)	29 (6.5)	0 (00.0)	24 (05.4)
Gown use	126 (28.3)	15 (3.4)	144 (32.3)	13 (2.9)	148 (33.2)
Mask use	157 (35.2)	57 (12.8)	133 (29.8)	4 (0.9)	95 (21.9)
Goggles use	43 (9.6)	14 (3.1)	59 (13.2)	21 (04.7)	309 (69.3)
Recapping needle immediately after using	322 (72.2)	15 (3.4)	26 (5.8)	2 (0.4)	81 (18.2)

**Table 3:** Participants' response to the disposal of sharp materials such as used needles (*N* = 446)

Responses	<i>n</i>	(%)
Open pail	5	1.1
Sharp and liquid proof container without removing syringe	48	10.8
Sharp and liquid proof container with removing syringe	273	61.2
Mixed with general waste	14	3.1
Others (hub cutter and hypochloride solution)	106	23.7

**Table 4:** Reasons for not practicing universal precaution (*N* = 446)

Responses	<i>n</i>	(%)
Work stress	46	10.3
Time constraint	125	28.0
Lack of supply of personal protective equipment	299	67.0
Lack of display of guidelines	11	02.5
Emergency situation	18	04.0

Jawaid *et al.*<sup>[9]</sup> where almost half of the participants wore plastic apron. Mask use was a little lower than the finding of one study, where masks were used by 46% of the health workers.<sup>[9]</sup> Findings of this study were not comparable with other findings, where almost one-fourth of the respondents wore goggles.<sup>[9,10]</sup> All these findings could be explained by lack of availability of personal protective equipment in this institution. Sharp disposal and recapping were similar with other study findings.<sup>[10,11]</sup> In this study, time constraint and lack of supply of personal protective equipment were mentioned as reasons of not practicing UP.<sup>[3,8,10-15]</sup> Work stress also influenced compliance.<sup>[8,10,11]</sup> Participants had opined that lack of display of guidelines as a factor influencing the practice of UP, which was also observed by Chopra.<sup>[8]</sup> Emergency situation was negatively influencing their practice, which was much similar with the findings of Kotwal *et al.*<sup>[14]</sup> and Adinma *et al.*<sup>[13]</sup>

This study is one of its first kind showing the importance of UP in health-care setting in northeastern India. But, questionnaire method might have over-rated the findings because of social desirability bias. Future studies with observation component would be recommended for deriving the actual practice.

This study highlighted practice of UP and factors influencing its nonadherence among nurses in a tertiary health-care center of Manipur. Practice of UP was not satisfactory as around only

one-third of the respondents used gloves whenever there was contact with blood and body fluid exposure, and one in 20 of the nurses never practiced handwashing. Use of personal protective equipment was also unsatisfactory. Time constraint, work stress, lack of supply of personal protective equipments, lack of display of guidelines, and emergency situations had significant influence on the compliance of the practice of UP. Therefore, training of the HCWs, proper equipment supply, posters displaying guidelines, and proper hospital policy of patient load management would significantly help in effective implementation of UP in this premier health-care institution of Manipur.

## Conclusion

Practice of UP was not satisfactory. Training of the HCWs, proper equipment supply, posters displaying guidelines, and proper hospital policy of patient load management would significantly help both quantitatively and qualitatively for effective implementation of UP in this premier health-care institution of Manipur.

## References

1. World Health Organization. *Safe Injection Global Network*. Geneva, WHO, 2003. Available at: [http://www.who.int/occupational\\_health/activities/1am\\_hcw.pdf](http://www.who.int/occupational_health/activities/1am_hcw.pdf) (last accessed on January 30, 2012).
2. World Health Organization. *The World Health Report 2002. Reducing Risks, Promoting Health Life*. Geneva: WHO, 2002. Available at: <http://www.who.int/whr/2002> (last accessed on February 15, 2012).
3. Dhaliwal B, Saha PK, Goel P, Huria A. Universal precautions against HIV and other blood-borne pathogens-knowledge, attitude and compliance among health professionals in obstetrics and gynecology. *Nepal J Obstet Gynecol* 2011;6(1):13-6.
4. Singhal V, Bora D, Singh S. Hepatitis B in health care workers: Indian scenario. *J Lab Physicians* 2009;1(2):41-8.
5. Kermode M, Jolley D, Langkham B, Thomas MS, Holmes W, Gifford SM. Compliance with universal precautions among health care workers in rural north India. *Am J Infect Control* 2005;33(1):27-33.
6. Wu S, Li L, Wu Z, Cao H, Lin C, Yan Z, *et al.* Universal precautions in the era of HIV/AIDS: perception of health service providers in Yunnan, China. *AIDS Behav* 2008;12(5):806-14.

7. The Free Dictionary. *Segen's Medical Dictionary*. Available at: <http://www.medicaldictionary.thefreedictionary.com> (last accessed on August 28, 2011).
8. Chopra S, Walia I, Verma P, Vati J. Knowledge and practices related to compliance with universal precautions: a study among staff nurses of PGIMER, Chandigarh. *Nursing Midwifery Res J* 2008;4(2):59–67.
9. Jawaid M, Iqbal M, Shahbaz S. Compliance with standard precautions: a long way ahead. *Iranian J Publ Health* 2009;38(1):85–8.
10. Mukherjee S, Bhattacharyya A, SharmaSarkar B, Goswami DN, Ghosh S, Samanta A. Knowledge and practice of standard precautions and awareness regarding post-exposure prophylaxis for HIV among interns of a medical college in West Bengal, India. *Oman Med J* 2013;28(2):141–5.
11. Janjua NZ, Razaq M, Chandir S, Rozi S, Mahmood B. Poor knowledge—predictor of nonadherence to universal precautions for blood borne pathogens at first level care facilities in Pakistan. *BMC Infect Dis* 2007;7:81.
12. Hesse A, Adu-Aryee NA, Entsua-Mensah K, Wu L. Knowledge, attitude and practice universal basic precautions by medical personnel in a teaching hospital. *Ghana Med J* 2006;40(2):61–4.
13. Adinma ED, Ezeama C, Adinma JI, Asuzu MC. Knowledge and practice of universal precautions against blood borne pathogens amongst house officers and nurses in tertiary health institutions in Southeast Nigeria. *Niger J Clin Pract* 2009;12(4):398–402.
14. Kotwal A, Taneja DK. Health care workers and universal precautions: perceptions and determinants of non-compliance. *Indian J Community Med* 2010;35(4):526–8.
15. Khapre MP, Mudey A, Chaudhary S, Wagh V, Goyal RC. Awareness and compliance with universal precaution guidelines among interns and residents: an interview based study in rural tertiary care teaching hospital. *Int J Health Sci Res* 2012;1(2):95–100.

**How to cite this article:** Chaudhuri S, Baidya OP, Singh TG. Practice and its determinants of universal precaution among nursing staff in a tertiary hospital of Manipur. *Int J Med Sci Public Health* 2016;5:1596-1599

**Source of Support:** Nil, **Conflict of Interest:** None declared.