

Original Research Article

## **A Study on Knowledge, Attitude and Practice (KAP) of Universal Precautions in The Nursing Staff of Tertiary care Hospital**

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**Abstract:** Healthcare Associated Infection (HCAI) is the major cause of morbidity and mortality in hospital based settings; with nosocomial infections and their control creating a world-wide challenge. This also adds to the burden of healthcare costs due to added antimicrobial treatment and prolonged hospitalization. Para medical staff, especially nurses is at great risk of exposure to blood and body fluids and other means of spread of infection. This study was conducted to access knowledge, attitude and practice regarding universal precautions among the nursing staff of one of the tertiary care hospital and to identify various hurdles to fulfill the same. A self-administered structure study instrument was used to determine knowledge, attitude and practice of Universal Precaution among nursing staff of one of the tertiary care hospitals of Western India. The study included 52 nursing staff from various department of hospital including Specialty and super specialty departments. It was noted that only 85% of the nursing staff was given training of universal health precaution. Knowledge regarding HIV was satisfactory; all the nurses knew the mode of transmission of HIV. Most important and the basic thing in the prevention of infection is hand washing; knowledge regarding which was seen in all the nurses, however, compliance to hand washing was found only in 40% nurses. Low compliance of hand hygiene, lack of training, heavy workloads, underuse of personal protective equipment's are major obstacles in preventing infection and spread of multi-drug resistant pathogens.

**Keywords:** Universal Precaution, KAP, Blood route Transmission, nosocomial infection, HCAI

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### **INTRODUCTION:**

At any given time, over 1.4 million people worldwide suffer from Health Care Associated Infection (HCAI). One or more of the nosocomial infections are acquired by about 5-10% of patients admitted to modern hospitals in the developed world[1]. Developing countries face 2 to 20 times higher risk of HCAI than in developed countries, the proportion exceeding 25% in some [1].

Contagious, infectious and waterborne diseases such as diarrhea, amoebiasis, typhoid, infectious hepatitis, worm infestations, measles, malaria, tuberculosis, whooping cough, respiratory infections, pneumonia and reproductive tract infections dominate the morbidity pattern [2]. Hospital-acquired infections often are a result of lapses in accepted standards of practice on the part of health care personnel. Despite their best intentions, sometimes, healthcare workers act as vectors of disease. They

disseminate new infections among their unsuspecting patients. Attention to simple preventive strategies like hand-washing may significantly reduce disease transmission rates [3].

Likewise, healthcare-associated pathogens are generally transmitted via the contaminated hands of healthcare workers. Hand hygiene has long been considered one of the most important infection control measures to prevent healthcare-associated infections. However, compliance of health care workers with recommended hand hygiene procedures has remained unacceptable concern, with compliance rates generally below 50% for hand hygiene opportunities [4]. Thus, there is an urgent need for both nationally and internationally agreed codes of safe practice to be inculcated and the development of guidelines for the medical surveillance of health workers [5]. This study was undertaken to evaluate the knowledge, attitudes and

practices of paramedical staff regarding the infection control measures like universal precaution.

#### MATERIALS AND METHODS:

This is a cross-sectional, study to determine Knowledge, Attitude and Practice of universal precautions and to identify various reasons for failure to follow the same among the nursing staff in one of the tertiary care hospitals of Western India, using a structured study instrument. Study units were selected from thirteen specialist and super specialist departments of the hospital having patient interactions (Medicine, Surgery, Orthopedics, Obstetrics and Gynecology, Paediatrics, Pathology, Ophthalmology, ENT, Radiology, ICU, Paediatric ICU, Emergency and Labor room). From every department, four nurses were selected randomly; thus total 52 nurses were included in the study. The predesigned-questionnaire was self-administered to the subjects enrolled for the study after taking verbal consent. The questionnaire was adapted from the literature which included questions on prevention of nosocomial infection, vaccination, route of disease transmission, post-exposure prophylaxis

knowledge, and universal work precautions being followed by staff nurses. Demographic data regarding the age, work experience and training of the nurses was also collected. The questionnaire was filled one by one by themselves under my observation by setting beside them so they cannot consult each other and go through literature. Before handing over the questionnaire, aim and objectives were explained to the participants. After completion of data collection, data were entered into excel and imported to Epiinfo for analysis. Data was analyzed to look for percentage and proportion and to check association with knowledge, attitude and practice regarding universal precaution at 95% confidence interval.

#### RESULTS:

In the study 52 female nurses having the mean experience of  $10.23 \pm 5.56$  years were interviewed. Mean age of the respondent's was  $38.44 \pm 11.2$  years. Out of 52 nurses only 44(84.61%) were given training at any time of their total work tenure, Out of those nurses being given training maximum were in the age group of 45-50 years.

**Table 1: Knowledge about universal precautions**

About Blood route Transmission of	N (%) N=52
HIV	52 (100%)
HBV	44 (84.62%)
HCV	20 (38.46%)
CCHF	11 (21.15%)
Hand washing with soap and water	52 (100%)
Hand washing with anti-septic	47 (90.38%)
Usage of needle cutter	51 (98.08%)
<b>About Needle stick injury</b>	
Applying antiseptic drug	42 (80.77%)
Getting blood out by applying Pressure	42 (80.77%)
Informing Higher Authority	40 (76.92%)

One objective of the study was to assess knowledge of nurses. As shown in Table 1, Out of total nurses surveyed only 20(38.5%) and 11(21%) knew that HCV and CCHF respectively is transmitted through blood while all of the participant were aware regarding

blood route transmission of HIV. All of the participants knew that after attending any patient hands should be washed with soap and water. Only 77% of the nurses knew that after getting needle stick injury higher authority should be informed immediately. (Table 1)

**Table 2: Practice about universal precautions**

	Always	Mostly	Often	Total
Hand washing with Soap and Water (n=52)	21(40.38%)	28(53.85%)	3 (5.77%)	52(100%)
Hand washing with anti-septic (n=47)	7 (14.89%)	26 (55.32%)	14(29.79%)	47(100%)
<b>Always Using</b>				
Gloves	33 (63.46%)			
Mask	28 (53.85%)			
Apron	9 (17.31%)			
Both mask and gloves	24 (46.15%)			
Both Apron and gloves	7 (13.46%)			
<b>Cleaning Spillage of body fluid</b>				
With anti-septic	51 (98.08%)			
With soap and water	1 (1.92%)			
Usage of needle cutter (n=51)	44 (86.27%)			

Even though all the nurses knew about hand washing, enquiry regarding practice of the same showed that only 40% washed their hands every time after attending the patient, while in case of hand washing with anti-septic this proportion further decreased to 15%. In case of using Personal Protective Equipment usage of gloves was more common than other

equipments, while proportion of participants using both mask and gloves was near half. Though 51 (98.08%) nurses had knowledge of using a needle cutter, 7 out of these 51 used to throw needle in blue bag without cutting it. Almost all the nurses (98.08%) cleaned spillage of body fluids with anti-septic. (Table-2)

**Table 3: Attitude about universal precautions**

		Knowledge about Blood route Transmission of HBV		Total N(%)
		Yes	No	
Taken HBV vaccine	Yes	42(80.76%)	3(5.76%)	45(86.53%)
	No	2(3.84%)	5(9.61%)	7(13.46%)
		44(84.61%)	8(15.38%)	52(100%)
$\chi^2 = 14.86, p < 0.001$				
		Shortage of Time	Not Available	Other
Not washing hand with soap and water every time (N=31)		14 (45.16%)	Soap - 8 (25.81%) Water - 6(19.35%)	3 (9.68%)
Not washing hand with Antiseptic every time (N=40)		13 (32.50%)	24 (60.00%)	3 (7.50%)
Not using Gloves every time (N=19)		8 (42.11%)	8 (42.11%)	3 (15.78%)
Not using Mask every time (N=24)		8 (33.33%)	6 (25.0%)	10 (41.67%)
Not using Apron every time (N=43)		12 (27.91%)	18 (41.86%)	13 (30.23%)

With regards to attitude related to universal precautions, though 85% of the nurses knew the blood route transmission of HBV, 4% nurses had not taken HBV vaccine on the other side eight nurses did not know the blood route transmission of HBV still three out of those had taken the vaccine. But statistically there is highly significant relation between knowledge about blood route transmission of HBV and Attitude of taking HBV vaccine. 'Lack of time' was the reason cited for not washing hand every time with soap and water. While for using personal protective equipment and washing hand with anti-septic it is the unavailability of the material which is responsible for such attitude. (Table-3)

#### DISCUSSION:

In the above study the mean age of respondents was  $38.44 \pm 11.2$  years which is somewhat higher compared to other studies. Gupta *et al.*; [6] in their similar knowledge, attitude and practice study among HCW found the mean age of participants was  $33 \pm 6$  years. Study amongst the NGO run clinics of Rural South India done by Kormed *et al.*; [7] found that the mean age of respondents were  $30.5 \pm 10.3$ . Experience in years (Mean $\pm$ SD) is  $10.23 \pm 5.56$  while it is  $9.20 \pm 6.6$  years in the study conducted by Suchitra J.B [8]. The reason of being maximum trained nurses in the age group of 45-50 years may be the long work experience so they got many changes to have training.

Regarding knowledge about the route of transmission, all the nurses knew the blood route transmission of HIV while only 20 nurses (39%) knew that Hepatitis C is also transmitted through blood. Gurubacharya DL [9] also noted similar finding in his study that only 39% Health Care Workers were aware about HBV and HCV transmission through needle stick injury. Gupta *et al.*; [6] concluded that there was a fair level of knowledge about HIV/AIDS but Hepatitis B and C had not generated adequate concern among the HCW, reason being the fear and stigma regarding HIV which generate interest to know 'more' about it. Regarding needle-stick injury, 77% of the nurses knew that it should be reported to the concerned authority. In the study by Gandha Kapil [10] only 16% nurses were aware about notifying such incidents.

Hand hygiene is one of the most important infection control measures. As more emphasis for prevention of nosocomial infection is given to hand washing all of the participants was aware about washing hands with soap and water after attending patients. In this study compliance to hand washing with soap and water is 40%. This was much less as compared to studies done by Anupam *et al.*; [11] and Benzyl Paul *et al.*; [12] in which hand washing compliance among nurses was 64% and 92% respectively. Alp *et al.*; [13] described in his study that hand washing compliance among health care workers is 33%. Dimie Ogoina *et al.*; [14] found in his study that 58.5% health care workers practiced hand hygiene every time after touching patients. Compliance of using Gloves, Apron and Mask

among nurses was 80%,20%,48% and 96%,64%,98% in the studies conducted by Anupam *et al.*; [11] and Benzyl Paul *et al.*; [12] respectively while the same was 63%,17%,54% in this study. These lesser values are a matter of concern, as health care workers may believe that apron is not much effective as universal precaution in preventing disease.

It is important to note that even though 85% nurses knew about blood route transmission of HBV 4% had not taken Hepatitis B vaccine which shows lack of awareness of Hepatitis B fatality. Proportion of Health care workers who had taken Hepatitis B vaccine was 60% and 82% in the study carried out by Gurubacharya DL [9] and Afia Zafar *et al.*; [15] while it is 86% in this study. The importance of personal protective equipments needs to be highlighted through trainings, sensitization and on the job monitoring of health care personnel. The major obstacles for non-compliance are shortage of time due to heavy work load and unavailability of personal protective equipment in sufficient quantity while other reasons are getting bored, discomfort by PPE and feeling of no requirement of precaution in each patient. These findings are in concordance with those of other studies [8, 13, 14].

#### CONCLUSION:

Majority of trained nurses being in higher age group, compliance of universal precautions among paramedical staff training can be improved not only by reinforcing it repeatedly at regular time interval but by making it an integral part of the curriculum to consolidate and update the knowledge of universal precaution. All the nurses knew that hands should be washed with soap and water after attending patients. Majority of the participants cited unavailability of various materials for low compliance to follow universal precaution. Guideline for preventing transmission of infectious agents should be incorporated into the objectives of the organization's patient and occupational safety programs. Personal protective equipments and other resources like water and antiseptic solution should be supplied regularly and in sufficient quantity. Finally to reinforce the knowledge of universal precaution continually IEC campaign should be strengthen by placing and maintaining IEC material at every work place.

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