

## ORIGINAL RESEARCH ARTICLE

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### Is the awareness regarding post exposure prophylaxis of blood borne infections among nurses in a tertiary health care setting still poor?:Necessity and Challenge.

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#### ABSTRACT

**Background-** Among health care workers needle stick injury is a common source of transmission of infections. Being in health sector and providing care to patients, imposes a risk to health of care workers itself. **Aims & Objectives:** To assess awareness regarding post exposure prophylaxis against blood borne infections among healthcare workers. **Material & Methods:** Descriptive cross-sectional study was designed to assess about awareness level among nurses who are directly dealing with patient care in tertiary care hospital of Pune. Simple questionnaire was given to them for their assessment of awareness level. **Results:** 84% nurses were aware about blood borne infections, around 75% of these nurses knew about the pre-exposure vaccinations against these diseases. Regarding attitude, majority of nurses felt that there should be a healthcare policy for preventing blood borne infections at their workplace. Needle stick injuries among nurses seemed to be low as 73% of them said that they wear gloves while handling sharp instruments. **Conclusion:** It is quite evident from this study that there is fair knowledge among nurses about blood borne infections and their transmission by sharp instruments but had poor awareness about the post exposure prophylaxis

**Key-words:** Blood borne, Infections, nurses, tertiary hospital

#### INTRODUCTION

Occupational needle stick injuries are the most prevalent in the healthcare sector which has intensified the need to act.<sup>(1)</sup>Transmission of at least twenty different pathogens by needle stick and sharps injuries has been reported out of which HIV, Hepatitis B, and Hepatitis C are the primary reasons for concern.<sup>(2)</sup> These do not spread through droplet infection or through intact skin but by direct inoculation of viruses into cutaneous scratches, skin lesions, abrasions, and inoculation of viruses on the mucosal surfaces of the eyes, nose or mouth through accidental splashes. Even though these infections can be prevented by adopting general and specific measures of prevention and control, they still bear immense importance for healthcare services in a developing country.<sup>(3)</sup>Occupational exposure to pathogens that cause these infections is linked to the fear and prejudice prevailing in the healthcare workers. Unsafe practices such as careless handling of contaminated needles, unnecessary injections on demand, re-use of inadequately sterilized needles and improper disposal of hazardous wastes have potentially increased the risk of professional exposure to blood borne pathogens.<sup>(4)</sup> The first case of a healthcare worker developing HIV infection after a needle stick injury was reported in 1984<sup>(5)</sup>. Ever since, the estimated risk for HIV transmission following injury by a needle contaminated with HIV infected blood is 0.3%.<sup>(6,7)</sup> World Health Report 2002, states that 2.5% of HIV cases among health care workers worldwide are the result of occupational exposure. Many researchers have stated that

40-70% of all needle stick injuries are unreported.<sup>(8)</sup>Without documentation of the injury, the affected staff is unlikely to get workers compensation benefits if later becoming infected with any of the blood borne pathogens.

**AIM:** To assess awareness regarding post exposure prophylaxis against blood borne infections among healthcare workers.

**OBJECTIVES:** To assess knowledge, attitude and practice of healthcare workers in a tertiary care hospital regarding post exposure prophylaxis of blood borne diseases.

#### Methods

A descriptive cross-sectional study was carried out among Nurses(GNM and ANM) of . Dr. D. Y. Patil Medical College & Hospital and Research Centre Pimpri, Pune. The study was carried out for a duration of two months .The came out to be 81, considering the knowledge of post exposure prophylaxis of blood borne infections to be 70.4%.<sup>(9)</sup> and margin of error to be 10% using WinPepi statistical software. Further, considering 10% dropout, the sample size was 90. According to convenience sampling, nurses were selected from all the wards of the hospital. A pre-designed semi structured questionnaire was given to the study group. A pilot study was done on 10% of study sample prior to the study to make the required changes in the questionnaire. A written

informed consent was obtained from all the participants. After analyzing the study, required health education was given to the healthcare workers in their best interest. The data was entered in Excel and results were represented in percentages.

### Results

Study group consisted of 6% male nurses and 94% female nurses. Nurses were mainly in the age group of 20-30 and there was a notable female preponderance as well. (Table 1).53% nurses have a degree in GNM and 28% in ANM. 84% nurses were aware about blood borne infections and could correctly answer how they can be transmitted in a healthcare setting. Around 75% of these nurses knew about the pre- exposure vaccinations against these diseases. (Table 2).Majority 79% of nurses said that washing immediately with soap and water should be the very first step after a needle prick and 15% nurses said that the wound should be bandaged. Whereas 4% of them claimed that it was sensible to do nothing about it and visit a doctor instead. Needle stick injuries among nurses seemed to be low as 73% of them said that they wear gloves while handling sharp instruments. Only about 9% nurses claimed that they re-used unsterilized needles. 14% of nurses have had a needle stick injury at their workplace and a majority of them claimed to have washed it immediately with soap and water. However only 30% of the injured nurses took respective post exposure prophylaxis after the injury. (Table 4)

**Table 1- Distribution of study group according to age and sex**

Age	Male	Female	Total	%
20-30	5	75	80	88.89
30-40	0	4	4	4.44
> 40	0	6	6	6.67
Total	5	85	90	100.00

**Tables2- Knowledge among nurses regarding blood borne infections.**

Variables	n (%)
No. of nurses aware about blood borne infections	76(84)
No. of nurses aware about pre exposure vaccinations for the Infections.	68(75)
What should be done in case of a needle prick?	
Wash immediately with soap and water.	71(79)
Put finger in mouth.	00(00)
Bandaging	15(17)
Nothing to be done.	04(04)

### Discussion

Majority 84% of nurses had the knowledge about blood borne infections and their transmission. These nurses also knew that the most common blood borne infections are HIV, hepatitis B, hepatitis C which are lethal. In a study in south India<sup>(10)</sup>, 92% health care worker had fair general awareness about Blood Borne infections. 89.23% of the students had correct knowledge about Needle Stick Injury and 91.55% of the students had adequate level of

awareness regarding its management in a systematic review study among dental professionals and students<sup>(11)</sup>. In a study in Delhi<sup>(12)</sup>,64.5% nurses in tertiary care hospital had inadequate knowledge about transmission of blood borne infections.

**Table-3-Attitude of Nursing Staff towards blood borne infections**

Variables	n(%)
1 Do you think there should be a training programs for preventing blood borne infections among healthcare workers at your workplace?	
a. Strongly agree	46(51)
b. Agree	37(41)
c. Not sure	05(06)
d. Disagree	00(00)
e. Strongly disagree	02(02)
2 Do you think universal precautions should be followed by the healthcare workers while handling infectious patients?	
a. Strongly agree	63(70)
b. Agree	19(21)
c. Not sure	02(02)
d. Disagree	05(06)
e. Strongly disagree	01(01)
3 Do you think needles should be re-capped??	
a. Strongly agree	11(12)
b. Agree	04(04)
c. Not sure	10(11)
d. Disagree	02(02)
e. Strongly disagree	63(70)
4 Do you think there should be a protocol for post exposure prophylaxis in a hospital in case of an emergency?	
a. Strongly agree	70(78)
b. Agree	15(17)
c. Not sure	02(02)
d. Disagree	02(02)
e. Strongly disagree	01(01)

### 4.Practice on handling blood borne infections

Variables	n(%)
1 Nurses who wear gloves while handling sharp instruments	66(73)
2 Nurses who re-use unsterilized needles	08(09)
3 Nurses who have had a needle stick injury at their workplace.	13(14)
4 What the nurses did after the needle stick injury:	
a. Wash immediately with soap and water	11(84)
b. Put finger in mouth	00(00)
c. Bandaging	02(16)
d. Nothing	00(00)
5 Nurses who took post exposure prophylaxis after the injury	04(30)

About 75% of these nurses were well aware about the pre-exposure vaccinations against these diseases and said that they had taken them. While in a study in Egypt<sup>(13)</sup> only 53.5% nurses were vaccinated against Hepatitis B virus. While in a study in Bangalore<sup>(14)</sup> among dental professionals 81.5% were vaccinated against hepatitis B. In a study in Andhra Pradesh<sup>(15)</sup> 71.1% health care providers were having knowledge about hepatitis B vaccination but only 41.7% have taken it.

79% nurses had the knowledge that washing immediately with soap and water after a needle stick injury can reduce the risk of disease transmission. This finding is higher than the study finding of Lamichanne J et al<sup>(16)</sup> where only 48% of nurses were aware that washing immediately with soap and water is the first aid after needle prick injury. Whereas 4% of them thought that nothing should be done after a needle prick. Proper knowledge among the healthcare workers is important for prevention of any such transmission of diseases.

Findings suggest that 51% of nurses strongly felt that the hospital should organize training programs which would be beneficial in reducing transmission of blood borne infections. 70% of them strongly agreed that by following universal precautions, they could prevent needle stick injuries and they strongly disagreed on the fact that needles should be re-capped after use. 14% of nurses said that they had had a needle stick injury, 84% of which washed immediately with soap and water and only about 30% of the injured nurses were aware about post exposure prophylaxis and took it. This finding is slightly lower than the findings given by study in Uganda which showed that 59% of nurses were aware of post exposure prophylaxis.<sup>(17)</sup> The results of this study indicate that most of the nurses follow universal precautions while handling sharp instruments whereas they have a very little knowledge regarding post exposure prophylaxis of blood borne infections. Nurses who were interviewed were also educated and counselled regarding benefits of early action following a needle stick injury and the subsequent post exposure prophylaxis which is essential to prevent them from

**Recommendation** Nurses should be encouraged to enroll themselves in various training programs. Hospitals should also follow a protocol on post exposure prophylaxis, each injury should be reported, looked into and recorded. This will be useful to generate awareness about the risks, hazards, and prevent these infections in the healthcare staff. This will further be helpful to reduce morbidity and mortality due to occupational transmission of blood borne pathogens in the healthcare sector in the long run.

**Limitation of the study** The study was limited to nursing staff only. It can be translated among other hospital staff also. Apart from medical college the study can be done in other colleges attached to university like dental.

**Relevance of the study** About 84% of nurses were well aware about the transmission of blood borne infections

through needle stick injuries, and 14% of nurses said that they had actually had a needle stick injury out of which only 30% of nurses took post exposure prophylaxis. There is poor awareness among the nurses regarding post exposure prophylaxis of blood borne infections.

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