



# Knowledge, Attitude and Practices amongst Paramedical Staff on Needle Stick Injuries in a Tertiary Level Health Care Facility in Southern Rajasthan

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## ABSTRACT

**Introduction:** A needle stick injury (NSI) is defined as an accidental skin-penetrating stab wound from a hollow-bore needle (or any sharp) containing another person's blood or body fluid. Health care workers (HCWs) who are exposed to needle in their clinical activities are at increased risk of acquiring needle stick injury which may lead to serious or fatal infection with blood-borne pathogens such as hepatitis B virus, hepatitis C virus or HIV. **Objective:** to assess the knowledge, attitude and practices on Needle Stick Injury among paramedical personnel.

**Material and method:** A cross-sectional study was conducted on paramedical personnel working at Maharana Bhopal Government Hospital, Udaipur.

**Results:** Most of the respondents (94.32%) were aware of hazardous consequences of needle stick injury. Majority of the respondents (94.89%) felt that needle stick injury is a matter of concern, but only 55.88% LTs as compared to 84.50% nurses felt that it was important to report it. Almost three fourth (74.43%) respondents had sustained needle stick injury in last one year.

**Conclusion:** Needle stick injury is a serious matter of concern. There was a wide gap in the participant's knowledge and attitude towards NSI and what they actually did after sustaining the injury.

**Key Words:** Needle stick injury, Paramedical Staff, Knowledge, Attitude.

## INTRODUCTION

A needle stick injury (NSI) is defined as an accidental skin-penetrating stab wound from a hollow-bore needle (or any sharp) containing another person's blood or body fluid. Sharps injury (SI) is defined as a skin-penetrating stab wound caused by sharp instruments and accidents in a medical setting.<sup>1</sup>

Health care workers (HCWs) who are exposed to needle in their clinical activities are at increased risk of acquiring needle stick injury which may lead to serious or fatal infection with blood-borne pathogens such as hepatitis B virus (HBV), hepati-

tis C virus (HCV) or human immunodeficiency virus (HIV).<sup>2</sup>

The activities associated with the majority of needle stick injuries (NSIs) are injections, blood sampling, recapping and disposing needles and also handling trash.<sup>3</sup>

The risk of pathogen transmission from infected persons to non-immune persons through an injury with a sharp instrument has been estimated to be between 6% and 30% for HBV, between 5% and 10% for HCV, and 0.3% for HIV.<sup>4</sup>

According to the World Health Report 2002, out of 35 million healthcare workers (HCWs), 2 million

experience percutaneous exposure to infectious diseases each year.<sup>5</sup> In India, around 3–6 billion injections are given per year, of which two-third injections are unsafe (62.9%), and the use of glass syringe is constantly associated with a higher degree of unsafeness.<sup>6</sup>

In India, the problem of exposure to needle stick injuries among paramedical personnel's is not well documented. The aim of this study was to assess the knowledge, attitude and practices on Needle Stick Injury among paramedical personnel and to determine the incidence of needle stick injuries among paramedical personnel.

## MATERIAL AND METHOD

A cross-sectional study was conducted on paramedical personnel (including nurses and lab technicians) working at Maharana Bhopal Government Hospital attached with RNT Medical College Udaipur, Rajasthan. The study was stretched over a period of 6 months, from June 2014 to November 2014. All the nurses (403) working in various departments in the hospital and all lab technicians (91) working in central lab, blood bank, pathology and microbiology departments in shifts on rotation basis formed the sampling frame. 34 lab technicians and 147 nurses working in various departments in the hospital were selected for present study. Multistage Random Sampling technique was used for selection of study participants. For this a list of all the staff Nurses was obtained and probability proportional to size (PPS) was applied

to decide the number of nurses to be selected from each department/specialty. Estimated number of nurses was selected by simple random sampling in their respective department/specialty. If the randomly selected nurse was not available or did not consent to voluntary participation then the next nurse in the list was included. Similarly a list of Lab Technicians was obtained and random sampling done after applying PPS. Informed consent was obtained from all participants before the study. Ethical approval was taken for the study from the Institutional Ethical Committee. A semi-structured questioner was used to assess the knowledge, attitude and practice on Needle Stick Injury among the respondents. After completion of data collection, data were coded, tabulated and analyzed using M. Excel and epi-info 7 software. The results were analyzed using chi square test;  $p < 0.05$  was considered as statistical significant.

## RESULTS

Most of the nurses (84.50%) and majority of LTs (55.88%) were aware that needle stick injuries have to be reported, almost half nurses (47.5%) and LTs (57.90%) reported that it should be reported to their respective in charges. Most of the respondents (94.32%) in both groups were aware of hazardous consequences of needle stick injury. Awareness regarding importance of reporting of the injury was significant higher among nurses as compared to LTs ( $p < 0.001$ ) (Table 1).

**Table 1: Knowledge of paramedical personnel about needle sticks injury**

Knowledge variable	Nurses (n = 147) (%)	LTs* (n = 34) (%)	Total (n = 181) (%)	P value**
<b>It is important to report Needle stick injury</b>	120(84.50)	19(55.88)	139(78.98)	< 0.001
<b>To whom should reporting be done-</b>				
Head Of Department	21(17.5)	3(15.78)	24(17.27)	0.36
UNIT In charge	14(11.67)	2(10.53)	16(11.51)	0.46
Medical Superintendent.	6(5)	1(5.26)	7(5.03)	0.73
NURSING/LAB In Charge	57(47.5)	11(57.89)	68(48.92)	0.4
Nursing Superintendent.	22(18.34)	2(10.53)	24(17.27)	0.14
<b>NSIs have hazardous consequences</b>	136(95.77)	30(88.24)	166(94.32)	0.08

\* Lab. Technicians, \*\* By Chi Square test

**Table 2: Attitude# of the paramedical personnel towards needle stick injury**

Attitude	Nurses (n = 147) (%)	LTs* (n = 34) (%)	Total (n = 181) (%)	P value**
Needle stick injury is a matter of concern	138(97.18)	29(85.29)	167(94.89)	< 0.001
Reporting of Needle stick injury is important	120(84.50)	19(55.88)	139(78.98)	< 0.001
Used needle can be recapped	98(69.01)	26(76.47)	124(70.45)	< 0.001
Used needle should be discarded immediately	44(30.98)	8(23.52)	52(29.54)	0.39

\* Lab. Technicians, \*\* By Chi Square test, #number of respondents who agreed with the statement

Majority of the respondents (94.89%) felt that needle stick injury is a matter of concern, but only 19 (55.88%) LTs as compared to 120 (84.50%) nurses

felt that it was important to report it. One third 52(29.54%) of the respondents in both groups were in favor of discarding of used needle immediately

but, three fourth, (70.45%) of the LTs and 98 (69.01%) nurses felt that used needles can be re-capped. More nurses than LTs showed a favorable attitude towards points studied for needle stick injury. (p<0.001) (Table 2).

Almost three fourth (74.43%) respondents had sustained needle stick injury in last one year (Table 3). Out of the 131 respondents that had sustained needle stick injury in last one year, majority 74 (56.48%) had sustained it 2-3 times in that period (Table 4). Out of all the respondents who had sustained needle stick injury in last one year, only 22 (16.79%) had informed their seniors and only 14 (10.69%) had actually filed incident report. Majority (78.62%) of respondents claimed that they had taken one or other post exposure measure (Table 5).

**Table 3: Needle Stick injury status of the para-medical personnel in last one year**

Sustained needle stick injury	Nurses (%)	LTs*(%)	Total(%)
Yes	113(79.57)	18(52.94)	131(74.43)
No	18(12.67)	11(32.35)	29(16.47)
Can't recall	9(6.33)	5(14.70)	14(7.95)
Total	140(100)	34(100)	174(100)

\* Lab. Technicians, \*\* By Chi Square test

**Table 4 - Incidents of needle stick injury in last one year**

Number of incidents	Respondents (n=131)(%)
Once	38 (29)
2-3 times	74 (56.48)
>3 times	19 (14.50)

**Table 5: Behavior of the respondents toward needle stick injury**

Behaviour	Nurses (n = 147) (%)	LTs* (n = 34) (%)	Total (n = 181) (%)	p-value**
Informed seniors	17 (15.04)	5 (27.78)	22 (16.79)	0.18
Filed incident report	11 (9.73)	3 (16.67)	14 (10.69)	0.37
Took some post exposure measures	93 (82.30)	10 (55.56)	103 (78.62)	<b>0.01</b>

\* Lab. Technicians, \*\* By Chi Square test

## DISCUSSION

Almost three fourth of the participants 131 (74.43%) in the present study had sustained needle stick injury one or more times in last one year. Out of these, majority, (56.48%) had sustained it at least two to three times in last one year, Similar prevalence (79.5%) was found in a study done in a tertiary care hospital in Delhi by Rahul Sharma et al.<sup>7</sup>

Most of the participants were aware of the hazards of needle stick injury and knew that it had to be reported and majority in both groups agreed that reporting should be done to their respective in charges but only a few (16.79%) had actually reported it and even less (10.69%) had filed incident report. The long and busy duty hours, unavailability of seniors on the spot at the time of injury, especially injuries sustained in emergency hours, lack of knowledge on where to file report and the complexity of filing incident report may be the factors behind poor injury reporting practices.

These findings go in tune with those of Rahul Sharma et al.<sup>7</sup> which also shows the practice of reporting NSI to be only about one in four (27.5%) health care workers. Vanesh Mathur et al.<sup>8</sup> also observed that the practice of reporting injuries resulting from improper disposal of bio-medical waste was lower in the technical staff and nurses they further concluded that it might be because they are not aware of existence of formal system of reporting injuries.

Although 103 (78.62%) respondents took one or other post exposure protective measures but the measures were limited to washing injured part in running water and applying spirit or antiseptics. The matter of concern is that 28 (21.37%) respondents did nothing after sustaining the NSI. Our observation in accordance with that of Rahul Sharma et al.<sup>7</sup> They observed that while 60.9% washed the site of injury with water and soap, 14.8% did nothing following their most recent NSI.

Most of the respondents in both groups were in favor of discarding of used needles but, three fourth (76.47%) of the LTs and one third (69.01%) of the nurses felt that used needles can be recapped and discarded later, as discussed previously, discarded sharps were seen at six observation points. This might be due to lack of training and laxity in implementation of bio-medical waste management rules, moreover, the training programs regarding dealing with needles and sharps usually jump from precautions during use directly to safety during discarding the needle.

## CONCLUSION AND RECOMMENDATIONS

Needle stick injury is a serious matter of concern. There was a wide gap in the participant's knowledge and attitude towards NSI and what they actually did after sustaining the injury. Compulsory continuous intensive training programs should be conducted at regular time interval for all

the paramedical personnel with special importance to the new comers. During safety training programs of paramedical personnel, it should be emphasized that there is need to maintain utmost care and caution during the in-between handling. Reporting of all needle stick injuries to the biomedical waste management committee and taking appropriate post injury measures should be mandatory. There should be a center for managing the cases of NSI in every health care facility. The biomedical waste Management committee should make sure that all paramedical staff has been vaccinated against Hepatitis B and Tetanus.

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