

## Prevalence of Needle Stick Injuries among Staff nurses in a Tertiary Care Hospital in Tamilnadu

Revathi Sathiyothan R.\*

Department of Community Medicine, Chengalpattu Medical College, Chengalpattu, India.

**Corresponding author:** \*Dr. R. Revathi, Department of Community Medicine, Chengalpattu Medical College, Chengalpattu, India.

### Abstract

**Background:** Staff nurses are at increased risk of occupational acquisition of HIV, HBV, and other viral infections due to accidental exposure of infected blood and body fluids. Needle stick injuries not only potentiate health consequences but also cause emotional distress, which results in missed work days which in turn directly affects the health care services and resources.

**Objective:** To estimate the prevalence of needle stick injury among staff nurses in a tertiary care hospital and to study factors associated with needle stick injury.

**Methodology:** This cross sectional study is conducted among staff nurses in a tertiary care hospital for a period of 1 month. 100 staff nurses were selected from sampling frame of 350 by Systematic random sampling

**Results:** About 62% of staff nurses had needle stick injury ever during their work period in various hospitals. Most of the injuries 53(86%) occurred while injecting drugs. Nearly 38(62%) of needle stick injuries occurred during night shift. 47(76%) of needle stick injuries have occurred within one year of their experience.

**Keywords:** Needle stick injury, Staff nurses, Prevalence

### Introduction

Percutaneous injuries, caused by needle sticks and other sharps, are a serious concern for all health care workers (HCWs) particularly staff nurses who have shift duties and pose a significant risk of occupational transmission of blood borne pathogens<sup>(1)</sup>. The average risk of transmission of HIV to a health care worker after percutaneous exposure to HIV infected blood has been estimated as 3 in 1000<sup>(2)</sup>. According to a WHO study, the annual estimated proportions of health-care workers (HCW) exposed to

blood-borne pathogens globally were 2.6% for HCV, 5.9% for HBV, and 0.5% for HIV, corresponding to about 16,000 HCV infections and 66,000 HBV infections in HCW Worldwide<sup>(3)</sup>. Because needle stick injuries are often under reported, health care institutions should not interpret low reporting rate as low injury rate. Injuries recorded through standard occupational reporting systems may underestimate the true injury rate, as much as 10-fold. Needle stick injuries have significant indirect consequences in health care delivery especially so in the

developing countries, where already the qualified work force is limited with respect to the disease burden in the population. These injuries not only potentiate health consequences but also cause emotional distress in health care workers which results in missed workdays and directly affects the health care services and resources<sup>(1)</sup>. The present study addresses the important issue of NSI and aims at determining the occurrence of NSI among staff nurses, the various factors responsible, the circumstances under which these occur and explores the availability and possibilities of measures to prevent these through improvement in knowledge, attitude and practice.

**Objectives**

To estimate the prevalence of needle stick injury among staff nurses in a tertiary care hospital and to study factors associated with needle stick injury.

**Materials and methods**

This cross sectional study is conducted among staff nurses in a tertiary care hospital for a period of 1 month. 100 staff nurses were selected from sampling frame of 350 by Systematic random sampling. The staff nurses were contacted in person and told about the purpose of the study and that their responses shall be kept anonymous. Informed consent was taken from each respondent. Data collection was done using a semi structured questionnaire that was filled by the interviewer. Case definition for Needle stick injury was defined as any cut or prick to the respondents by a needle previously used on a patient is work related and sustained within the hospital premises.

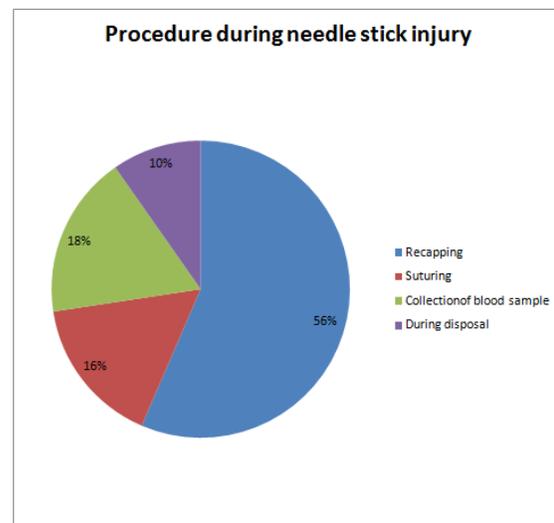
**Results**

About 62% of staff nurses had needle stick injury ever during their work period in various hospitals. Most of the injuries 53(86%) occurred while injecting drugs. Out

of 53 staff nurses, 42 (79%) had the injury while recapping needle. Nearly 38(62%) of needle stick injuries occurred during night shift. 47(76%) of needle stick injuries have occurred within one year of their experience. 44(71%) of injuries caused by hypodermic needle. Only 48(78%) have received full course of Hepatitis B Vaccine.

**Table 1: Response of the staff nurses after the most recent needle stick injury.**

Response after injury	Number
Nothing	21
Washed with water	18
Washed with water and soap	7
Applied spirit	11
Post-exposure prophylaxis	1
Washed with water and applied spirit	2
Washed with water and soap and applied spirit	2



**Figure 1: Procedure during needle stick injury.**

**Discussion**

Similar to the present study, the study conducted by Devendra Jaybhaye<sup>(4)</sup> has

revealed that among the HCWs with needle stick injuries, staff nurses had highest percentage 54 (50.00%), followed by resident doctors 28 (25.93%) and interns 22 (20.37%) and lastly the laboratory Technician (3.70%). Similar to the present study, the study conducted by Devendra Jaybhaye<sup>(4)</sup> has shown that the larger proportion of resident doctors & interns are vaccinated with Hepatitis B vaccine as compare to staff nurses and laboratory technician. This difference was statistically significant ( $p < 0.001$ ). A large multinational study by WHO on global burden of sharps injury estimated the average number of injuries per HCW to be 0.2-4.7 sharps injuries per year<sup>(5)</sup>. The study conducted by Rahul Sharma<sup>(2)</sup> has revealed that large percentage (256 or 79.5%) of HCWs reported having had one or more NSIs in their career, maximum among the nursing students (94.2%). The study conducted by Sumathi Muralidhar<sup>(1)</sup> et al has shown that among the HCWs with NSIs, nurses had the highest percentage 49 (100%), followed by junior residents 21 (87.5%), nursing students 64 (85.3%), laboratory technicians 59 (84.3%), interns 62 (82.7%), senior residents 48 (80%) and undergraduate students 40 (53.3%).

## References

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