



## **ASSESS THE PREVALENCE AND PROPHYLAXIS RESPONSE TO NEEDLE STICK INJURY AMONG INTERNS IN A SELECTED TEACHING HOSPITAL, KELAMBAKKAM, KANCHIPURAM DISTRICT, TAMILNADU**

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### **Abstract:**

**Aim:** To assess the prevalence and prophylaxis response to needle stick injury among interns in a selected teaching hospital, Tamilnadu.

**Methods and Materials:** A descriptive approach was used for the present study. The participants were about 104 medical and nursing interns and Convenience sampling technique was used. Data was collected by administering a structured questionnaire derived from WHO and modified according to the study.

**Results:** Among the 104 samples 22(21%) of the interns had 1-3 injury in the past 12 months and 1(1%) of the interns had 4-5 injury in the past 12 months. 14(13%) of the interns took prophylaxis medication 18(17%) of the interns reported their injury. And the majority 86 (83%) of the interns received 3 doses of Hepatitis-B vaccine prior to the needle stick injury.

**Conclusion:** The study reveals that there is moderate prevalence rate 23% of them had needle stick injury and only 17% of them aware about the prophylaxis response. So the health care system should provide special attention to needle stick injury, create awareness among the health care Professional students regarding needle stick injury and its prophylaxis response and create adequate facility to report the injury and prophylaxis measures.

**Key Words:** Prevalence, Prophylaxis Response, Needle Stick Injury, Interns

### **Introduction:**

A needle stick injury, percutaneous injury, or percutaneous exposure incident is the penetration of skin by a needle or other sharp object, which was in contact with blood, tissue, or other body fluid before the exposure. Occupational needle stick injuries primarily affect healthcare workers. Though the acute physiological effects of a needle stick injury are generally negligible, these devices can transmit blood-borne diseases, placing those exposed at increased risk of contracting infectious diseases, such as hepatitis B (HBV), hepatitis C (HCV), and the human immunodeficiency virus (HIV). Needle stick injuries commonly occur during needle recapping or via improper disposal of devices into an overfilled or poorly located sharps container. Needle stick injuries are more common during shifts and for less experienced people; fatigue, high workload, shift work, high pressure, or high perception of risk can all increase the chances of a needle stick injury. Generally, needle stick injuries cause only minor visible trauma or bleeding; however, even in the absence of bleeding the risk of viral infection remains.

The World Health Organization estimated in the year of 2000, Nearly 66,000 hepatitis B, 16,000 hepatitis C, and 1,000 HIV infections were caused by needle stick injuries. In places with higher rates of blood-borne diseases in the general population, healthcare workers are more susceptible to contracting these diseases from a needle stick injury. 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. 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. The US Occupational Safety and Health Administration (OSHA) estimates 5.6 million workers in the healthcare industry are at risk of occupational exposure to blood-borne diseases via percutaneous injury. The US Centers for Disease Control and Prevention (CDC) estimates more than 600,000 needle stick injuries occur among healthcare workers in the US annually. Among healthcare workers, nurses and physicians appear especially at risk.

### **Materials and Methods:**

- ✓ **Setting:** Study was conducted in a selected teaching hospital, Kanchipuram Dist, Tamilnadu.
- ✓ **Research Approach:** The approach used for this study was descriptive approach.

- ✓ **Research Design:** Descriptive design
- ✓ **Sample:** .The sample size calculated by using Creative Research Systems survey software. Sample size is 104 Medical and Nursing Students (Population -164, Confident level-95%, calculated sample size-115, Attrition -10%).
- ✓ **Sampling Technique:** Convenience sampling method.
- ✓ **Inclusion Criteria:**
  - Medical and nursing internship students who completed at least 6-10 month of internship in a selected teaching hospital.
  - Medical and nursing internship students who are available at the time of data collection.
- ✓ **Exclusion Criteria:** Medical and nursing internship students who are not willing to participate in the study.
- ✓ **Data Collection Instruments:**
  - Demographic Proforma
  - Open Ended Questionnaire
- ✓ **Description of Tool:** The tool is derived from World Health Organisation and modified according to the study. The tool is divided into three parts.
  - Part-I: Demographic data
  - Part-II: Questionnaire regarding needle stick injury
  - Part-III: Observation checklist regarding safety precautions during injections
- ✓ **Data Collection Procedure:** Permission obtained from the UG committee and Institutional Human Ethics committee prior to the study and the head of Institutions of Medical and Nursing College. Explained the purpose of the study to the samples and the participant consent form given to the participants and had permission from the participants. Demographic data analyzed by using frequency and percentage. Prevalence and prophylaxis response analyzed by computing frequency, percentage, and chi square used to find the association.

**Results:**

Among 104 internship students majority 81 (78%) of the interns did not have needle stick injury in the past 12 months, 22(21%) of the interns had 1-3 injury in the past 12 months and 1(1%) of the intern had 4-5 injury in the past 12 months. Majority 86(83%) of the interns did not report their injury in which 81 (77%) of the interns did not had injury in the past 12 months, but 22% of the interns had needle stick injury in the past 12 months. And 18(17%) of the interns had needle stick injury in the past 12 months and reported their injury. In which 14(13%) of the interns reported to supervisor, 4(4%) of the interns reported to infection control staff and no one reported to occupational health programmer. And 14(13%) of the interns took prophylaxis medication, 9(9%) of the interns did not take prophylaxis medication. Among the internship students majority 86 (83%) of the interns received 3 doses of Hepatitis-B vaccine, 11(10%) of the interns received 2 doses of Hepatitis-B vaccine, 5(5%) of the interns did not received single dose of Hepatitis vaccine, 2(2%) of the interns received 1 dose of Hepatitis-B vaccine.

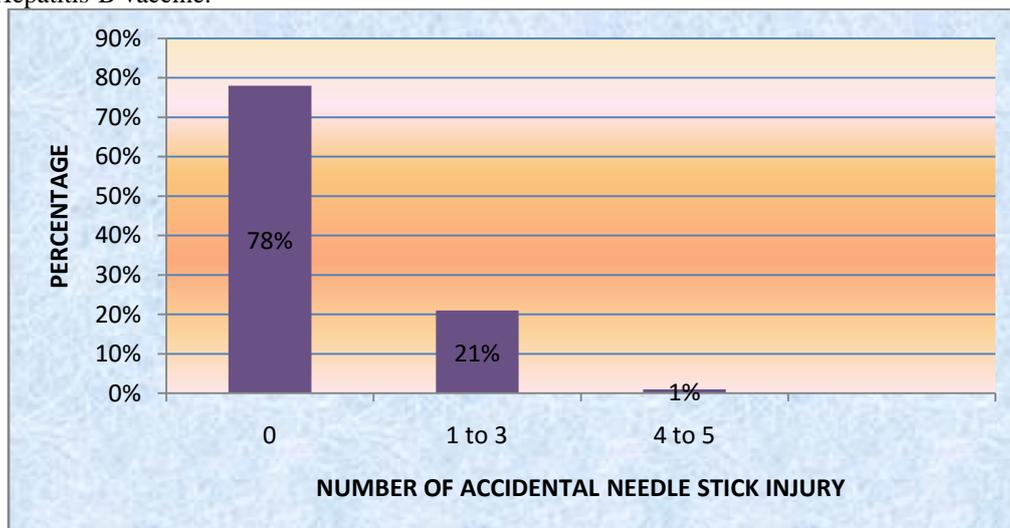


Figure 1: Percentage distribution of accidental needle stick injury among interns.

The study result reveals that the majority of the intern 81 (78%) did not have needle stick injury in the last 12 months, 22(21%) of the interns had 1-3 needle stick injury in the past 12 months and 1(1%) of the interns had 4-5 needle stick injury in the past 12 months. And a similar cross sectional study was conducted to assess the incidence and characteristics of needle stick injuries among 840 medical trainees at Toronto East General Hospital(TEGH).The study revealed that the trainees responded 350 (42% response rate.88 (25%) respondents

reported experiencing at least one injury at TEGH. In total, the study identified 195 total injuries. When compared to this study our study prevalence rate is low.

In this study the majority of the interns 86(83%) did not report needle stick injury whereas 81(77%) of the interns did not had needle stick injury in the last 12 month.but5 (5%) of the interns had needle stick injury in the last 12 month. And 18(17%) of the interns reported their injury. A survey was distributed to assess the sharps and needle stick injuries Medical students, surgical resident, Faculty and Surgical Room Staff at a Single Academic Institution. The study revealed that the overall survey response rate was 37% (195/528). Approximately 65% of respondents did not report their exposure either because of the time consuming process or the patient involved was perceived to be low-risk or both. And the study concluded that the two most common reasons for not reporting SNIs are because of the inability to complete the time consuming reporting process and fear of embarrassment or punitive response because of admitting an injury. While compare the both study the reporting rate is low. So the health care system should provide special consideration for the injured person and create facility to report and prophylaxis measures.

The study results also shown that there is a significant association between prophylaxis response of reporting needle stick injury with demographic variables of interns such as education, duration of internship, Frequency of shift per month, Number of patient attended per day, number of injection procedure per day and Previous source of information about needle stick injury. And there is no significant association between taking prophylaxis medication with demographic variables of interns, such as age, frequency of shift per month, working hours per day, number of patient attended per day and previous source of information about needle stick injury. And there is a significant association between taking prophylaxis medication with demographic variables of interns, such as gender, education, duration of internship and number of injection procedure per day.

#### **Conclusion:**

Needle stick injuries represent an omnipresent occupational hazard that people working in a hospital face daily. The study also reveals that there is a moderate prevalence rate 22% of them had needle stick injury and only 17% of them aware about the prophylaxis Measures. Prevention of needle stick injury is the best way to prevent several blood borne diseases in health care workers. So the health care system should provide special attention to needle stick injury, create awareness among the health care student regarding importance of universal precaution, Hepatitis B Immunisation, Personal protection, Post exposure prophylaxis Management and create facility to report the injury and prophylaxis measures.

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