

RESEARCH ARTICLE**KNOWLEDGE AND PRACTICE OF HEALTH CARE WORKERS REGARDING UNIVERSAL PRECAUTIONS AT A TERTIARY CARE LEVEL TEACHING HOSPITAL IN PUNJAB***Kaur Mandeep¹**Rawat H.c²**Kaur Prabhjot³***ABSTRACT**

Introduction: Health care workers (HCWs) play a vital role in development of a nation. Exposure to blood-borne pathogens poses a serious risk to them. Adequate knowledge and practice of universal precautions has shown to be effective to reduce risk of exposure to blood and body fluids.

Objectives of study: To assess the knowledge and practice of health care workers about universal precautions at a selected teaching hospital of Punjab.

Material and Methods: This cross sectional survey was conducted at G.G.S. Medical Hospital, Faridkot, Punjab on a group of 157 HCWs, including doctors and nurses, selected by convenience sampling technique. A structured questionnaire was used to assess the knowledge about universal precautions along with an observational checklist to evaluate the practice.

Results: Present study revealed that 47.1 % of HCWs had inadequate knowledge about universal precautions. Practice of universal precautions was found to be unsatisfactory among HCWs as compliance being even less than 50% in all the areas. Maximum (39.1%) compliance was with handwashing followed by proper disposal of sharps (30.3%). Recapping the used needles with the use of both hands was practiced by 94.4% health care workers. Knowledge & practice of universal precautions was not found to be associated with each other. Knowledge is significantly related to professional status and work experience of HCWs.

Conclusion: The knowledge and practice of HCWs about universal precautions is unsatisfactory. Provision for in-service education should be made to improve the existing scenario.

Key Words: Universal precautions, Knowledge, Practice, Health Care Workers

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Introduction

Health care professionals contribute toward building a healthy nation, but exposure to blood-borne pathogens poses a serious risk to them. Prospective studies of health care workers have revealed that the average risk for HIV transmission after a percutaneous exposure is approximately 0.3%, the risk of HBV transmission is 6 to 30%, and the risk of HCV transmission is approximately 1.8%.¹ Worldwide data has shown that 2.5% of HIV cases and 40% of Hepatitis B and C cases among health care workers are the result of occupational exposure.² The World Health Organization estimates that 3 million percutaneous exposures occur annually among 35 million health care workers globally, with over 90% occurring in resource-constrained countries.³ Although appropriate data is unavailable for developing nations, but the magnitude is expected to be even higher because unlike developed countries, most developing countries may not have surveillance for occupational exposure to blood and body fluids, because of which exact magnitude of such accidents can not be estimated. This increased risk to health workers to contract HIV, hepatitis B and C viruses in their work place led to the development of universal precaution. Universal precautions are related to a set of guidelines, which should be used by all health care

workers to prevent contamination by blood/body fluids.⁴ These guidelines where applied, has been found to reduce the risk of contracting these infections in the workplace.⁵ A temporal association between implementation of universal precautions and a sustained decrease in parenteral exposure to infection amongst hospital personnel has been demonstrated.⁶ The use of these strategies is now the standard of care in most high-income nations. But in resource-constrained settings where the largest burden of HIV and hepatitis exist, however, limited use of personal protective equipment, availability of safe devices, proper disposal of sharps and waste, and a high demand for injections place health care workers in these settings at high risk for occupational exposures.⁷ A sustained commitment to the use of universal precautions will ensure maximum protection for health care workers and patients and the availability of optimal medical care for all who need it. Limited data suggests that health care workers in India may have a high frequency of occupational exposure to blood, are not adequately implementing universal precaution.⁸ These facts formed the basis to take up a study in order to assess knowledge and practice of health care workers at a selected teaching hospital, Faridkot.

Methods

The study was conducted from Dec, 2009 – Feb, 2010 in Guru Gobind Singh Medical College Hospital, Faridkot, which is a 500 bedded hospital. It is one of the 3 tertiary care Government health and teaching institutions in the Punjab state. The study sample comprised of 157 Health Care Workers, which included ward sisters, staff nurses, nursing interns, post graduate medical students, junior residents and medical interns. The sample was selected by using convenient sampling technique. Conceptual framework of the study was based on health belief model. Originally, the model was designed to predict behavioral response to the treatment received by acutely or chronically ill patients, but in more recent years the model has been used to predict more general health behaviors⁹. A structured questionnaire ($r = 0.86$) was used to assess the knowledge of HCWs about universal precautions along with an observational checklist to evaluate the practice of universal precautions. Observational checklist included items related to universal precautions including handwashing, use of personal protective equipment (gloves, gown, mask and eyeshields) as well as safe use of sharps and disposal of sharps. Purpose of study was explained & written informed consent was obtained from study participants. Participants were not acknowledged that they are being observed for the practice. Researcher approached study subjects to fill the knowledge questionnaire individually. It took 25- 30 mins for each subject. Concealed observation (only one time) was made to evaluate practice of universal precautions side by side and marked as done or not done on observational checklist for each area of practice by researcher herself. Time taken to evaluate practice varied from one subject to another. The data has been analyzed with the use of statistical software SPSS 14.0 by using descriptive statistics which included calculation of percentage, mean, median, standard deviation and inferential statistics (Pearson's chi square test) was used to find out relationship between variables.

Results

Most of the health care workers (73.9%) belonged to 20-25 age group. Out of total 157 of health care workers studied, 8 (5.1%) were ward sisters, 45 (28.7%) were staff nurses, 8 (5.7%) were post graduate medical students, 4 (2.5%) were junior residents, 30 (19.1%) were medical interns

and 61 (38.9%) were nursing interns. 13 (8.3%) health care workers were having experience more than 16 years. Only 4% health care workers had undergone through inservice education about universal precautions.

Table 1: Practice of health care workers about universal precautions
N=157

Area of practice	Health care workers using Universal Precautions (% age)
Hand washing before and after every procedure	39.1
Use of effective hand hygiene techniques	29.3
Wearing gloves during invasive procedures	10
Proper disposal of gloves	20
Wearing gown where splashing of blood is anticipated	10
Wearing facemask and eye shields where splashing of blood is anticipated	0
No recapping or single hand recapping	5.6
Proper disposal of sharps	30.3

Almost half 74 (47.10%) of the health care workers had inadequate knowledge about universal precautions. {<mean knowledge score (25.3)}. Practice of universal precautions was found to be unsatisfactory among health care workers as compliance with universal precautions being even less than 50% in all the areas (Table 1).

Practice of hand washing before and after every procedure was only 39.1% and was highest among junior residents (that too not up to the mark). Out of those health care workers who washed their hands only 29.3 % used effective hand hygiene techniques and this practice was most frequently done by postgraduate medical students. Practice of wearing gloves during invasive procedures was only 10%. Maximum compliance was among postgraduate medical students and junior residents. Only postgraduate medical students and nursing interns disposed the used gloves properly, compliance being nil among all other professionals. Wearing gown where splashing of blood is anticipated was found only in 10% of health care workers, all being the nurses. Use of eye shield and facemasks was non existent among the health care workers. Practice of recapping the used needles that with the use of both hands was present among 94.4% of the health care workers. Proper disposal of sharps was done by only 30.3% of the health care workers maximum being the staff nurses.

Practice of universal precautions was not associated with the knowledge about universal precautions. Knowledge of universal precautions is

significantly associated with professional qualification ($p=0.001$) (Fig.1) and work experience ($p=0.001$) (Fig.2). This study reported that overall level of knowledge of health care workers about universal precautions was inadequate & practice was unsatisfactory.

Figure 1: Knowledge of health care workers about universal precautions as per their professional stream

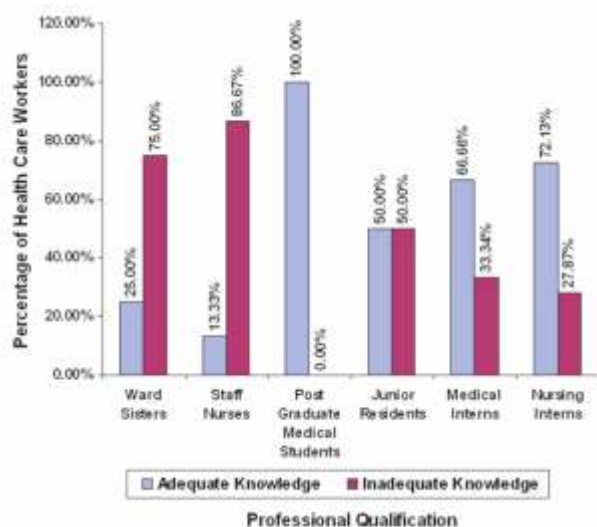
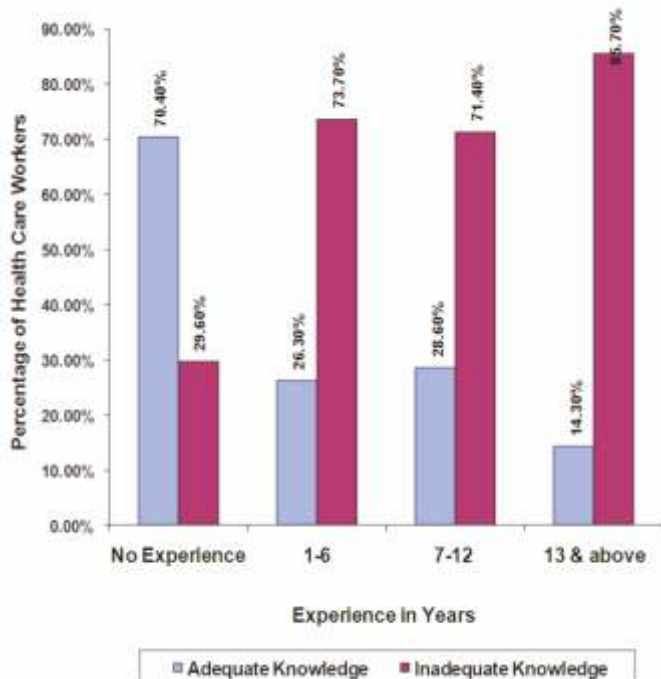


Figure 2: Knowledge of health care workers about universal precautions as per their work experience



Discussion

Reinforcing and clarifying the concept of universal precautions and infection control guidelines among hospital staff. But in contrast the present study have shown that 47.10% of the health care workers had inadequate knowledge about universal precautions and compliance with universal precautions is also not up to the mark. These findings are consistent with findings of other studies which has also shown suboptimal knowledge and compliance with universal precautions by health care workers in different settings especially in developing nations^(10,11,12,13,14,15,16). So there is a need to strengthen safety education as a component of the training of health care workers so that while caring for the sick the care providers would not get themselves infected.¹⁷

It reflects that acceptance and implementation of universal precautions by health care workers are not as “universal” as the Centre for Disease Control (CDC) intended for them to be.¹⁸

There is a selective adherence and non-adherence of health care workers to universal precautions in their daily patient care. In present study also gloves were more frequently worn by junior residents and post graduate medical students and least by staff nurses and staff nurses are recapping used needles more than physicians. As in other studies the practice was assessed under different areas of universal precautions. The compliance is found to be moderate to very low in different areas of practice of universal precautions^{19, 20}. In present study the compliance with eye shield & facemasks was nonexistent among the study subjects. Eyeshields were not even available in the hospital settings. Other studies have also reported that the use of eyeshields and facemasks to be less frequent than other measures.²¹

So it is clear from the findings of the present study that the practice of health care workers about universal precautions is inadequate and demands for a serious concerns towards it. Because even a single area of non-compliance of prescribed precautions raises the possibility of occupational exposure.⁶ It is important that measures should be taken to reinforce practice of universal precautions by health care workers in order to prevent them from dreadful infections.

Another major finding of the study is that even the high levels of knowledge do not guarantee a good

practice. These findings are consistent with those reported by others^{21,22} that there was also poor adherence to universal precautions by those who knew of it.

From present study it is concluded that the present status of knowledge and practices of health care workers about universal precautions is worrisome. There is a strong need for motivational and educational measures for health care workers in order to improve their knowledge and practice about universal precautions. Inservice education needs to be there to improve the knowledge and attitude of health care workers at periodic intervals. Also an emphasis should be placed on preparing and implementing strong institutional policies to reinforce the use of universal precautions.

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