Original Article

Assessment of the Safety Measures Adopted By Healthcare Workers in DHQ Hospital Faisalabad, Pakistan

Iftikhar Nadeem, Ali Alvi, Saqlain Raza, Masood Ur Rasool, Syed Ata Ul Munamm

ABSTRACT

Introduction: Health Care personnel are at a risk of occupational exposure to blood borne pathogens, HBV, HCV and HIV .Exposure occurs through needle sticks or cuts from sharp instruments, contaminated with an infected patient's blood or through contacts of the eye, nose, mouth or skin with the patient's blood. The purpose of study is to safely use personal protective instruments (PPE), training regarding safety at work and to recommend ways for improvement of work. **Methodology:** A cross - sectional study was conducted to assess the Safety Measures adopted by Healthcare Workers in DHQ Hospital Faisalabad. The place of study was Surgical Unit-IV and Medical Unit-IV from the 5th of July 2010 to the 18th of July 2010. 59 Healthcare workers (Doctors:15; Nurses:22; Ward Workers:22) were interviewed through questionnaires and selected by non- probable convenient sampling. **Results:** The result is that among healthcare workers only 55% were using safety measures in different ways whether in the form of gloves, by sterilization of instruments, by maintaining hand hygiene, by segregation of infectious material etc. **Conclusion:** It is concluded that training regarding the safety measures application should be given to the healthcare workers and Personal Protective Equipment should be available to them for their occupational health and safety. **Key Words:** Healthcare workers, Personal Protective Equipments, Safety Measures.

INTRODUCTION

Healthcare workers (HCW) are valuable in any society and provided frontline care to the sick and injured. Their skills and experience are beneficial not only to the institution in which they work but also to their communities, families and friends.

Among the 35 million health workers worldwide, about 3 million receive percutaneous exposures to blood borne pathogens each year, two million of those to Hepatitis B Virus(HBV) (1) , 0.9 million to Hepatitis C Virus(HCV)(1) and 170000 to Human Immune Deficiency Virus(HIV)(1). These injuries may result in 15000 HCV, 70000 HBV and 1000 HIV infections.(1) More than 90% of these infections occur in developing countries [1]. HCW are exposed to blood and other body fluids in course of their work. The risk of infection for HCW depends on the prevalence of disease in the patient population and frequency of exposures [1].

Occupational exposure to blood can result from percutaneous injury, mucocutaneous injury or blood contact with non-contact skin [1]. Occupational health and safety is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. The goal of all occupational health and safety programs is to foster a safe work environment [2].

HCWs fear of contamination with HIV, hepatitis and opportunistic infections such as TB, which have a direct and potentially negative impact on the provision of care and treatment to patients' family and community [3].

Exposure to hepatitis B, C and HIV can occur while health care is being administered. Most transmission is likely to occur within clinical setting especially if there

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are inappropriate equipment, inappropriate waste disposal, procedure equipment is reused or not cleaned properly, administration of unnecessary injection, reuse of non sterile needles, poor disposal mechanism for contaminated equipments.

The first tests for HIV in donor blood were not implemented in countries until 1985, four years after the first case of AIDS was reported. Between 1985 and 1992, the United States, France and Romania had the highest number of AIDS diagnosis as a result of HIV infection through transfusion, with more than 8,000 people in the US believed to have acquired HIV through transfusion during this period [4].

This leads to a new area of concern about the occupational transmission of blood born pathogens. After a decade of phenomenal technological advances in sharp devices engineered for safety, The Federal Needle Stick Safety And Prevention Act, requiring the use of safer devices, became a law in November 2000 in the whole world [5]. WHO has had a special program for occupational health since 1950 in coordination with International Labor Organization(ILO) and both adopted a common definition of occupational health [2]. The ALMA ATA declaration emphasized the need to organize primary health care services both preventive and curative for all developing countries [6].

"Safety" in the broadest sense includes psychosociology and ergonomics as part of the programme to improve the quality of life in work place. Personal Protective Equipments (PPE) includes gloves, goggles or glasses, masks, gowns and aprons [1]. The most common routes of exposure are inhalation, dermal contact and ingestion. Simple surgical masks protect wearers from being splashed in the mouth with body fluids. They also remind wearers not to touch their mouth or nose, which could otherwise transfer viruses and bacteria after having touched a contaminated surface (fomite). They can also reduce the spread of infectious droplets (carrying bacteria or viruses) that are created when the wearer coughs or sneezes. They are not designed to protect the wearer from inhaling such particles. They will trap some particles but are much less effective than respirators, which are designed for this purpose Barrier gowns are protective against exposure to biological materials including body fluids. If contamination of arms is at risk, gowns should be use. If fluid penetration is likely, gowns should also be used [7].

In the health care setting, blood-borne pathogen transmission occurs predominantly by percutaneous or mucosal exposure of workers to the blood or body fluids of infected patients. Occupational exposures that may result in HIV, HBV, or HCV transmission include needle sticks and other sharps injuries; direct inoculation of virus into cutaneous scratches, skin lesions, abrasions, or burns; and inoculation of virus onto mucosal surfaces of the eyes, nose, or mouth through accidental splashes. HIV, HBV, and HCV do not spontaneously penetrate intact skin, and airborne transmission of these viruses does not occur [8].

Essential occupational health and safety measures include [7]

Proper training of workers.

Provision of PPE

Establishment of an effective occupational health.

Programmes that include immunization, PPE and medical surveillance.

The implementation and enforcement through legislative or regulatory policy of universal precautions and other controlled measures will enhance preventions.

RESEARCH METHODOLOGY

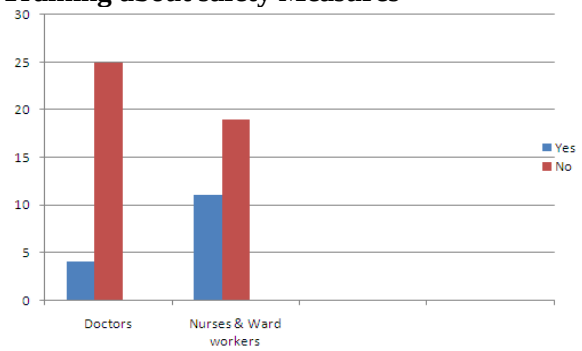
A Descriptive Cross-Sectional Epidemiological Study was carried out in Medical and Surgical wards of DHQ Hospital of Pakistan for two weeks (from 5th-18th July, 2010). 59 healthcare workers (doctors, nurses and ward workers) were selected by Non probable convenient sampling because this sampling technique was convenient, less time consuming and more economical for us. The sample population included those HCW who gave informed consent and who were within the wards and not the outdoor patients. Similarly officers and other people who did not come in direct contact with patients like gatekeepers etc were excluded. We did face to face interviews with all the selected HCW were interviewed about their knowledge and use of PPE and other safety measures.

dealing with patients without telling them. Not all the nurses were using gloves before injecting drugs, peripheral and central lines to patients. They were also not taking good care of their hands hygiene before and after contact with patients. Containers for infectious and non infectious wastes were different. The authors went to wards for 2 weeks for the research work and most of the time they observed this practice by HCW. F-test was applied for statistical analysis of data with SPSS-17.

RESULTS & INFLUENCIAL STATISTICS

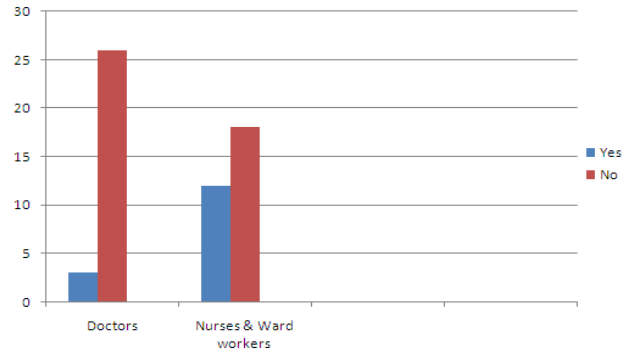
The interpretation of data is in the form of tables.

Figure-1
Training about safety Measures



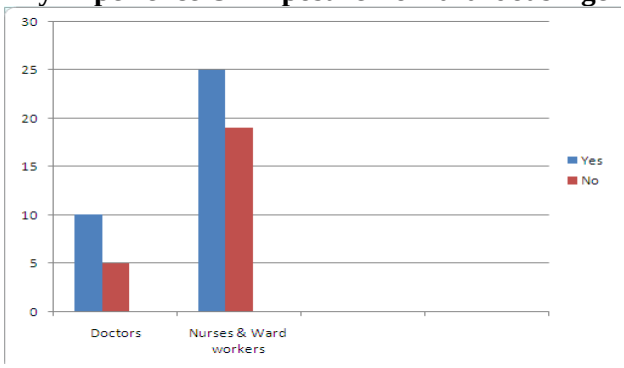
P value from Fisher test= 0.04
49% said that they have training about safety measures

Figure-2
Provision Of Vaccine Against Diseases By Hospital Administration



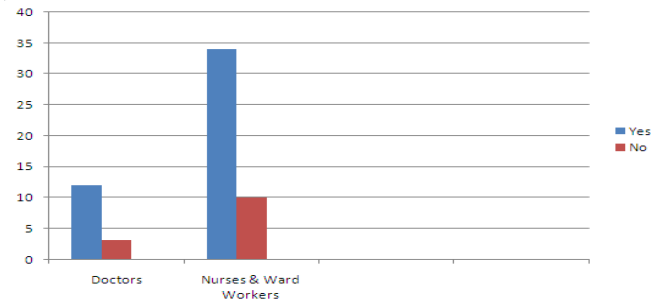
P value from Fisher test- 0.009
49% said Vaccine was provided by Hospital Administration

Figure-3
Any Experience Of Exposure To Hazardous Agent



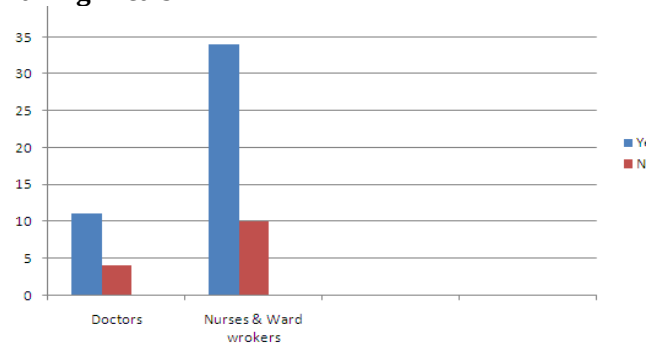
P value from Fisher Test- 0.03
59% said that they have experience of exposure

Figure-4
Adoption Of Any Safety Measure After Exposure To Agent



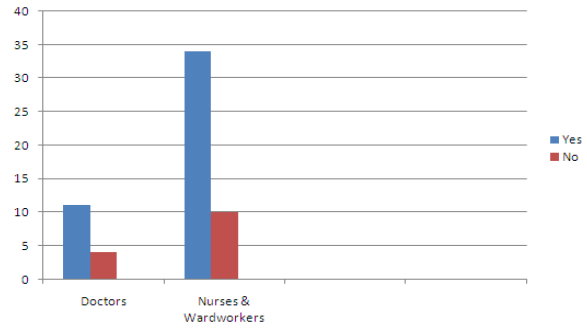
P value from F-test= 0.05
77% said they adopted safety measure after exposure to agent

Figure-5
Taking Care Of Hands Hygiene Before & After Taking Meals



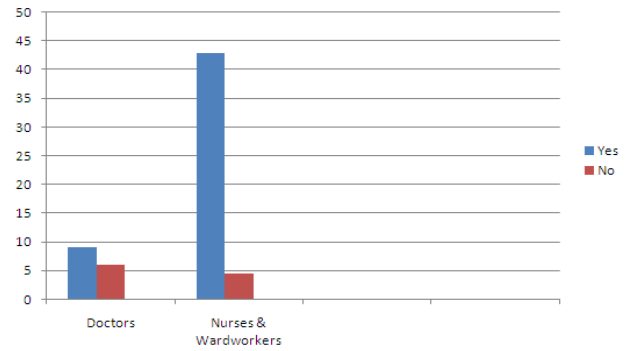
P value from F-test= 0.05
76% said that they took care of hands hygiene

Figure-6
Taking Care Of Hands Hygiene Before & After Contact With Patients



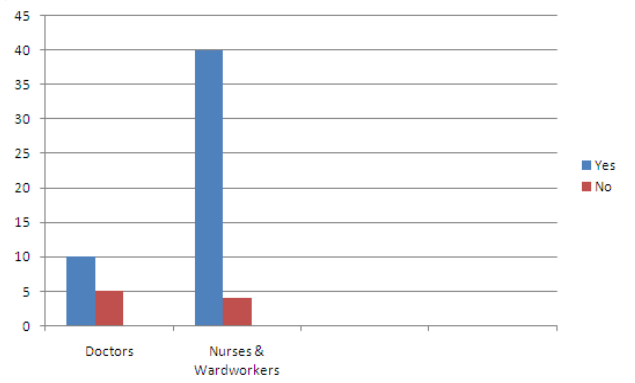
P value from F-test= 0.05
76% said that they took care of hands hygiene

Figure-7
Segregation Of Waste Materials



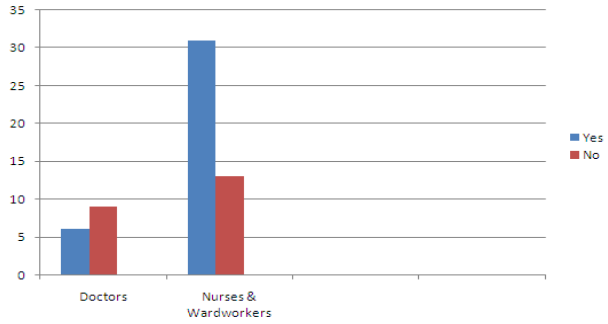
P value from F-test= 0.006
84% said that they segregate the materials

Figure-8
Disinfection of Area After Spilling Of Infectious Material



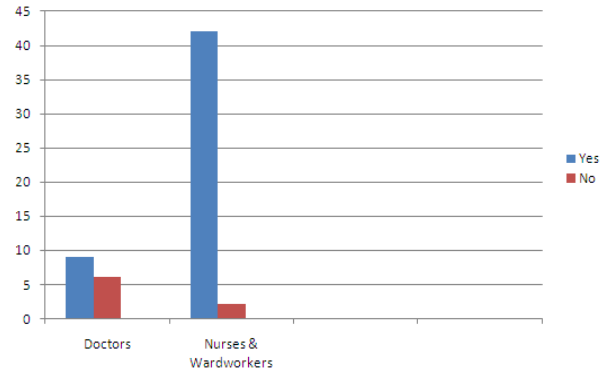
P value from F-test= 0.03
84% said that disinfection of area is done after spilling of infectious waste

Figure-9
Sterlization Of Instruments



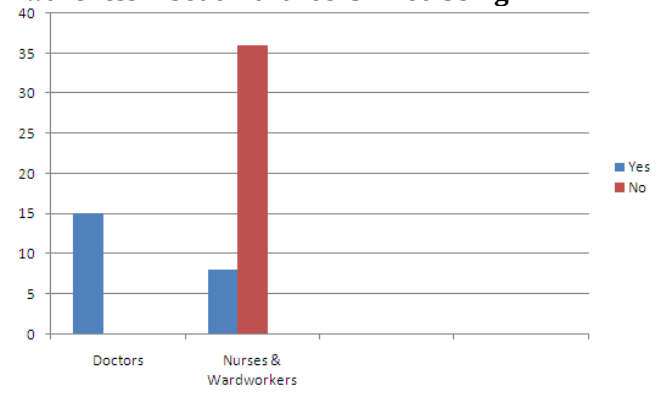
P value from F test= 0.03
46% said that sterilization of instruments is done

Figure-10
Availability Of PPE



P value from F test= 0.02
90% said that PPE are available to them

Figure-11
Awareness About Hazards Of Not Using PPE



P value from F test= 1.2
100% said that they have awareness about it

DISCUSSION

This is the first study which was carried out in Pakistan. We have no available data on safety measures here in Pakistan and we tried to lay down 1st step by doing this research work. As our study topic was to assess the safety measures among the healthcare workers, we a group of 5 students conducted both type of study i.e. asking question and observing ourselves.

The basic idea is to conduct this study is that we wanted to know the infectious and life threatening diseases to which healthcare workers are very much exposed during their contacts with the patients. A surgeon is at high risk of contact with blood of infected patient during various surgical procedures. A sanitary worker should take care in clearing the vomitus and other excreta of the patient who is taking anti cancerous drugs. A waste handler must be aware of injuries from the sharp and hazards of radioactive material. That is why we wanted to know about the safety measures application among healthcare workers.

Among healthcare workers (including Doctors, Nurses, Ward Workers) 49% said that they have taken training regarding safety measures application (p 0.04) this is consistent with other study. [9] 49% said that vaccines are provided by the hospital Administration free of cost. P value for this is 0.009 which is significant and it is consistent with other previous study.[10] Among the healthcare workers included in our sample 59% experienced cut, prick or exposure to hazardous agents and among these 59%, 77% adopted safety measures after exposure to injury.p value for this is 0.03 & 0.05 respectively and this is also consistent with previous studies.[11]

76% of healthcare workers take care of their hands hygiene before and after contact with patients. P value for this is 0.05 and is also consistent with previous study.[12] 84% said that separate containers are present for infectious waste and they segregate the infectious waste from general waste. P value for this is 0.06 which is significant. 47% healthcare workers said that the proper sterilization of instruments is done. P value for this is 0.03 and is also consistent with previous studies.[13] 90% said that Personal Protective Equipment (PPE) are available to them. P value for this is 0.02 and is consistent with previous study. [14] 100% have the knowledge of hazards of not using Personal Protective Equipment (PPE).[15] P value for this is 1.2 which is not significant. The reason for this is that some HCW may be hiding because they do not want themselves from coming under inquiry from administration of Hospital. Administration should play their part in this in finding those people. The reason for unsatisfactory results in our country as compared to other countries as according to authors are that the rules made by International Labor Organization are not followed in our country, there are no strict implication of rules and regulation regarding the safety measures application, the working condition of our hospitals are not optimal and upto the mark, our environment in hospitals is humid so it is not practicable to use gloves always when in contact with patient, some people develop particular type of skin allergy i.e. latex allergy which is caused by gloves and some are not feeling comfort in there work while carrying personal equipments with them so they don't like to wear them.

The trolley men and other workers handling the high risk waste to incinerator or the other sites of waste disposal are not being observed outside the hospital territory so they do not bother to wear PPE because they are not properly educated about its use and there is a lack of awareness so there is need of trend setting to ensure safety in work Limitations of our study are that the sample size is small and the results can not be generalized because we did non-probable sampling. The authors suggest the that further researches should be carried out in developing countries about the safety measures so that people can get better ways of using them, developed countries should help developing countries in this aspect, hospital administration should motivate all HCW to use safety measures properly and strong rules and relegations should be set in Pakistan so that everyone should follow safety health measures.

CONCLUSION

The study concludes that healthcare measures are very important for all HCW. They should try to use it before doing any contact with patients. By using these measures one can reduce the spread of infections in Pakistan. All these healthcare measures should be made available to all HCW so that they can work more effectively and without any risk of getting sick in mind which would otherwise hamper their services toward patients

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