



## "A STUDY ON QUALITY ASSESSMENT IN A PRIMARY HEALTHCARE HOSPITAL"

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## ABSTRACT

• **Background & Objectives-** Quality is backbone of healthcare service without which the very survival of healthcare organization is at stake. The Hippocratic principle of '*Premium Nil Nocere*' or First, Do No Harm is one of the key precepts of medical ethics. However several indicators of poor quality that incurs health risks to patients as well as HCWs results in negative output for hospital. One such crucial parameter is Occupational exposure of HCWs. The present study was conducted to review awareness tenets of infection control measures followed amongst medical practitioners, nursing and housekeeping staff in a primary healthcare organization – ECHS PC Kotdwara, Uttarakhand.

• **Methods & Material-** A cross-sectional study among a random sample of HCWs was carried out using a structured questionnaire to estimate incidence of exposure to blood and body fluids in preceding 03-month period. A database was then created in MS Excel and appropriate statistical analysis was carried out using SPSS ver 14.0.

• **Results-OE** to blood and body fluids in preceding 03 months was fairly high ranging from the lowest incidence of 12% among doctors to more than 53% among nursing staff. Majority of accidental exposures to blood and body fluids was due to NSI. Ironically, as low as 2% of exposed HCWs took a course of PEP although it was indicated in about half of the affected HCWs. This low rate was due to under-reporting to concerned hospital authorities.

• **Conclusion-** The present study highlights that unreported needle-stick and sharp injuries are a serious problem which predominantly hampers the quality care provided by healthcare organization. The call of the hour is urgent implementation of standard precautions which is the most pivotal preventive measure to strive continuously towards quality improvement.

**KEYWORDS :** Occupational Exposure (OE), Healthcare Workers (HCW), Needle-Stick Injuries(NSI), Standard Precautions, Quality Improvement(QI)

## INTRODUCTION

*"Quality means doing it right when no one is looking."*

- Henry Ford

Healthcare as an industry in India is poised for a quantum leap. It has grown to become one of the most promising and progressive sectors tranquilized for rapid growth. It is projected to reach US\$ 280 billion by 2020. India is now the much sought after destination for medical tourism owing to its high quality medical treatment available from world class competent medical professionals in a very humane and courteous way at a very reasonable cost.<sup>[1]</sup>

Quality in health care services is defined as '*fully meeting needs of those who need the service most at the lowest cost to organization within the limits and directives set by higher authorities and purchasers.*'<sup>[2]</sup> It is an umbrella term for a coordinated set of staff and organizational development activities to provide valuable patient-oriented outcomes. Growing consumer pressure is pushing quality agenda high on health care organization's list. It is an urgent need of the hour to grasp essentials of quality management in healthcare and apply it assiduously.

Globally, hospitals are searching for novel ways to improve quality of care and promote effective quality improvement strategies. In 1990, Institute of Medicine (IOM) published the definition: "*Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.*" In 2001, in its report -*Crossing the Quality Chasm: A New Health System for the 21st Century*,<sup>[3]</sup> IOM identified following six dimensions that a health system should seek to make improvements in quality- ms



Empirical evidence suggests that although there is an increasing demand for healthcare services across India, *affordability* still remains a pertinent issue. This has resulted in market segmentation<sup>[4]</sup>, where on one hand there is an increasing demand for quality medical care services while on the other there is a demand for medical care services at affordable cost. The demand for the latter has inevitably resulted in poor quality of medical care services with poor health outcomes. To counter-check this,

government has realized the need to meliorate medical care services and has stepped in its regulation by introduction of various quality accreditation norms like NABH and NABL. However several indicators of poor quality that incurs health risks to patients as well as HCWs, results in negative output for hospital and its reputation. One such crucial parameter is Occupational exposure of HCWs.

## OE OF HCWs-

One of the most sensitive issues mankind facing today is exposure to blood-borne pathogens such as HBV, HCV, HIV, HSV, CMV, Mycobacterium tuberculosis, SARS virus etc. The importance of hospital-acquired infections goes beyond its impact on morbidity and mortality figures in any country and has profound economic implications.

Oes in HCWs is considered any contact with a material that carries risk of acquiring an infection which occurs during working activities, either in direct contact with patients or with body fluids or tissues.<sup>[5]</sup> These exposures include needle-stick and other sharp injuries; direct inoculation of virus into cutaneous scratches, skin lesions or abrasions; and inoculation of virus onto the mucosal surfaces of eyes, nose or mouth through accidental splashes.<sup>[6]</sup> These preventable injuries expose HCWs to over 20 different blood-borne pathogens and result in an estimated 1000 infections per year.<sup>[7]</sup>

Percutaneous injuries caused by needle-sticks are a serious concern for all HCWs. The United States National Surveillance System for HCWs identified six devices that are responsible for majority of sharp-related injuries. These are hypodermic needles (32%), suture needles (19%), winged steel needles (butterfly) (12%), scalpel blades, IV catheter stylets (96%) and phlebotomy needles (3%).<sup>[8]</sup> Approx 2 million exposures per year in HCWs are due to NSIs.<sup>[9]</sup>

The present study was conducted to review the awareness of cross-infections and tenets of infection control followed amongst medical practitioners, nursing and housekeeping staff in a primary healthcare organization – ECHS PC Kotdwara, Uttarakhand.

## AIMS &amp; OBJECTIVES-

1. To investigate quality measures, i.e. Occupational exposures.
2. To analyze reasons behind poor quality performance.

**METHODOLOGY -**

A cross-sectional study among a random sample of HCWs was carried out to estimate incidence of exposure to blood and body fluids in preceding 03-month period in ECHS PC Kotdwara, Uttarakhand. Institutional ethical clearance was obtained for conducting study from hospital administrative authorities.

Self-reported occurrence and circumstances of the same were recorded by face-to-face interviews using a structured questionnaire. It was then analyzed in participant's presence to cross-check for any omissions. The omitted questions were further asked and informant's reply noted. A database was then created in MS Excel and appropriate statistical analysis was carried out using SPSS ver 14.0.

**RESULTS-**

**1. Regarding awareness about OE to blood & body fluids-**

On analysis of compiled data, it was observed that approx. 72.7% HCWs were aware of potential risk of OE, while 18.18% were somewhat aware followed by 9.09% with least awareness on the topic.



Figure 1- Status of awareness about OE

**2. Awareness about infections that could catch up on NSI-**

One of the note-worthy finding of study was that merely 36.36% of HCWs were fully aware about infections caused due to needle-stick injury. Almost 54.54% reported that they bear some-what knowledge while approx 9% was not aware about the hazardous risk of infections.

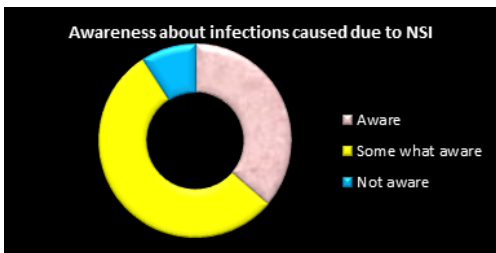


Figure 2- Awareness about infections caused by NSI

**3. Vaccination status**

The safest bet for HCWs to prevent BBPs is to get vaccinated. Positively in present study, 90% HCWs were vaccinated against HBV. But out of them only 9.09% were fully vaccinated for all the three doses, hence remaining were vulnerable for the disease. Unfortunately, these HCWs did not go for antibody titre test to check response of vaccine and need of booster dose.

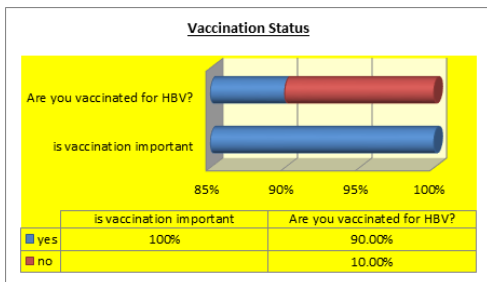


Figure 3(i) - Vaccination status of HCWs

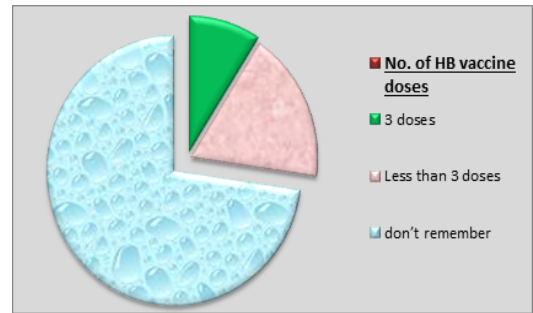


Figure 3(ii) - Vaccination status of HCWs

**4. Incidences of OE in past 3 months-**

The overall incidence of OE to blood and body fluids during study period of three months was alarmingly high - 69.49%, thereby putting a question mark on their susceptibility for BBPs.

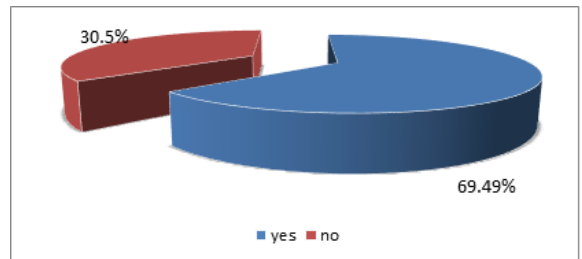


Figure 4- Incidence of OE

Also category-wise analysis of staff that stays in first line interaction with the patients was done. On observation highest exposure was found among the nursing staff.

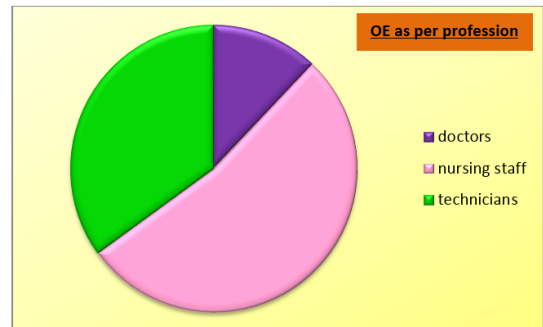


Figure 5- OE as per profession

**5. Type of accident leading to occupational exposure-**

Most of the exposures, i.e, 70% were due to NSIs . Only 30% were due to splashing of body fluids/blood.

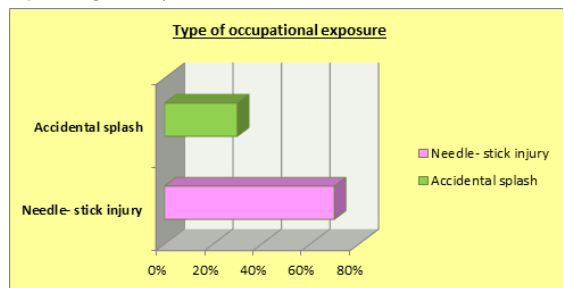


Figure 6-Type of OE encountered

**7. Response on incidence of NSI-**

It is an alarming finding that hospital does not have a reporting system on incidence of NSI. Sadly, only 4% HCWs take initiatives to undergo lab investigations after OE. Moreover, only 2 % subjects followed post-exposure prophylaxis. The above findings are both-alarming and perplexing.

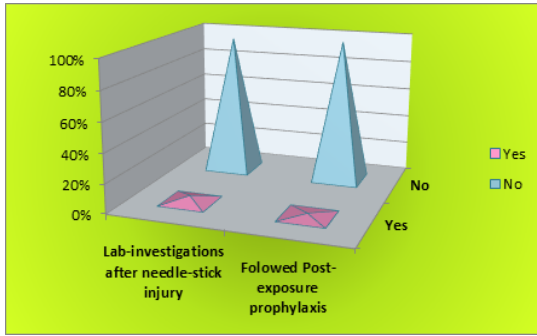


Figure 7- Response after NSI

**DISCUSSION-**

OE to blood and body fluids in preceding 03 months was fairly high in the present study ranging from the lowest incidence of 12% among doctors to more than 53% among nursing staff. The study is in line with other researches that reported nurses experience majority of NSI in the world including half of the exposures that occur in the US<sup>(10)</sup> and 70% of exposures occurring in Canada.<sup>(11)</sup> Further, majority of accidental exposures to blood and body fluids was due to NSI and most of them were percutaneous.

Ironically, as low as 2% of exposed HCWs took a course of PEP although it was indicated in about half of the affected HCWs in this study. This low rate was due to under-reporting to concerned hospital authorities. Reasons for not reporting included: source thought it to be non-infectious, insignificant exposure, too little time to report, outcome remaining unchanged by reporting, exposure was not an emergency and not knowing how to report an exposure. Unreported needle-stick and sharp injuries are a serious problem world-wide. According to researchers, 40%-70% of all NSIs are unreported.<sup>(12)</sup>

**RECOMMENDATIONS-**

- Proper notification, documentation and education of HCWs.
- Reporting injuries and documenting all blood-borne exposures at the earliest.
- Modify work practices to reduce risks.
- Quaternary review of NSIs by top management.
- Training sessions to be scheduled such that all staff should compulsory attend it.

**CONCLUSION**

Quality is that differentiating backbone of health service without which the very survival of healthcare organization is at stake. It is of paramount importance for healthcare provider to maintain its goodwill and customer relationship, it is a business tool that improves their products services and brand image.

The call of the hour is urgent implementation of standard precautions which is the most pivotal QI measure. It is strongly recommended that CDC Guidelines should be followed meticulously.<sup>(13)</sup>



Figure 9- Standard Precautions

Healthcare service providers must strive continuously towards quality improvement. Those on forefront will not only reap the rewards financially, but more importantly, their patients will lead healthier and happier lives.

***“We are what we repeatedly do. Excellence then is not an act....but a habit.”***

-Aristotle

**Annexure**

SNo.	QUESTIONS	RESPONSES		
1.	Are you aware of occupational exposure to blood & body fluids?	Aware	Somewhat aware	Not aware
2.	What infections could you catch up on needle-stick injury?	Aware	Somewhat aware	Not aware
3.	What are common mistakes that lead to needle-stick injury?	Fast working & less attention	Improper handling	Panic during emergency
4.	Do you have a reporting system in your hospital after occupational exposure?	Yes	No	
5.	<b><u>Vaccination status-</u></b>	Yes	No	
	i) Is vaccination important?			
	ii) Are you vaccinated for HBV?	Yes	No	
	iii) No. of vaccination doses?	03 doses	Less than 03 doses	Don't remember
6.	<b><u>Occupational Injury status-</u></b>	Yes	No	
	i) Have you encountered incidence of occupational exposure in the past 3 months?			
	ii) What was the type of accident that led to occupational exposure?	Needle-stick injury	Accidental splash	
	iii) Which part of the body was exposed?	Face	Finger	Forearm
	iv) Have you undergone lab investigations after occupational exposure?	Yes	No	
	v) Have you followed post-exposure prophylaxis after occupational exposure?	Yes	No	

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