



**ORIGINAL RESEARCH PAPER**

**Community Medicine**

**A CROSS-SECTIONAL STUDY ON AWARENESS AND PRACTICE OF UNIVERSAL PRECAUTIONS AMONG HEALTH CARE WORKER OF A TERTIARY HEALTH CARE HOSPITAL OF JHANSI**

**KEY WORDS:**

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**ABSTRACT**

Health safety issues are a special concern in laboratory technicians who handle blood, body fluids, and tissues which may contain infectious agents. Lack of knowledge of standard precautions has been noted to influence the practice and behavior. This study therefore aims to study the awareness and practice of universal precautions (U.P) in lab technicians. It was a cross sectional study, conducted in the tertiary health care hospital of Jhansi district, among laboratory technicians of various departments from march 2020 to September 2020.. Random sampling was done and data was collected using a self-administered questionnaire. Statistical analyses were performed using Microsoft excel 2007. Descriptive analysis was done and Chi-square tests were used for establishing association. The mean age of the respondents was 32.37 years, all of them were graduates by education and the mean length of experience was 5.45 yrs. The mean score for knowledge was 14 (41.1%). Although infection prevention training are introduced, the overall performance of respondents was unsatisfactory. Keywords: Universal precautions, Standard precautions, Laboratory workers, Knowledge and practise of universal precautions

**INTRODUCTION**

**Universal precautions (UPs)** are a set of precautions or actions designed to prevent HCWs from being exposed to blood and deep body fluids by applying the basic principles of infection control through hand washing, utilization of appropriate protective barriers such as gloves, masks, gowns, and eye shields, safe handling and disposal of needles, and safe decontamination of instruments and other contaminated equipment.<sup>1</sup> The term standard precaution is replacing universal precautions, as it expands the coverage of universal precautions by recognizing that anybody fluid may contain contagious and harmful microorganisms.<sup>2</sup> UPs are important because any health care organization has a responsibility to protect its staff from potential dangers and itself from loss of manpower due to occupational injuries or illnesses.<sup>3</sup> Patients may be harmed if staff are uninformed about safe handling of blood or body fluids, and they may be deprived of appropriate care due to HCWs' inappropriate fears or misunderstandings.<sup>4,5</sup> Surveys have shown that the use of UPs significantly decreases the number of incidents of occupational exposure to blood.<sup>6,7</sup> Nevertheless, the level of compliance with UPs has been reported to be generally low.<sup>8,9</sup> They are the basic level of infection control precautions which are to be used, as a minimum, in the care of all patients in all settings.

**AIM AND OBJECTIVE**

To assess the baseline knowledge and practices regarding standard precautions followed by laboratory workers from different departments of a tertiary health care facility in Jhansi Uttar Pradesh. It is observed that knowledge influences the practice and compliance of these precautions, therefore an assessment of knowledge and practices can help us visualize the extent to which these practices are followed and any gaps between knowledge and practice can be identified.

**MATERIAL AND METHODS**

Cross sectional study was conducted in Mlb Medical College Jhansi, which is a tertiary level health care hospital. The study conducted for a period of six month from march 2020 to September 2020. Sampling technique hospital has many department on which who were posted in covid hospital were included in study. In this study we have taken health care worker from 5 department randomly. Health workers posted in different shifts of morning, afternoon and night. To achieve a sample size of 70, department register of each department was taken and 14 individuals from each department were selected by random method. After taking consent, 70

respondents were administered the questionnaire in total. Sample size Assuming the knowledge and awareness of laboratory workers regarding standard precautions as 50% and taking absolute error as 12%. A sample size of 70 was taken for the study. Inclusion/exclusion criteria Inclusion criteria included those workers who were working for a period of >1 month in the facility and who had given consent for the study. Exclusion criteria included students with BSc, MLT degree. Study tool Self-administered structured questionnaire was used consisting of two parts-the first part contained information on socio demographic characteristics such as age, sex, duration of working, experience and second part included knowledge-type questions addressing knowledge of the concept in general and hand hygiene and practices related to them. Knowledge type questions included identifying fluids and appropriate precautions followed for different procedures like handling paperwork, collecting and transporting specimens, centrifuging. Practice wise questions included how frequently (always, sometimes, never, not applicable) was hand hygiene, use of personal protective equipment (PPE), disposal of waste, and cleaning of spills. Statistical method/tool Data was entered and Statistical analyses were performed using Microsoft excel 07. Descriptive analysis was done and Chi-square tests were used for establishing association.

**RESULTS**

The mean age of the respondents was 32.37 years, all of them were graduates by education and the mean length of experience was 5.45 years. Males amounted to 53% and females amounted to 47% of the total respondents. Respondents were scored out of 34 questions, in the domain of knowledge. Each correct answer allotted one mark with no negative marking for wrong answers. The mean score for knowledge was 14 (41.1%). Majority correctly identified which fluids to apply SP (mean score=3.5) when compared to which fluids do not come under SP (mean score=1.5), eight questions were asked on procedure and the appropriate precaution to be followed for each one (washing hands/wearing gloves/wearing gown), lastly four questions were asked on previous training and handling of laboratory equipment (Table 1). 25% (n=17) of them had undergone any sort of training on universal precautions in the previous 12 months, 68% answered correctly on shielding machines which emit splash/splatter, 75 % answered yes on using capped tubes while centrifuging specimens and 62% choose yes on whether to decontaminate the container of specimens.

Knowledge regarding procedure precautions was low and the respondents had nil knowledge on when to use disposable gowns for safety, however majority had correct knowledge on appropriate use of gloves while performing procedures when compared to washing hands. Collecting blood, filtering specimens and transferring specimens were the procedures where maximum knowledge was seen (82%), whereas removing rubber stoppers was the procedure where least knowledge was found (62%). In the area of practice, questions were asked regarding frequency of practicing (always/sometimes/ never/not applicable) standard precautions (Table 2).

**Table 1: Knowledge regarding standard precautions.**

Procedure (sum/total)	Correct response (%)
<b>Writing /handling paperwork</b>	
Washing hands	65
<b>Collecting blood with needle and syringe</b>	
Washing hands	76
Wearing gloves	6
Wearing gown	0
<b>Transporting specimens</b>	
Washing hands	75
<b>Removing rubber stoppers</b>	
Washing hands	6
Wearing gloves	59
Wearing gown	0
<b>Vortexing/centrifuging specimens</b>	
Washing hands	12.5
Wearing gloves	62.5
Wearing gown	0
<b>Filtering specimens under pressure</b>	
Washing hands	6
Wearing gloves	75
Wearing gown	0
<b>Transferring /splitting or culturing specimens</b>	
Washing hands	12.5
Wearing gloves	68
Wearing gown	0

**Table 2: Frequency of practices among respondents.**

Procedure	Frequency(%)
Dispose of sharp objects into a sharp container	Always (87) Not applicable (13)
Wash my hand after removing disposable gloves	Always (81) Sometimes (19)
Wear disposable gloves whenever there is a possibility of exposure to blood or body fluids	Always (81) Not applicable (13)
Wear protective eye shields whenever there is possibility of a splash/splatter to my eye	Always (62) Sometimes (25) Not applicable (6.25)

**DISCUSSION**

The level of awareness of SPs is only about 41% in this study which is similar to a study conducted by Goswami et al. among interns in tertiary care facility in western India<sup>10</sup> and a similar level of knowledge on the basic concepts of SP 37.0% was observed in a study on healthcare workers in the Lower Manya Krobo District, Ghana.<sup>11</sup> The area of concern is the knowledge about fluids to which the SPs are applicable /not; majority of the candidates had very poor knowledge (22%) about fluids to which SPs are not applicable compared to fluids to which the SPs are applicable (44%) which was similar to a study conducted by Motamed et al. <sup>12</sup> among health care

workers(HCWs) and medical students in Mazandaran province where many of them had the misconception that the universal precautions should be applied when in contact with sweat(80.8%). This being a very basic element of SPs is a red flag for practice. In the area of knowledge regarding procedures maximum knowledge was found on wearing gloves, and zero knowledge was seen in wearing gowns, this might be due to frequency of usage of gloves commonly in day to day practice and thereby having maximum knowledge regarding the same and least use of gowns in regular practice amounting to nil knowledge., a similar pattern was observed among Interns of a Medical College in West Bengal, India conducted by Mukherjee, et al. <sup>13</sup> where 62.4% respondents had correct knowledge regarding usage of gloves.

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