

# Compliance with Standard Precautions: A long way ahead

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## Abstract

**Background:** To find out the knowledge, attitude and compliance with standard precautions among doctors working in a tertiary care hospital.

**Methods:** The cross sectional study was conducted during October 2006 in the form of self reporting questionnaire. The questionnaire included question about duration of clinical experience, Hepatitis B Virus vaccination and its antibody titer, knowledge and compliance of Centre for Disease Control (CDC) standard precaution guidelines. They were further asked about reasons for non compliance.

**Results:** Total 120 doctors participated in this study which includes 60% interns, 34.2% residents and 5.8% consultants. Total 95% respondents were vaccinated against Hepatitis B virus but only 27.4% knew their antibody titers. Majority of the doctors, 52.5% didn't know any thing about Centres for Disease Control guideline for standard precautions while 40% of the respondent had some idea and only 7.5% knew them well. Among responders 56.7% changed gloves for each patient and only 39.2% washed hand in between examining patients. Most of the doctors 58.3% said they always wear apron while dealing with patients while 20% wear only when dealing with high risk patients. Protective goggles were not used by any of our respondent. The reasons given for non-compliance included non-availability of protective modalities by 58.3% while 20% were of the opinion that it's not practical.

**Conclusion:** The knowledge attitude and compliance among doctors towards standard precautions is in-adequate. Availability of supplies and awareness programmes for these standard precautions are recommended for better compliance.

**Keywords:** *Standard Precautions, CDC guidelines, Compliance, Pakistan*

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## Introduction

Centre for Disease Control in 1987 defined Universal Precautions (UP) as a set of precautions designed to prevent spread of human immunodeficiency virus, hepatitis B virus and other blood-borne organisms when providing any type of health care. It was referred to the routine use of barrier precautions used by healthcare personals to prevent contamination by blood and specific body fluids, from all patients that were visibly contaminated with blood (1). However, it was recognized that more infection control precautions are needed as all body fluids are potentially infectious. Therefore, the Centre for Disease Control in 1996 published Standard Precautions (SP) guideline (2). This promotes basic infection control practices aimed at reducing the transmission of organisms, but are applied to all body fluids (except sweat), irrespective whether they are contaminated with blood, non-intact skin and mu-

cous membranes and include hand decontamination, the use of personal protective equipment, the safe use and disposal of sharps, decontamination of equipment and the environment, patient placement, linen and waste management. Different authors have showed that adopting Standard Precautions within the clinical setting is far from ideal (3-5). Many studies have highlighted that staff compliance to SP is generally scarce, and practice interventions to improve compliance are generally inadequate in their effect (6, 7).

This is one of the few studies from Pakistan which aims to discover the knowledge, attitude and compliance of doctors towards the standard precautions and their views for the better compliance.

## Material and Methods

This cross sectional study was performed during October and November 2007 in Civil Hospital, Karachi, which is a 1670-bed tertiary care

teaching hospital in the public sector that imparts both undergraduate and postgraduate teaching and training. It is one of the teaching hospitals affiliated with Dow University of Health Sciences (DUHS). Data was collected in the form of self-reporting questionnaire. Consent was implied by the voluntary return of the questionnaire. The questionnaire asked about the demographic information, duration of clinical experience, hepatitis B virus vaccination and its antibody titer, knowledge and compliance of CDC standard precaution guidelines. They were further asked about reasons for non compliance. Data was analyzed by SPSS version 10.

**Results**

Total 120 doctors participated in this study which includes 44.2% males and 55.8% females. The mean age of the respondent was 26.46±3.88 yr, with 60% of them were interns, 34.2% were residents and 5.8% were consultants. Mean duration of clinical experience was 20.06±30.90 months. Total 95% respondents were vaccinated against hepatitis B virus but only 27.4% knew their antibody titers. Majority of the doctors, 52.5% did not know any thing about Centre for Disease Control guideline for standard precautions while 40% of the respondent had some idea and only 7.5% knew them well.

Among responders 56.7% changed gloves for each patient and only 39.2% washed hand in between examining patients. Most of the doctors 58.3% said they always wear apron while dealing with patients while 20% wear only when dealing with high risk patients. Protective goggles were not used by any of our respondent. Table 1 shows the frequency of protective devices and patient categories in which they were used. The reasons given for non-compliance included; non-availability of protective modalities by 58.3% while 20% were of the opinion that it was not practical. Frequency and percentages of various reasons for non compliance is shown in Table 2.

Answering to open ended question about suggestions to improve awareness and compliance with

standard precautions, 22% emphasize the need of provision of equipment necessary for protection, other [8.3%] suggested increased awareness through seminar or workshops while 6.67% felt adherence to strict protocols and guidelines.

**Table 1:** Frequency of use of protective measures

Measure	Always used n (%)	Occasionally used (High Risk Patients) n (%)	Not at all n (%)
Gloves	25 (20.8)	79 (65.8)	16 (13.4)
Mask	3 (2.5)	50 (41.7)	67 (55.8)
Apron	70 (58.3)	24 (20.0)	36 (21.7)
Goggles	0 (0)	0 (0)	0 (100.0)

**Table 2:** Frequency of reasons for non-compliance with standard precautions

Reason	n (%)
Non-availability	70 (58.3)
Forget to use	18 (15.0)
Time consuming	17 (14.2)
Not practical	24 (20.0)
Miscellaneous	9 (7.5)

**Discussion**

This study shows that knowledge and compliance towards standard precautions among doctors working in a tertiary care teaching hospital to be sub-optimal. Clement, et al. (8) demonstrated a better knowledge of these standard precautions among Nigerian surgical residents, where 44% knew them well and 42.2% had some idea of it. Danchaivijtr, et al. (9) showed a much better knowledge (94.9%) of standard precautions among doctors from Thailand. A study from Costa Rica showed that 93% of medical interns knew little or nothing about the standard precautions (10). Hammond et al. (11) also found that the interns had only 16% compliance rate with strict precautions guidelines. Among barrier precautions used maximum compliance was observed with use of aprons (58.3%) and lowest compliance with mask (2.5%) and go-

goggles (0%). Chan R, et al. (12) has also showed that use of mask and goggles was uncommon among healthcare providers in Hong Kong. According to this study, compliance for hand washing was 86%, gloves 79%, masks 46%, eye goggles 25%, gown/plastic apron 45%, masks: 47%. However, Madan AK et al. (13) showed a much better compliance rate for individual barrier precautions i.e. gloves 98%, eyewear 52%, gowns 38% and mask 10% among trauma team workers in USA. This showed increased adherence with these precautions among healthcare providers in developed countries.

Non-availability of relevant modalities remained the most important factor for non-compliance in our study. Clement, et al. (8) has also showed this to be the main reason in 85.6% for non-compliance among surgical residents. In an open ended questionnaire about reasons for not using standard precautions in different community hospitals, Ferguson KJ, et al. (14) reported: belief that stopping to use standard precautions would have put the patient at risk (22%); using precautions would have interfered with patient care (20%); precautions were not warranted in a specific situation (14%); did not anticipate the potential for exposure (14%); and high job demands that had caused respondent to be in a hurry (11%), equipment was not available (7%), respondent forgot (6%), respondent thought that the patient did not pose a risk (4%), or the available equipment was not effective (3%).

Different correlation studies have showed that non-adherence among doctors and nurses are associated with insufficient knowledge, workload, forgetfulness, workplace safety climate and the insight that colleagues also failed to follow. Adherence is associated with considering precautions as a way to avoid injury or exposure and with concern about protecting colleagues (15-18).

Availability of supplies and awareness programs for these standard precautions are among the main suggestions for better compliance. Brooks, et al. (19) showed a significant improvement in compliance with the standard precautions from 48% to 74% after an educational symposium. Richman,

et al. (20) has also showed increased compliance with standard precautions after a 30 min educational program.

The knowledge attitude and compliance among doctors towards standard precautions is inadequate. Institution needs to play a greater role to ensure better compliance like provision of needed modalities. Excessive patient care workload also effects the compliance to some extent which also needs to be looked into.

### Conflict of interests

The authors declare that they have no conflict of interests.

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