

Original Research Article

Knowledge and practices regarding standard precautions among health functionaries of peripheral health institutions of Haryana

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ABSTRACT

Background: Healthcare workers (HCWs) are at risk of infections due to blood-borne pathogens as they are potentially exposed to blood and body fluids in the course of their work. Standard precautions aim to both protect health care workers (HCWs) and prevent them from transmitting the infections to their patients.

Methods: The study was conducted among health functionaries of all health centres whether govt. or private of community development block Beri, District Jhajjar, Haryana. A pre-tested semi-structured questionnaire was administered to the study subjects and the responses were recorded by the investigator himself. The questionnaire included information pertaining to knowledge and compliance with standard precautions among HCWs.

Results: Knowledge among staff nurses and laboratory technicians was having wide variations as 53% to 93% of them gave correct replies for different components of standard precautions. Similarly, when knowledge of multipurpose health workers was assessed only half or less than half of them were having correct knowledge for most of the components.

Conclusions: To conclude, the HCWs in peripheral health institutes had inadequate knowledge of and poor compliance with SPs. Enhancement of the existing training and system for monitoring the appropriate use of personal protective equipment is need of the hour.

Keywords: Health care workers, Standard precautions, Knowledge, Compliance

INTRODUCTION

Healthcare workers (HCWs) are at risk of infections due to blood-borne pathogens as they are potentially exposed to blood and body fluids in the course of their work. Globally, about three million HCWs experience percutaneous exposure to blood-borne viruses each year (two million hepatitis B, 900,000 hepatitis C and 300,000 human immunodeficiency virus).¹ Developing countries having highest burden of HIV-infected patients in the world also record the highest needle stick injuries. The World Health Organization (WHO) estimates that about 2.5% of HIV cases among HCWs and 40% of hepatitis B and C cases among HCWs globally are the result of these exposures.² Despite infection control measures and

availability of hepatitis B vaccine, health care providers remain at risk of acquiring blood borne infections.³

Standard precautions are the minimum infection prevention practices that apply to all patient care, irrespective of suspected or confirmed infection status of the patient, in any health care setting. Standard precautions include hand hygiene, use of personal protective equipment (e.g. gloves, aprons, gowns, masks and protective goggles), needle safety, and safe handling of potentially contaminated equipment or surfaces in the patient environment including respiratory hygiene i.e. cough etiquette and disposal of sharps, body fluids, and other clinical wastes properly. These practices aim to

both protect health care workers (HCWs) and prevent them from transmitting the infections to their patients.^{4,5}

Despite the availability of detailed guidelines, the awareness and practice of standard precautions vary among HCWs and have been found to be inadequate in both developed and developing countries.⁶⁻⁸

Though many studies could be quoted regarding the practice of standard precautions among HCWs in various urban hospitals of India, there is lack of information about the same among HCWs functioning in peripheral health institution settings. Thus the present study was undertaken with the main objective to assess the knowledge and practices regarding standard precautions among health functionaries of peripheral health institutions in a predominantly rural community development block, Beri of district Jhajjar, Haryana, India.

METHODS

The study was conducted among health functionaries of all health centres whether govt. or private of community development block Beri, District Jhajjar which is field practice area of Department of Community Medicine, Pt. B. D. Sharma PGIMS, Rohtak, Haryana. The study was conducted from Jan 2012 to Dec 2012. Approval from Institutional ethics committee was obtained before carrying out the study.

A list of all health care centres/units was obtained from Community Health Centre (CHC) Dubaldhan and CHC, Dighal as both these CHCs are administrative units of block, Beri. This block is served by 95 health centres including one General Hospital (Beri), two Community Health Centres (Dighal and Dubaldhan), three Primary Health Centres, 25 Sub Health Centres, 37 general Practitioner's Clinics (Allopathic, AYUSH, Naturopathy etc.), 2 dental clinics, 18 veterinary hospitals and 7 diagnostic laboratories.

All the study subjects were fully informed and consent was obtained before initiating the interview. The confidentiality of the information was assured. Interview with each health functionary was started with general discussion to build up a rapport and to gain their confidence. A pre-tested semi-structured questionnaire was administered to the study subjects and the responses were recorded by the investigator himself. The questionnaire included information pertaining to knowledge and compliance with use of hand hygiene, personal protective equipment, needle safety and respiratory hygiene/cough etiquette by HCWs.

Collected data were entered in the MS Excel spread sheet, coded appropriately and analysis was carried out using SPSS (Statistical Package for Social Studies) for Windows version.18.0 and online. Categorical data were presented as percentage (%) and statistical average (mean) was calculated wherever necessary. Pearson's chi

square test was used to evaluate differences between groups for categorized variables. In case, expected cell count less than 5 comprise >20% of a table, fisher's exact test was used. All tests were performed at a 5% level significance; thus an association was significant if the value was less than 0.05 (p value <0.05).

RESULTS

There were 95 health centres/units in the Beri block and 154 health functionaries belonging to these centres consented for the study. Nineteen allopathic doctors, 16 AYUSH doctors, 6 dental surgeons, 30 staff nurses, 70 multi-purpose health workers (male and female) and 13 laboratory technician participated in the study.

Knowledge of the participants regarding standard precautions was tested through eight questions and answers were recorded in the form of true or false. Knowledge of doctors varied as 75% doctors gave correct answer that standard precautions are applied not only to HIV and hepatitis patients but also to other diseases while 100% were having correct knowledge regarding needle safety and cleaning of blood spillage. Knowledge among staff nurses and laboratory technicians was having wide variations as 53% to 93% of them gave correct replies for different components of standard precautions (Table 1).

Similarly, when knowledge of multipurpose health workers was assessed they were found to be the weakest link in this regard. Only 32.8% of them were of right view regarding use of gloves for HIV patient care and only 34.2% of them were having correct knowledge in respect to use of standard precautions in situations which might lead to contact with saliva. Further, only half or less than half of them were having correct knowledge for most of the other components of standard precautions (Table 1).

Statistically significant difference was found for all the components of standard precautions among different level of health functionaries except two components i.e. application of standard precautions to all patients irrespective of their infectious status and cleaning of blood spill promptly with sodium hypochlorite. As expected knowledge of the doctors was best out of them followed by staff nurses and then laboratory technicians. Multipurpose health workers were found to be the least knowledgeable (Table 1).

Compliance of the health functionaries regarding standard precautions was assessed through eight questions and answers were recorded in the form of always, sometimes and never. Knowledge of doctors varied as 75% doctors gave correct answer that standard precautions are applied not only to HIV and hepatitis patients but also to other diseases while 100% were having correct knowledge regarding needle safety and cleaning of blood spillage. Knowledge among staff nurses and laboratory technicians was having wide variations as 53% to 93% of them gave correct replies for different components of standard precautions (Table 2).

Table 1: Knowledge regarding standard precautions among health functionaries (n=154).

Questions (Correct answers)	Doctors (%) n= 41	Staff Nurses (%) n=30	MPHWs (%) n=70	Lab Technicians (%) n=13	P Value
SPs [#] are applied to patients with HIV and hepatitis only. (F)	31 (75.6)	16 (53.3)	28 (40.0)	07 (53.8)	0.004*
Used needles can be recapped after giving an injection. (F)	41 (100)	22 (73.3)	43 (61.4)	11 (84.6)	0.000*
SPs are not necessary in situations that might lead to contact with saliva. (T)	35 (85.4)	19 (63.3)	24 (34.2)	05 (38.5)	0.000*
HCWs with non-intact skin should not be involved in direct patient care until the condition resolves. (T)	37 (90.2)	21 (70.0)	31 (44.3)	08 (61.5)	0.000*
Blood spills should be cleaned up promptly with NaOCl. (T)	41 (100)	28 (93.3)	62 (88.6)	12 (92.3)	0.164
SPs should be applied to all persons regardless of their infectious status. (T)	38 (92.7)	25 (83.3)	52 (74.2)	10 (76.9)	0.113
Gloves are necessary in all caring procedures for HIV patients. (F)	34 (82.9)	18 (60.0)	23 (32.8)	06 (46.1)	0.000*
SPs should apply to situations that might lead to contact with tears/urine/faeces. (F)	34 (82.9)	23 (76.7)	36 (51.4)	07 (53.8)	0.002*

Figures in the parentheses are percentages. *Statistically Significant ($p < 0.05$); [#]SPs- Standard Precautions, HCWs- Health Care Workers, (T)- True, (F)- False.

Table 2: Practices regarding standard precautions among health functionaries (n=154).

Component [#]	Doctors (%) n= 41	Staff Nurses (%) n=30	MPHWs (%) n=70	Lab Technicians (%) n=13	P Value
Always perform hand hygiene	40 (97.6)	27 (90.0)	53 (75.7)	12 (92.3)	0.010*
Always use gloves	36 (90.2)	23 (76.7)	29 (41.4)	05 (38.5)	0.000*
Always use mask	27 (65.8)	11 (36.7)	07 (10.0)	01 (7.7)	0.000*
Always wear apron	33 (80.5)	26 (86.7)	49 (70.0)	08 (61.5)	0.167
Always use goggles as eye protect	00	00	00	00	-
Always avoid needle recapping	40 (97.6)	29 (96.7)	43 (61.4)	10 (76.9)	0.000*
Always follow colour coding for waste disposal	38 (92.7)	26 (86.7)	57 (81.4)	11 (84.6)	0.438
Always cover broken skin	37 (90.2)	25 (83.3)	47 (67.1)	10 (76.9)	0.034*

Figures in the parentheses are percentages. *Statistically Significant ($p < 0.05$); [#]other answers were 'sometimes' and 'never'.

Statistically significant difference was found among various levels of health functionaries regarding compliance of standard precautions viz. hand hygiene, use of gloves, use of mask, and avoidance of needle recapping and covering broken skin standard precautions. Most of the doctors were compliant for standard precautions followed by staff nurses, laboratory and multipurpose health workers respectively (Table 2).

DISCUSSION

The present study depicts that most of the HCWs engaged in peripheral health centres in a block of Haryana possessed incomplete knowledge and MPHWs, who are the major providers in rural areas, were least knowledgeable. In our study, we found statistically significant differences regarding SPs knowledge

components among various levels of health care providers.

Knowledge regarding SPs among doctors of peripheral health centres in general seems adequate except in the questions about application of SPs to patients of hepatitis and HIV only (75.6% gave correct answer) and regarding application of SPs when contact with tears, urine and faeces was suspected (83% gave correct answer). Further, about one fifth doctors did not know that gloves are not necessary for all caring procedure for HIV patients. The low level of knowledge of SPs among HCWs in this study was similar to findings reported in previously published studies both in developed as well as developing countries, including India.⁶⁻¹⁰

The present study shows varying degrees of compliance among different level of HCWs with the different

components contained within standard precautions. The majority of the doctors (97.6%), staff nurses (90%) and lab technicians (92.3%) declared use of hand hygiene following most procedures. Strict compliance (always) with glove use was reported by about 40% of the MPHs and lab technicians and always wearing of mask for patient care was reported by 10% MPHs and 7.7 % lab technicians. Likewise, in comparison to the study from south India where about 28% of the respondents claimed using outer protective clothing when indicated and in developed countries where a whopping 62% consistently used these.^{4,11} Doctors were better than nurses in almost all aspects of compliance including hand washing, as shown by other studies too.¹²

Regarding eye protection, our study showed that none of the HCWs was compliant. Contrary to this, compliance with the use of eye protective gear was found to be 32% in similar studies from India and 63% in developed countries.^{11,13,14}

It is also disturbing that about 40% MPHs and one fourth laboratory technicians did not appear to follow needle safety precautions as they did recapping of needles sometimes. This corroborated with the findings from rural North India and Nigeria where about 30–40% of the participants resorted to recapping of needles always.^{2,13}

Our study findings of a low level of compliance among rural HCWs with SPs is probably due to an incomplete understanding of the principles underlying SPs which in turn affected their practices and led to reduced adherence to SPs.

To conclude, the HCWs in peripheral health institutes had inadequate knowledge of and poor compliance with SPs. Enhancement of the existing training on standard precautions for the peripheral health staff could reinforce the need to comply with standard guidelines. System for monitoring the appropriate use of personal protective equipment is need of the hour.

Limitations of the study: Social desirability bias might have exaggerated the reported compliance as compared to actual compliance with SPs.

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