

# STANDARD PRECAUTIONS: REVISITING THE KNOWLEDGE AND PRACTICE AMONG EMERGENCY DEPARTMENT STAFF IN NORTHEASTERN MALAYSIA

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## ABSTRACT

**Background:** Standard Precaution (SP) is a very important health issue that has not been well-emphasized. The outcome of not following the SP is a serious problem that can lead to the blood-borne infection. **Methods:** A set of self-administered anonymous questionnaire were given to all healthcare personnel in 4 selected Emergency Department (ED), hospital in Kelantan to assess the knowledge and practice of standard precaution. **Results:** Almost half of the healthcare personnel were having a good knowledge 115 (57.8%) and good practice 156 (78.4%) towards SP. For those who did not comply with SP, complained of lack of time as the main reason (38.5%) followed by interference with their work (29.2%). There was no significant difference between presence of Emergency Physician or not in ED with the compliance towards SP. **Conclusion:** Though majority of the healthcare personnel in ED possessed a good level of knowledge and practice towards SP, the staff compliance should be revised regularly wherever necessary to improve the precautions.

**Keywords:** *Standard precaution, Emergency Department, Malaysian Nurse*

## INTRODUCTION

Healthcare professionals are often exposed to microorganisms, many of which can cause serious or even lethal infections (Aiken, Sloane and Klocinski, 1997). In 1996, the Centers for Disease Control and Prevention (CDC) issued the Standard Precautions, a set of guidelines to prevent exposure to these microorganisms (Siegel, Jackson & Chiarello, 2007). But unfortunately, despite the simplicity and clarity of these guidelines, compliance among nurses was reportedly low (Chan *et al.*, 2002; Norsayani, 2003). Standard precautions are required to prevent contamination in the event of inadvertent contact of non-intact skin and mucous membrane with the patient's blood, bodily fluids, secretions and excretions. These guidelines are applied whenever a healthcare worker comes in contact with any patient regardless of the diagnosis or his infective status (Borton, 1997). Although these precautions have long been instituted widely, there are studies showing that healthcare professionals often fail to use personnel

protective equipment (PPE) consistently (Pratt *et al.*, 2001) and are not fully compliant with measures that have been demonstrated to decrease disease transmission (Osborne, 2003). Hence, with adequate knowledge and compliance to the standard precautions, transmission of blood-borne infections can be prevented among the healthcare workers especially in the Emergency Department (ED). The main objectives of this study is to find out the level of knowledge, attitudes and practice of Standard Precautions among healthcare providers in ED, Hospital Universiti Sains Malaysia (HUSM), Hospital Raja Perempuan Zainab II (HRPZ II), Hospital Kuala Krai (HKK) and Hospital Tanah Merah (HTM), Kelantan. We hope that the outcome of this study can serve as a database for a proper training in standard precautions in ED.

## METHODS

A cross-sectional study was carried out in HUSM, HRPZ II (with Emergency Physician) and HKK, HTM

(without Emergency Physician) from June 2009 to July 2009 by using self-administered anonymous questionnaire. With the help from ward sisters and research assistants, the questionnaire forms were handed to all healthcare providers working in ED in these four centres.

The questionnaire consists of three parts:

1. The participant's background, demographics data and past exposure to needle stick injury
2. The knowledge level of the participants: This part of the questionnaire is to test the participants of their theoretical knowledge of standard precautions
3. The practices of the participants in matter of standard precautions: This final part of the questionnaire is to assess the participants' practice level towards standard precautions.

The participants completed the questionnaire

unmonitored on their own. Completed questionnaire forms were re-submitted back to the ward sister or research assistants.

Analysis between category and categorical variables was done using Chi-square test. All statistical analysis was computed using Statistical Package for the Social Sciences (SPSS) version 18.0.1. This study was approved by our institutional ethical board review and the Malaysian National Medical Research Registry.

## RESULTS

A total of 199 healthcare personnel involved in this study. Out of these, 115 participants (57.8%) were found to have good level of knowledge (Table 1) and 156 participants (78.4%) have good compliance to standard precautions.

*Table 1: Questions Asked To Assess Knowledge on*

No	Question (For each of the question below, the participants answer either 'T= True' or 'F = False') gave the correct answer (n = 199)	Percentage of participants who gave the correct answer (n=199)
1	The following diseases are blood-borne diseases. i. HIV ii. Hepatitis A iii. Hepatitis B iv. Hepatitis C v. Dengue vi. Typhoid vii. Malaria	196 (98.5%) 126 (63.3%) 185 (93.0%) 153 (76.9%) 165 (82.9%) 186 (93.5%) 165 (82.9%)
2	Barrier protection such as the use of gloves and aprons are necessary during handling of all types of tissues and secretion of the patients.	193 (97.0)
3	The use of barrier protection must be appropriately matched with the types of procedures to be conducted	175 (87.9)
4	Gloves should be worn whenever there is a potential for patient's blood or secretion contamination	177 (88.9)
5	Face shield should be used when there is a possibility that the blood or fluid from the patient could be splashed to your face	175 (87.9)
6	Hands and skins should be washed with copious of water if accidentally contaminated with the patient's blood or other body fluid	180 (90.5)
7	Hands should be washed immediately after discarding the used gloves.	179 (89.9)

### Standard Precautions

Out of the 43 participants who did not comply with standard precaution practice, 14 were medical officer (32.6%), 14 were assistant medical officer (32.6%), 2 were staff nurses (4.7%), 3 were assistant nurse/ community nurse (7.0%) and 10 were health attendants (23.3%). Most of the participants gave “lack of time” as their main reason for poor compliance (38.5%), followed by “interfering with their work” (29.2%), “lack of equipment” (21.5%) and other reason such as laziness, forgetfulness, not comfortable with standard precaution, lack of staff and busy work schedule (10.8%) (Table 2). On the other hand, 60.3% of the participants said that they seldom recapped needle, 48.7% always used the personal protective equipment (PPE), 65.8% followed the standard hand-washing method and 93.5% used a container for sharp objects which should be targeted for 100 % achievement.

**Table 2: Numbers of staff practice and factors not compliance to standard precaution**

Variables	n(%)
<b>Pra Practice of Standard Precaution</b>	
Yes	156 (78.4)
No	43 (21.6)
<b>Factors Not Practicing Standard Precaution</b>	
Lack of time	25 (38.5%)
Lack of equipment	14 (21.5%)
Interfering with work	19 (29.2%)
Others (laziness, forgotten, not comfortable with standard precaution, lack of staff and very busy)	7 (10.8%)

An independent t-test was used to compare mean of knowledge and practice among healthcare personnel in ED with Emergency Physician and healthcare personnel in ED without Emergency Physician. This study revealed that no significant difference in level of knowledge ( $p=0.061$ ) and practice ( $p=0.731$ ) in between healthcare personnel in ED with Emergency Physician and without Emergency Physician (Table 3).

**Table 3: Comparison of Mean of Practice level among various groups of healthcare personnel between hospital with emergency physician (EP) and hospital without emergency physician (EP)**

	ED with EP	ED without EP	p
Knowledge (SD)	22.93(2.99)	22.00(3.42)	0.061
Practice (SD)	42.35(5.38)	42.64(5.06)	0.731

### DISCUSSION

Emergency Department is a vulnerable place for staff to get cross infection due to exposure in handling a variety of cases especially in trauma. A proper standard precaution must be applied before hand to make sure risk of cross infection can be minimized. The results of this study concur with those of Vaz *et al* (2010), who reported that 64% of healthcare workers at Jamaica University Hospital had knowledge of standard precautions. Danchaivijtr, *et al.* (1995) showed a much better knowledge (94.9%) of universal precautions among doctors from Thailand.

The rate of compliance with SP among ED staff is higher if compared to previous study by Baraff *et al.*, (1999). The physician was the highest group with lack of compliance to SP compared to staff nurse. A previous study has shown that nursing staff adhered to SP recommendations better than physician with regards to most SP guidelines except in the handling of used needles (Angtuaco *et al.*, 2003).

The main reasons of not complying with the SP were lack of time 38.5%, interference with works 29.2% and lack of equipment 21.5%. Interestingly this finding contrasted the finding by Jawaid *et al.*, (2008) at tertiary centre in Pakistan where they found that the main reason for doctors not complying with SP is because of non availability of the equipment. Abedbamowo, *et al.* 2002 has also showed this to be the main reason in 85.6% of the cases for non-compliance among surgical residents. This study also highlighted the important role of the Emergency Physician (EP) in the ED to monitor and supervise the staff especially the junior doctors while doing the procedure. Even though it was not statistically significant but the proper presence of the EP may improve the practice of the standard precaution (Ng and Hassim, 2007).

There were limitations in this study. First, the sample size of the study was small and was sourced from only four hospitals within the same state in Malaysia. Hence, the results may not be generalized to other Malaysian states. Secondly, because of the inherent nature of questionnaire surveys where we allow the participants to answer the questions unmonitored, we could not ascertain that the participants could have copied the answers from their colleagues who also participated in our study or got the answers from textbooks. Thus, the answers provided by the participants may not truly reflect the responses from

the participants themselves. Needless to say, despite the limitations, we believe this study does at least paint a picture of the state of standard precaution awareness among emergency healthcare providers in Malaysia.

## CONCLUSION

In conclusion it can be said that the knowledge and practice among emergency healthcare providers towards SP was adequate. However, excessive patient care

workload also affects the compliance to some extent which also needs to be looked into. Institution needs to play a greater role to ensure better compliance like provision of needed modalities. In this manner proper intervention and monitoring may help in the compliance towards the standard precautions which can be maintained in a health care centre. Proper preservation of the standard precautions will help to combat many communicable diseases and will reduce the incidence of death.

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