

# **NURSES' KNOWLEDGE, ATTITUDES, AND PRACTICES OF UNIVERSAL PRECAUTION TOWARD HIV/AIDS TRANSMISSION IN A DISTRICT HOSPITAL WEST JAVA PROVINCE, INDONESIA\***

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## **ABSTRACT**

In Indonesia, the incidence of HIV/AIDS is continuing increase by the year to the year since the first case was reported in 1987. Nurses are the major parts of health care workers who have prolong contact with all kind of patients including HIV/AIDS patients. Nursing is one of the most risky occupations of gaining transmitted infection due to exposure with patients' blood, body fluids, needle stick injury, and other mode of infection transmissions. This study aims to identify the nurses' knowledge, attitude, and practices of universal precaution toward HIV/AIDS transmission in a district hospital, West Java Province. Descriptive correlation study was selected as a design of the study. Ninety nurses were recruited to participate in this study using "proportionate stratified random sampling". After obtaining informed consent, respondents were asked to fill in a questionnaire consisted of demographic data form, knowledge, attitude, and self-reported practices regarding universal precaution. The collected data, then they were analyzed both descriptively and inferentially by using "Pearson product moment correlation"

The study revealed that the majority of respondents (74%) reported experience of sharp injuries including needle stick injury, glass broken, and knife cutting within one year ago. More than a half of respondents (52%) had a good knowledge level about universal precaution and HIV/AIDS transmission. More than a half of respondents (51%) also showed favorable attitude toward caring for HIV/AIDS patients. "Washing hand by using antiseptics agents after doing procedures which likely generate splashes and sprays of blood or body fluids of patients" was selected as the most practice item that always or often performed by respondents (M=3,91 SD=0,286). Two handed needle recapping method was still commonly practiced by respondents before disposing the needle (M=3,78 SD=0,683). There was little respondents reported wearing hand gloves while injecting medication or drawing blood sample from the patients. There was significant relationship between knowledge and practice score ( $r = 0,271$   $p = < 0, 01$ ), whereas no relationship was found between both knowledge and attitude score, and attitude and practice score. This study implied that prevention measures need to be taken immediately to prevent and minimize the occurrence of sharp injuries among nurses in order to assure safety working condition to improve the productivity of nursing service. Updating knowledge, developing positive attitude, and continuing evaluation should be done simultaneously to improve the nurses' competence in preventing the occupational related-diseases.

*Key words: Knowledge, Attitudes, Practices, Universal Precautions, HIV/AIDS*

## INTRODUCTION

AIDS (*Acquired Immune Deficiency Syndrome*) is a transmitted disease with high mortality rate and can infect all kind of people, whether infant to elderly and any sexes (WHO, 2000). In Indonesia, since 1987, AIDS and HIV (+) rate tends to increase every year. According to Ministry of Health Indonesia, there were 92.251 HIV cases and 39.434 AIDS cases on September 2012. Furthermore, UNAIDS estimated that there were about 380,000 people living with HIV/AIDS (PLWH) in Indonesia by 2012. In the West Java Province, there were 6,640 HIV (+) cases and 4,098 AIDS cases reported up to September 2012 (Ministry of Health, 2012). PLWH spread accross 26 residences and cities in West Java, especially in tourist destination city and surrounding cities of the capital Province.

By the development of a city as tourist destination, it's open to negative impact such as increased high-risk-HIV-transmitted rate. In turn they are re-transmitting to local people that in fact, are health facility (including hospital) user there. Nurses are the biggest workforce in hospital and have the longest contact with patients. Nurse job have the highest risk in term of blood and patient fluid specimen contact, and also possibility of being punctured by patients needle, and other hazard that can be media of transmitting disease. In the US, in 2001 there are 57 cases of health personnel that infected by HIV due to job risk. Twenty four (the most) of them are nurses (ICN, 2006). In Indonesia, even though there is no accurate data, but it can be shown by poor infection control in hospital, it indicates that risk of transmission to nurse is in high category.

At a hospital, nurses are generally the highest workforce among other health personnel. By the widespread incidence of HIV cases to the various regions, prevention of transmission to nursing personnel through the application of common standards of prevention is very important. Before carrying out general prevention is obviously the nurse should first understand about HIV / AIDS following the various complexities of the problem. Understanding will affect attitudes, and attitudes will determine the actual behavior will be raised (Notoatmodjo, 2003). In this context, the behavior is a common implementation of prevention of HIV transmission by a nurse, which is of course related to knowledge and attitudes which he believed. Therefore, this study aims to reveal how knowledge, attitudes, and practices of nursing precautions against HIV / AIDS.

The research questions in this study were (1) How nurses' knowledge about HIV/AIDS? (2) What is the attitude of nurses towards HIV/AIDS? (3) How is the implementation of a common prevention techniques in the prevention of transmission of HIV/AIDS by the

nurses?, and (4) Is there a significant relationship between knowledge, attitude and general prevention techniques in the prevention of transmission of HIV / AIDS conducted by nurses?

The benefit of this research is to provide information or facts (evidences) that will be useful to enhance the ability of nurses in caring of patients with HIV / AIDS, as an input for the learning development of nursing care to clients with HIV / AIDS, and as a baseline or reference for further studies related to the treatment of patients with HIV / AIDS.

## **METHOD**

This study design was "descriptive correlation". Researchers examined data at a single point in time, the data were collected only on one occasion on the same subject. Researchers also attempted to describe the study variables and examined the relationship between the variables of interest to gain a deep understanding of the phenomenon under study.

Registered nurses who are actively working at a local hospital in West Java is the population in the study. The sample in this study is the representation of nurses who have the same characteristics of the population. The sample selection will be done by "proportionate stratified random sampling" (Yamane, 1964) that a randomly selected sample in an equal number for each unit of work consisting of Emergency Unit, Intensive Care Unit, Surgical Unit, Medical unit, Paediatric Unit, Obstetric Unit, Neurology Unit, General & Temporary Unit, Operating Theatre and Pavilion. In this study, researchers took a sample of 90 respondents to anticipate the possibility of drop out, but until the end of the data collection process, the questionnaire collected 90 pieces, means that no drop outs and the response rate reached 100%.

In this study, researchers used an instrument developed by the researcher that based on a review of the relevant literature. The instrument consists of four parts, namely (1) Demographic data, (2) Knowledge of HIV / AIDS, (3) attitude toward HIV / AIDS, and (4) self-report (self-report) the implementation of prevention techniques commonly spread of HIV/AIDS.

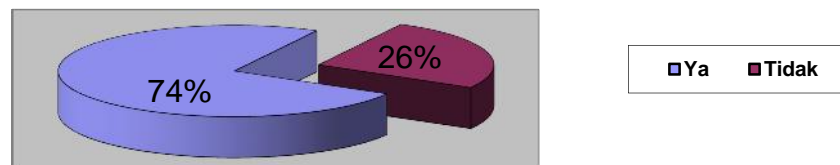
Data were analyzed using Microsoft Excel and SPSS (Statistical Package for Social Science) for window version 12. Statistical data analysis includes descriptive and inferential statistics. Descriptive statistics were used to display the demographic data, knowledge, attitudes, and implementation techniques common in the prevention of infection prevention. In addition, the mean, standard deviation (SD), and frequency range will also be displayed for Attitude data. "Pearson product moment correlation" scores were calculated to investigate the

relationship of Knowledge, Attitude and Implementation of general techniques for the prevention of the spread of HIV / AIDS (Polit & Hungler, 1999).

## RESULTS & DISCUSSION

Average of the characteristics of respondents in this study was 29 years, the majority are women (67.8%), educational backgrounds were Diploma III in Nursing (93.3%), working duration were less than 5 years (70%). Diagram 1, describing that the majority of respondents (74%) reported that they had an occupation accident of sharps injuries. The types of accidents and activity that being counted when the accident occur described on Table 1 and Table 2 below:

**Diagram 1. Frequency distribution and percentage of respondents who had experienced occupation accident sharps injuries (n = 90)**



**Table 1** The number and types of occupation accidents based on work shift over the last year

Accident Type	Work Shift			Total (%)
	Morning (%)	Afternoon (%)	Night (%)	
Punctured by needle	41 (13,6)	32 (10,6)	26 (8,6)	99 (32,8)
Cutted by knife	2 (0,7)	7 (2,3)	1 (0,33)	10 (3,3)
Scatched by drug vial fraction	28 (9,3)	25 (8,3)	21 (6,9)	74 (24,5)
Exposed to splashes of blood / body fluids	59 (19,5)	31 (10,3)	29 (9,6)	119(39,4)
<b>Total</b>	<b>130 (43)</b>	<b>95 (31,4)</b>	<b>77 (25,6)</b>	<b>302 (100)</b>

**Table 2** Type of work activity being performed when the occupation accident happened sharps injury

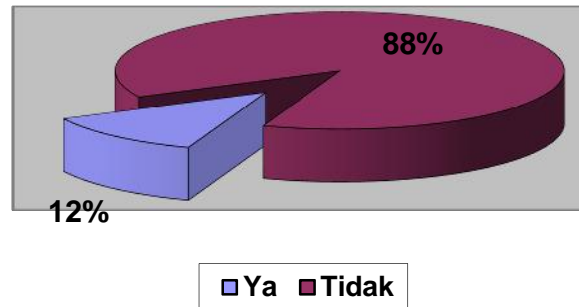
	Frequency	Percentage
Re-close the needle	45	36,0
Puncturing needle to drug bottle	14	11,2
Open drugs ampoule	40	32,0
Wound dressing	21	16,8
others ; IV catheter insertion	5	4,0
Total	125	100

Table 3 displays the frequency of workplace accidents of sharps injury based on units of work. These data shows that Medical Nursing Unit has the highest accident rate (14.4%) followed by the Paediatric Unit (10%) and Surgical Unit (8.9%). Most respondents (88%) responded "do not or have not been" trained infection control precautions or procedures as shown in diagram 2 below.

**Table 3** Respondents who had experienced a sharps injury as workplace accident based on working unit (N = 90)

Work Unit	Have a occupation accident (sharps injury)		Total (%)
	Yes (%)	No (%)	
Emenrgency Unit	6 (6,7)	0 (0,0)	6(6,7)
Surgical unit	8 (8,9)	3 (3,3)	11 (12,2)
Medical Unit	13 (14,4)	4 (4,4)	17 (18,9)
Paediatric Unit	9 (10)	9 (10)	18 (20)
Obstetric Unit	6 (6,7)	3 (3,3)	9 (10)
Operating Theatre	2 (2,2)	2 (2,2)	4 (4,4)
ICU	4 (4,4)	1 (1,1)	5 (5,6)
Neurology Unit	7 (7,8)	0 (0,0)	7 (7,8)
General Unit/temporary	6 (6,7)	1 (1,1)	7 (7,8)
VIP	6 (6,7)	0 (0,0)	6 (6,7)
Total (%)	67 (74,4)	23 (25,6)	90 (100)

**Diagram 2** Frequency distribution and percentage of respondents who had attended infection control training (N = 90)



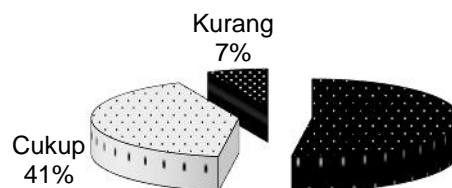
### Knowledge of the respondents

More than half (52%) of respondents have a knowledge about the general prevention of HIV / AIDS are in good category, with an average score of 24.06 (out of a maximum score of 31) as listed in Table 4 and 3 in the diagram below.

**Table 4** Total score and the conversion value of the common knowledge about the prevention of the spread of HIV / AIDS (N = 90)

	Minimum	Maximum	Mean	Std. Deviation
Total score	11	30	24,06	3,36
Score(converted to percentage)	35,48	96,77	77,59	10,83

**Diagram 3** Distribusi frekuensi dan prosentase responden berdasarkan kategori tingkat pengetahuan (N=90)



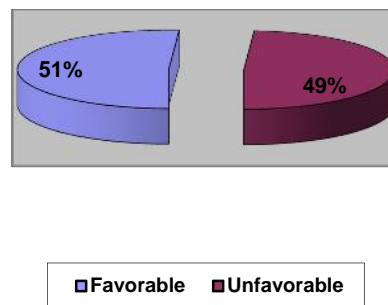
### Attitudes of the Respondents

More than half (51%) of respondents have favorable attitudes to the care of patients with HIV / AIDS with an average score of 72.58 attitude (of a maximum score of 100) as described in tables 5 and diagram 4 below.

**Table 5** Total score of the respondents' attitudes towards HIV / AIDS (N = 90)

	Minimum	Maximum	Mean	Std. Deviation
Total Score	60	88	72,58	3,36

**Diagram 4** Frequency distribution of respondents' attitudes towards HIV / AIDS (N=90)



### General Practice on the Prevention of Transmission of HIV/AIDS

Total score of minimum, maximum, mean, and SD as in table 6 common practice prevention against HIV / AIDS conducted the respondents can be seen in table 7 below with the highest mean value (close to 4) shows a growing number of respondents who reported always carrying out practice the contrary, the smaller the mean value (close to 1) indicates that many respondents chose "never" appropriate practice in question.

**Table 6** The number of respondents practice scores on general prevention for HIV / AIDS (N = 90)

	Minimum	Maximum	Mean	Std. Deviation
Total Score	54	91	75,74	8,96

**Table 7** The order of the mean and SD of the respondents practice general prevention against HIV / AIDS (N = 90)

Type of Practice	Mean	SD
Hand wash using antiseptic after conducting procedure that have patient blood or fluid contact	3.91	.286
Hand wash after touched patient excretion	3.82	.646
Hand wash after touched patient body fluid	3.81	.652
Hand wash after care to the patient	3.80	.524
Hand wash after touched patient blood	3.79	.727
Close the needle before dispose it to disposal bin	3.78	.683
Use hand glove when conducting operating procedure	3.76	.739
Use face mask when caring the patient with infection disease which has airborne potential	3.70	.626
Hand wash after using hand glove	3.66	.823
Hand wash using antiseptic fluid before conducting asepsis procedure	3.54	.767
Dispose needle and any sharps to <i>safety box</i>	3.52	.864
Conduct decontamination of instruments formerly used by patient before wash and sterilize	3.40	.934
Use hand glove when conducting wound care	3.34	.926
Hand wash before care to patient	3.32	.946
Use hand glove when conduct NGT insertion	3.31	1.098
When have wound or inflammation, I cover it with bandage before using hand glove	3.30	1.075
Use hand glove when cleaning instruments formerly used by patient	2.88	1.100
Use hand glove when suctioning	2.87	1.192
Hand wash before using hand glove	2.66	1.062
For high risk intervention such as contact with blood or body fluid, I use face mask, goggles and face protector	2.36	1.266
Use hand glove when inserting IV catheter	2.03	1.126
Use handglove when injecting (IV, IM, IC)	1.88	1.069
Dispose uncapped-used-needle to special needle bin	1.81	1.121
Dispose medical waste to common waste bin	1.34	.621



## The relationship between Knowledge, Attitudes, and Practice of Public Prevention against transmission of HIV / AIDS

Results of statistical correlation test using the "Pearson product moment correlation" indicates that knowledge scores were significantly positively associated with scores of respondents practice, whereas knowledge with attitude, and attitude to practice not significantly associated. More results as described in Table 8 below.

**Table 8** The result of the relationship between knowledge, attitudes, and practices of general precautions against the spread of HIV / AIDS

Variabel	1	2	3
1. Knowledge Score	1	,107	,271(**)
2. Attitude Score		1	,170
3. Practice Score			1

*\*\*Correlation is significant at the 0.01 level (2-tailed).*

### Discussion

Data of respondent characteristics shown that the majority of respondents (70%) aged between 20 to 30 years, the majority (67.8%) were women, all of them are Moslem, mostly working in the Paediatric Unit, Medical Unit, and Surgery Unit, with duration of working are mostly (70%) less than five years. The three units are usually have higher occupancy rate rather than the other units, so the number of nurses worked there were usually more than in other units. Even though have high occupancy rate, but patients treated in these units generally have mild to moderate levels of complexity, since patients with higher levels of complexity are commonly treated in the intensive care unit. This is related to the nurse workforce who placed in these units that generally are junior nurse who have not much experience in dealing with patients, but on the other hand they should faced with a high workload.

Most of the respondents (74%) are reported had an accident of sharps injuries, the type of accident described as following: the most are needle stick injuries (32.8%) followed by scratched by fraction of ampoules (24.5%) and cut by knives (3.3%). Needle stick accidents experienced by respondents especially when recap needles (36%). The findings of this study reinforce previous findings that all health workers in the world is estimated to have 2 million

workplace accidents as sharps injuries that mediates the transmission of hepatitis B, C, and HIV (Wilburn & Eijkemans, 2004). The incidence is still a rough estimate, the actual figure could be higher because many cases are not recorded and are not reported. Safety injection data from a survey conducted by the WHO revealed that in Asia, Africa, and East Mediterranean, the average health worker sharps injury as much as 4 times per year (WHO, 2003). The two most common causes of sharps injuries is the syringe recapped by two hands method and the collection and unsafe disposal of sharps waste (WHO, 2003).

From the data in Table 3, Medical Unit, Paediatric Unit, and Surgical Unit have the highest sharps injury rate. It has been stated above that the three units has generally high patient occupancy capacity, nurse have high workload especially in injection were, and they are mostly junior so the potential risk of sharps injuries accidents is very high. This could be a consideration for human resource managers in designing nursing workforce patterns in the rooms. There should be a balanced composition between senior and junior and coaching or ongoing training about risk control occupation accident injury especially sharp objects are a must. This is reinforced by the findings illustrated in diagram 2 that only a small proportion (12%) of respondents who had attended training infection control procedures including universal precautions.

From the data of knowledge about general intervention of HIV / AIDS transmission is known that more than half of the respondents are in good knowledge category with an average total score of 24.06 (out of 31 the highest score). This shows that although only few respondents who have special training on infection control, but in general the respondents know it, possibly from their nursing education and since their work experience are relatively recent, that information is still easy to recalled. However, along with the development of science, following the advancement of science is a necessity to be maintained as a good profession. This can be seen from the data that most of the respondents (57.8%) is still correct to answer the question "used needles and syringes should be closed before the trash thrown away", but it is no longer recommended by WHO (2003) since punctured accident are mostly happened when recapped.

More than half of respondents indicated favorable attitudes to care of patients with HIV / AIDS. This shows that respondents indicate mentally readiness or willingness to treat patients with HIV / AIDS. However, almost half of the rest indicated unfavorable attitude. Ideally, all nurses must demonstrate a willingness to treat patients with HIV / AIDS because nurse profession bound to profession oath that states willingness to provide quality nursing care to all patients without any discrimination of race, religion, social, political, including the

types of illness. On the other hand, nurses are also entitled to protection from any kind of negative effects such as the risk of workplace accidents, disease transmitting, etc. Therefore, if the institution where the nurse works can protect from possible negative impacts caused by work, such as providing adequate facilities, safety standards and continuous improvement of competence, then the nurse should always be ready to provide nursing care to any kind of patient diseases.

Mean of practices total score are 75.74 (from highest total score 96) showed that most respondents reported often and always do the things asked on questionnaire. Viewed from order of the items that most frequent or always done by the respondents (Table 7) shown that "washing hands with antiseptic after the procedure relating to the patient's blood or body fluids" is the item most often conducted by the respondents in this study. In the next rank appears that most respondent practice hand washing as indicated, except for a small proportion of respondents who wash hands before putting on gloves. There are still many respondents who recapped the needle before dispose into the trash (Mean = 3.78) and only a few respondents who wear gloves when injecting action (Mean = 1.88). This is consistent with the knowledge that shows majority of respondents still thinks that recap needles before disposal is correct, it's also indicated by only small amount respondents who dispose the needle without recapped it first (Mean = 1.81) .

Statistical correlation test using the "Pearson product moment correlation" indicates that knowledge scores were significantly positively associated with respondents practice scores ( $r = 0.271$   $p = <0.01$ ), whereas knowledge with attitude, and the attitude was not significantly associated practices. This shows that the higher the score the higher the knowledge score of the practice. These findings reinforce the theory of "social cognitive theory" which states that a person's behavior (in this context the general practice of prevention against HIV / AIDS) is influenced by the cognitive aspects of knowledge formed about something related to the behavior that would be raised. On the other hand, in this study no evidence of a significant association between knowledge with attitude, and attitude to practice, even though both theoretically and empirically the relationship between knowledge, attitudes, and behavior are well known relation. It can be explained that attitude is a tendency which is not obvious (overt behavior) and attitudes are not the only determinant but there are many other factors that influence the appearance of behavior (Azwar, 2003). Therefore, further research still required to investigate what other factors are contribute to the behavior, and also to test how much the prediction of the appearance of behavior.

## **FURTHER RECOMMENDATION**

Measures to prevent or minimize the incidence of sharps injury as a result of occupational risk need to be taken by the management of nursing personnel other stakeholders as it will ultimately be a threat to the productivity of nursing care in hospitals. The steps that can be taken include improving the competence of nurses by education and training of related competences, providing support facilities, supervision, control and early treatment of occupational accidents cases especially on sharps-punctured. Although more than half of the respondents had a good knowledge category, but considering the knowledge of the aspects related to the risk of sharps injuries are still answered incorrectly, refresh knowledge (updating knowledge) is still needed, especially regarding to occupation accident risk control with more focus on the application of universal precautions in preventing transmission of HIV / AIDS. Coaching on positive attitude towards the care of patients with HIV / AIDS is needed to be done considering almost half of the respondents still showed a negative attitude towards the care of patients with HIV / AIDS. This coaching can be conducted by disseminating positive progress in the management of patients with HIV / AIDS, moral support, facilities, and policies of the hospital. Since there are many other factors that have not been revealed what are influencing on the appearance of the behavior, further study is still needed to explore the factors involved and examine which factors are the most powerful predictions that can be done to control these factors.

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