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# Awareness of Post-Exposure Prophylaxis of HIV Among Health Care Personnel in Asella Teaching Hospital, Asella Town, South-East Ethiopia, 2014: Cross Sectional Study

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**Abstract:** *Background:* Post-exposure prophylaxis is short-term antiretroviral or immune globulin treatment to reduce the likelihood of viral infection after exposure to the blood or body fluids of an infected person. Timely post-exposure prophylaxis after needle stick exposure to high risk body fluids in work area can reduce the rate of transmission of human immunodeficiency virus significantly. *Methods:* This institution based cross sectional study was conducted in purposively selected 251 health personnel. Structured questionnaire which was adapted from similar study conducted in Addis Ababa city was used to collect data. Data was analyzed using chi-square test. Ethical clearance was obtained from Addis Ababa University, College of Health Sciences, Department of Nursing and Midwifery. *Results:* From the total study participants 88.8% respondents had information about post-exposure prophylaxis and 85.7% know presence of post-exposure prophylaxis in their hospital. In addition to that 48.2% respondents responded correctly to the use of post-exposure prophylaxis. From the study participants almost half of the non-health professionals didn't know about post-exposure prophylaxis. *Conclusion:* Out of the total respondents, majority of them had good level of awareness about post exposure prophylaxis.

**Keywords:** Exposure, Prophylaxis, HIV, Health Personnel, Awareness

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## 1. Introduction

Human Immunodeficiency Virus/Acquired immunodeficiency syndrome (HIV/AIDS) is being considered as one of the major health problem and occupational health hazard among health care providers (1). Each day, thousands of people around the world experience accidental exposure to blood and other body fluids or tissues while performing their work duties. Health care personnel who have occupational exposure to blood are at risk for HIV infection (2). The number of people infected with HIV continues to increase persistently (3). Exposure to different body fluids has a potential risk of transmission of blood borne pathogens to health care workers (HCWs) (4). They can be exposed to HIV also by needle stick injuries or cuts, blood or fluid splash to their eyes, mouth and damaged skin. Even though the risk of HIV transmission in

these ways is extremely low (<1%) for all exposures but can be reduced further by appropriate and timely post-exposure management Post-exposure prophylaxis (PEP) (5). Preventing the occurrence of HIV infection resulting from such accidental injuries at work place and the use of HIV PEP is recommended by the world health organization (WHO) (6).

Although avoiding contact with infected blood is one of the primary strategies of preventing occupationally acquired HIV infection, appropriate PEP is an important element in workplace safety. PEP is short-term antiretroviral or immune globulin treatment to reduce the likelihood of viral infection after exposure to the blood or body fluids of an infected person (1). The prescription PEP following significant potential exposure to HIV has now become routine and it is important that individuals with potential risk of exposure are aware of the procedures to follow and where their first point of contact should be if an incident occurs (7).

It is necessary to initiate the prophylaxis measure in order to minimize the chance of HIV establishment. Timely PEP after needle stick exposure to high risk body fluids can reduce the rate of transmission significantly. So it is important to determine awareness of individuals about the accidental exposure to HIV infection and PEP particularly in hospitals because much number of staffs and increased risks of acquiring HIV infection (1). The knowledge of risk factors and the circumstances in which these exposures occur in hospitals can be very useful for developing proper preventive guidelines and educational programs (8). Hence, Ethiopia has developed guideline on the prevention of infection in health institutions in July 2004 and also employed since the implementation of free antiretroviral therapy (ART) in January 2005 (1).

Therefore the objective of this study was to determine Awareness of PEP of HIV Infection among health care personnel in Asella Teaching hospital, South-east Ethiopia.

## 2. Methods and Materials

This institution based cross sectional study was conducted in Asella hospital, South-east Ethiopia from December 2013 to may 2014. A total of 251 health care personnel were included in the study. To select study participants' purposive sampling was used. Health care professionals who participated in the study were grouped based their similarity of activities as; physicians and health officers, nurses and midwifery, laboratory and pharmacy, cleaners and porters, maintenance & laundry workers and rest of them were included under others such as anesthetist, radiologist, physiotherapies and ophthalmologist. Data was collected using structured questionnaire that is adapted from similar study conducted in Addis Ababa city. The questionnaires composed of different variables related to the objective of the study and it was pretested on 5% similar population which were not included in the study before the actual data collection period. Two diploma nurses and one BSc nurse supervisor was used to collect data and the principal investigator followed the overall data collection process. Every day the questionnaires were checked for completeness and consistency by the supervisor and principal investigator. The necessary feedback was given every morning before the actual procedure. After checking data was coded, entered into EPI INFO and exported to SPSS statistical software version 20.0. Appropriate descriptive statistics (frequency, mean, standard deviation) was calculated and chi-square test was used to determine the association between dependent and independent variables. Ethical clearance was obtained from Addis Ababa University, College of Health Sciences, Department of Nursing and Midwifery. Prior to interview written consent was obtained also from Asella teaching Hospital as well as informed verbal consent was obtained from each respondent after providing adequate information on the purpose of study. Participation in this study was voluntary based and every participant had the right to withdraw from the interview at any time. To ensure the

confidentiality no personal identifiers was used.

## 3. Results

### 3.1. Socio-Demographic Characteristics of the Study Population

Out of 251 respondents in the study hospital during the study period a total of 139 (55.4%) were males and the mean age was 31.14 years. Regarding their educational status of respondents 113 (45.0%) were diploma holders. Majority (67.7%) of the study participants had work experience of less than 5 years (Table 1).

**Table 1.** Socio-demographic characteristics of health Care Personnel working in Asella Teaching Hospital, South-east Ethiopia, 2014 (n=251)

Variable	Frequency	Percent	
Sex	Male	112	44.6
	Female	139	55.4
Age	< 25	43	17.4
	25-34	138	55.0
	35-44	49	19.6
	≥ 45	20	8.0
	High school or less	28	11.2
Educational status	Certificate	11	4.4
	Diploma	113	45.0
	Bachelor degree	82	32.7
	Masters degree/MD and above	17	6.8
Profession	Physician and HO	55	21.9
	Nurse and midwife	82	32.7
	Laboratory and Pharmacy	26	10.4
	Cleaner, Porters and Laundry workers	51	20.3
	Others	37	14.7
	Outpatient department	50	19.9
	Wards	97	38.6
Department	Operation theatre & special clinic	26	10.4
	Maternal service	22	8.8
	Others	56	22.3
	Less than 5 years	170	67.7
Work experience	5-10 years	42	16.8
	Above 10 years	39	15.5

### 3.2. Risk of Accidental Exposure to HIV Infection

Majority 206 (82.1%) believed as they were at a risk of acquiring HIV infection and 127(50.6%) respondents leveled themselves as high risk to HIV infection. From the total participants 64 (25.5%) experienced needle stick or other sharp injuries, among them 45 (17.9%) experienced injury only one time and 16(6.4%) had encountered more than two times within their life time.

Majority 199(79.3%) of the study participants did not take any training related to needle stick injuries or other exposure and about half (49.4%) of the health care providers in this study use universal precaution always (Table 2).

**Table 2.** Accidental occupational exposure to HIV infection of health Care Personnel working in Asella Teaching Hospital, South-east Ethiopia, 2014 (n=251)

Variable		Frequency	Percent
Thinking of risk of HIV infection	Yes	206	82.1
	No	45	17.9
Level of risk of HIV infection of Health care providers	High risk	127	50.6
	Low risk	99	39.4
	No risk	25	10.0
Any history needle stick or other sharp injuries	Yes	64	25.5
	No	187	75.5
	Once	45	17.9
Number of injuries ever encountered	Two times	16	6.4
	More than two times	11	4.4
	No injury	179	71.3
Blood or body fluid splash to eye, or mouth	Yes	103	41.0
	No	148	59.0
Training on how to report a needle stick injuries or other exposure	Yes	52	20.7
	No	199	79.3

Variable		Frequency	Percent
Use universal precaution or wear personal protective equipments	Yes, always	124	49.4
	Yes, sometimes	99	39.4
	No	28	11.2
Ever tested for HIV after injuries	Yes	24	9.6
	No	227	90.4

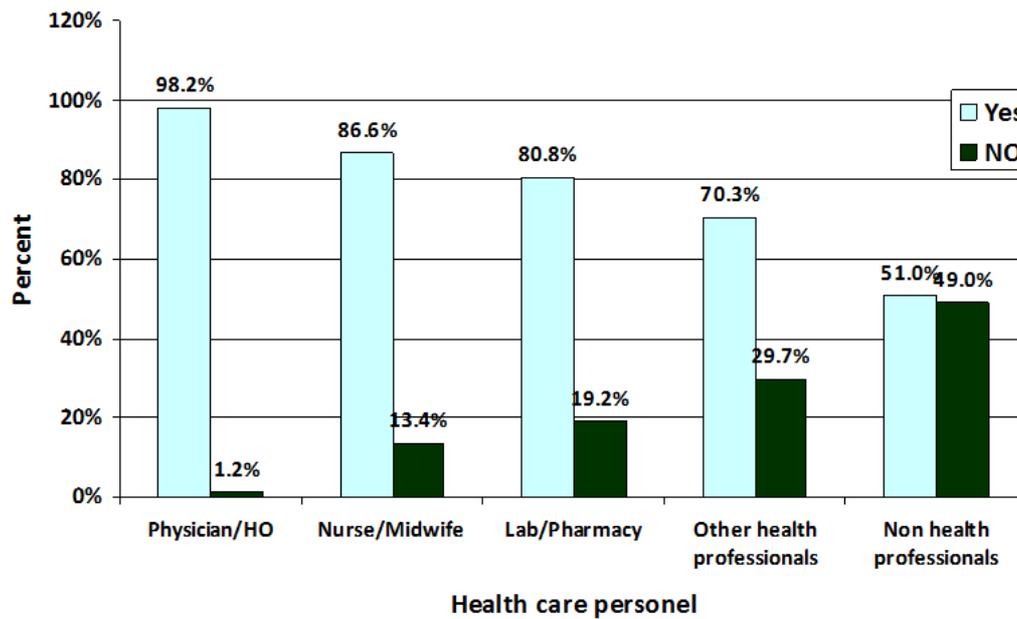
### 3.3. Awareness of Health Care Personnel on PEP

From the total study participants 223 (88.8%) respondents had ever heard of PEP as well as 215 (85.7%) respondents know presence of PEP in their hospital. In addition to that 121 (48.2%) respondents correctly responded to the use of PEP (to prevent establishment of the virus). One hundred sixty five (65.7%) respondents answered correctly for the maximum time to start PEP and 151(60.2) the usual duration (4 weeks) of PEP (Table 3).

From the health personnel almost all (98.2%) of the physicians or health officers know PEP followed by nurses 86.6% but almost half (49%) of the non-health professionals didn't know about PEP (Figure 1).

**Table 3.** Awareness of PEP among health Care Personnel working in Asella Teaching Hospital, South-east Ethiopia, 2014(n=251)

Variables		Frequency	Percent
Ever heard of PEP of HIV	Yes	223	88.8
	No	28	11.2
Presence of PEP in this hospital	Yes	215	85.7
	No	36	14.3
Use of PEP	Prevent transmission of the virus	82	32.7
	Prevent establishment of the virus	121	48.2
	Curing from the disease	2	0.8
	Prolong the lives of the person	23	9.2
	Do not know	23	9.2
	1 hour or less	20	8
The maximum time to start the first PEP	Within 24 hours	36	14.3
	Within 72 hours	165	65.7
	After 3 days	2	0.8
	Do not know	28	11.2
	Less than 1 week	9	3.6
The duration of PEP	4 weeks	151	60.2
	More than 4 weeks	15	6.0
	Life long	38	15.1
	Do not know	38	15.1
Participation in any training related to PEP	Yes	67	26.7
	No	184	73.3
	Within 1 year	38	15.1
When do you take the training	In the Past 2-3 years	13	5.2
	Before 3 years	16	6.4
	Yes	92	36.6
Written guidelines/ protocols for PEP	No	87	34.7
	Don't Know	72	28.7
	Yes	121	48.2
Posters that remind the availability of PEP	No	77	30.7
	Don't Know	53	21.1



**Figure 1.** Awareness of health personnel on post exposure prophylaxis in Asella Teaching Hospital, South-east Ethiopia, 2014 (n=251)

**Table 4.** Association between socio-demographic characteristics and Awareness PEP among health care personnel in Asella Teaching hospital, South-east Ethiopia, 2014 (n=251)

Variables	Awareness of PEP		X <sup>2</sup>	P-value
	Yes Freq. (%)	No Freq. (%)		
Sex	Female =(112) 81(72.3)	31(27.7)	5.2	0.022
	Male =(139) 117(84.2)	22(15.8)		
Age	≤24=(43) 43(100.0)	0	22.6	0.001
	25-34 =(138) 113(81.9)	25(18.1)		
	35-44 =(49) 34(69.4)	15(30.6)		
	≥45=(20) 11(55)	9(45)		
	1-10 =(23) 8(34.8%)	15(65.2)		
Educational status	Preparatory complete=(5) 3(60.0)	2(40.0)	46.3	0.000
	Certificate=( 7) 7(63.6)	4(36.4)		
	Diploma=( 113) 86(76.1)	27(23.9)		
	First Degree=(82 ) 79(96.3)	3(3.7)		
	Master =(13) 11(84.6)	2(15.4)		
Current profession	Specialist=(4) 4(100.0)	0	21.4	0.000
	Physicians / HO =(55) 54(98.2)	1(1.8)		
	Nurses/ Midwife=(82) 71(86.6)	11(13.4)		
	Laboratory/ Pharmacy=(26) 21((80.8)	5(19.2)		
	Cleaner/ Porters=(35) 16(45.7)	19(54.3)		
	Maintenance/ Laundry=( 16) 10((62.5)	6(37.5)		
	Others=(37) 26(70.3)	11(29.7)		
Department	OPD=(50) 43(86.0)	7(14.0)	13.0	0.023
	Wards=(97) 84(86.6)	13(13.4)		
	Theater=(17) 12(70.6)	5(29.4)		
	Special clinic=(9) 7(77.8)	2(22.2)		
	Maternity=(22 ) 17(77.3)	5(22.7)		
Work experience	Others=(56) 35(62.5)	21(37.5)	11.5	0.003
	Less5 year =(170) 145(85.3)	25(14.7)		
	5-10 year =(42) 33(78.6)	9(21.4)		
	Above 10year =(39) 24(61.5)	15(38.5)		

#### 3.4. Association of Socio-Demographic Factor to Awareness of HIV PEP

Assessment of Association of variables was calculated using chi square test. As a result being a female was significantly associated with awareness of PEP of HIV (X<sup>2</sup>=5.2, 95%CI (p=0.022)

Younger age groups was also significantly associated with awareness of PEP than the older age groups, (X<sup>2</sup>=22.6, p=0.001). Regarding educational status and professional categories, Chi-square analysis showed that strongest association was observed with being low class education status and from and non-health professionals(cleaners, porters) had poor awareness on PEP (P=0000). Regarding

work experience, HCPs with low work experience less than 5 years was significantly associated with awareness and knowledge of PEP ( $X^2 = 11.5$ ,  $p = 0.003$ ) (Table 4)

## 4. Discussion

This study tried to assess the awareness of health care personnel towards PEP of HIV. Majority (78.9%) of health care personnel were aware of PEP. This was higher than a study conducted in Mangalore, India which showed only 23.5% knew the first aid measures following exposure and very few of the respondents actually knew where the drugs were available at the hospital and whom to first contact following any incidence of occupational exposure (9). This was also slightly higher than other study conducted in Kenya in which 74% at rural area HCP and 67% in urban area HCP were aware of HIV PEP (10). This variation could be due to difference in attention which is given to PEP.

A study conducted among Nigerian Family physicians reveals that 97.7% of respondents were aware of the concept of post-exposure prophylaxis (11). This was in line with this study in which 98.2% physicians and health officers had awareness on PEP.

In the present study, among all study participants 87.6% have heard about PEP for HIV. It was lower as compared with a study conducted in Gondar University Hospital that shows 92.8% participants heard about PEP (12). The difference might be due the time gap and difference in study participants.

Among health care personnel those who are a supportive staffs were less aware and knowledge about PEP of HIV in this study. This was less when comparing with others category of health care personnel. This is similar with that of study conducted in Addis Ababa health facilities that indicates 76.6% health professionals were aware of PEP but this number was only 36.5% among supportive staffs (3). This study showed that 82.1% of the study participants were thinking as they are at high risk of accidental exposure to HIV infection at their work place and 25.5% had needle stick or other sharp injuries for at least one time in their life time as well as 41.0% of them encountered blood or body fluid splash to their eye or mouth. A study conducted in Addis Ababa city health facilities also indicated that 38.2% of HCWs experienced needle stick or other sharp injuries at least one in their life time and blood and other body fluid splash in to the eye, nose and/or mouth were 34.9% respondents in their entire work career (3). Needle stick or other sharp injuries were greater than this study whereas the blood and other body fluid splash were less than the present study. This difference could be due to the study difference in population and setups.

## 5. Conclusion

Based on the finding of the study the following can be concluded:

- Majority (82.1%) of the study participants believed as

they were at a risk of acquiring HIV infection.

- About 50.6% respondents leveled themselves as they are at high risk.
- One fourth of the respondents had needle stick or other sharp injuries at least once in their life time and 41.0% of them were encountered blood or body fluid splash to their eye or mouth.
- Majority (79.3%) of the participants did not take any training related on how to report a needle stick injuries or other exposure.
- Respondents in younger age group and with less work experience higher awareness
- In general, the finding of this study revealed that, out of the total respondents, about 78.9% of them had good level of awareness on PEP

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## List of Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
ARV	Antiretroviral
HCWs	Health Care Workers
HIV	Human Immunodeficiency Virus
PEP	Post Exposure Prophylaxis
WHO	World Health Organization

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