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**Original Research Article**

# Awareness of post exposure prophylaxis for human immunodeficiency virus among healthcare professionals in a tertiary care hospital in Telangana, South India

**Apoorva Pandharpurkar[1], Deepak P.[2]*, Manjula B. S. V.[3]**

[1]Gandhi Medical College, Secunderabad, Telangana, India
[2]Department of General Medicine, Sangareddy Medical College, Telangana, India
[3]Mallareddy Women's College, Hyderabad, Telangana, India

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***Correspondence:**
Dr. Deepak P.,
E-mail: deepak.coegandhi@gmail.com



## ABSTRACT

**Background:** India has the third highest number of people living with human immunodeficiency virus (PLHIV) population in the world. Health care personnel (HCP) are major risk group for acquiring HIV infection by accidental occupational exposure. Knowledge on post-exposure prophylaxis (PEP) holds the key to prevent new HIV infections and also helps in reduction of anxiety among HCP in case of accidental exposure. This study was designed to assess the awareness of PEP and to compare the levels of knowledge among various cadres of HCP.
**Methods:** A cross sectional study was conducted on awareness of PEP among the health care personnel of sample size 360 in a tertiary care centre in urban South India. Universal sampling was done and data was collected for a period of three months. Analysis was done using the Epi info 7.2.
**Results:** Knowledge of PEP among HCP was found to be 63.57%. Knowledge of PEP among groups of faculties, post graduate (PG) students, interns, nurses and lab technicians was found to be 73.5%, 70.9%, 62.8%, 56.9% and 42.2% respectively. There was poor knowledge among the most vulnerable groups i.e. nurses and lab technicians who handle the blood samples of number of PLHIV on a given day. There was a felt need among the faculty, PGs and interns for a refresher training every year on advances in HIV prophylaxis and treatment.
**Conclusions:** This study has brought to light the lacunae in awareness of PEP for HIV among HCP. As India has a high prevalence of HIV, and occupational exposure is pretty much inevitable, there is a pressing need to plug the gaps in awareness of PEP.

**Keywords:** Healthcare professionals, Post-exposure prophylaxis, HIV, Awareness, Practices

## INTRODUCTION

Human immunodeficiency virus (HIV) is a serious global health issue. World-wide, over 36.7 million people were living with HIV at the end of 2015, making the global prevalence 0.8%. The vast majority of this number live in low- and middle-income countries. India has the third highest number of HIV-infected people in the world with over 2.1 million people living with HIV. In 2015, an estimated 1,30,000 people in India died from acquired immunodeficiency syndrome (AIDS)-related illnesses.[1] As such, prevention remains our best option. Healthcare workers are a high-risk group for HIV infection due to probable occupational exposure. The term 'health care personnel (HCP)' includes all the paid and unpaid personnel working in a healthcare setting who have the potential for exposure to HIV. HCP are at a risk of blood-borne infection transmission through exposure of a

percutaneous injury (needle-stick or cut with sharp instrument), contact with mucous membrane of eye or mouth of an infected person, contact with non-intact skin, or contact with blood or other potentially infectious body fluids. The average risk of infection is 0.09% to 0.3% depending upon type of exposure.[2] One of the ways of reducing new infections, particularly among HCP is by post-exposure prophylaxis (PEP).[1] PEP refers to comprehensive medical management to minimize the risk of infection among HCP following potential exposure to blood borne pathogens (HIV, HBV, and HCV). This includes counselling, risk assessment, relevant laboratory investigations based on informed consent of the source and exposed person, first aid and depending on the risk assessment, the provision of short term anti-retroviral drugs with follow-up and support. In December 2014, a simplified PEP regimen was implemented, in which a single fixed dose combination (FDC) pill, containing three drugs- tenofovir, lamivudine and efavirenz, is given.[2] The hospital treats thousands of patients each day, and the HCP thus come into contact with several patients of known and unknown HIV status on a daily basis. Over a period of 6 months (April-September) in mid-2015, 104 reported cases of occupational exposure to HIV were recorded by the ART centre in our hospital; some of these cases were reported weeks after the actual exposure. Most of the victims seemed to be unaware of the proper protocol to be followed in case of accidental occupational exposure. Although the risk of acquiring infection is exceedingly low, 0.09-0.3% depending on type of exposure, the fact that this is easily preventable makes it a matter of significant concern.[3] The objective of this study was to understand the reasons for delay in taking appropriate action by HCP though the hospital in question has the centre of excellence for HIV.

### *Objectives*

The major objectives of this study were: to assess the knowledge of PEP for HIV among HCP in a tertiary care hospital in urban South India; to assess the attitude and practices related to PEP among the study population; and to correlate the levels of awareness about PEP with the likelihood of exposure among study population.

## METHODS

This cross-sectional study was carried out over a period of four months, from August to November in 2016 in Gandhi Medical college, Telangana in urban South India with centre of excellence for HIV/AIDS. Universal sampling was done and all the HCP who were on duty in the hospital during 9 am to 4 pm during three months duration were personally approached and included in the study. HCP including nurses, interns (house surgeons), laboratory technicians, post-graduate students (residents) and faculty, who are at potential risk of accidental HIV exposure were included in the study. A total of 700 participants were approached for their inclusion out of which 530 participants consented and participated in the study. But out of 530 responses received only 360 responses were found complete and analysable. A definite reluctance was appreciated among the HCP in regards to answering the questionnaire. The reasons for incomplete responses could be due to a lack of time to fill the detailed questionnaire punctuated by a hesitance in answering some questions due to lack of knowledge.

### *Inclusion criteria*

All HCP who was on duty and willing to participate in the study. Faculty, postgraduate students, interns, nurses and lab technicians were considered to be included in the study.

### *Exclusion criteria*

Undergraduate medical students, nursing students and maintenance staff were not included in the study.

### *Research tool*

A self-administered pre-tested, semi-structured questionnaire was used to assess the overall knowledge, attitude and practices of HCPs. The following areas were covered in the study.

*General awareness*

This assessed the knowledge regarding modes of HIV transmission, the protocol to be followed in case of exposure, the significance of needle-stick injuries and the importance of first-aid, the indications for PEP and awareness of the standard PEP guidelines. The knowledge of the effectiveness of PEP and awareness of its side-effects were assessed. The subjects' general awareness of where drugs are available in their hospital, and who is to be approached for PEP was also assessed.

*Attitude and practices*

The willingness of the subjects towards undergoing the PEP regimen, the reasons for refusing PEP, and the inclination to insist on PEP against guidelines were assessed.

Felt need for improving knowledge: The need for awareness programmes/lectures to improve awareness of PEP and the willingness of the HCP to attend such programmes if conducted was also assessed.

### *Data analysis*

The data collected were anonymised and entered into a Microsoft excel worksheet. The statistical software Epi info 7.2 was used to analyse data. Chi square test was used and $p<0.05$ was taken as significant.

The study protocol was approved by the institutional ethics committee. The participants of the survey were explained

about the study and verbal consent was taken from them before including in the study.

## RESULTS

### *Sociodemographic profile of the participants*

Of the 360 respondents, 142 (39.4%) were male and 218 (60.6%) were female. The ages ranged from 21-55. Mean age of the participants was 29 years**.** According to the likelihood of exposure, the HCPs were divided into high, intermediate and low risk groups. The detailed sociodemographic profile and criteria for risk group classification are given in Table 1.

**Table 1: Sociodemographic distribution of respondents and classification of respondents according to likelihood (risk) of exposure.**

| Characteristics | Number of respondents (%) N=360 |
|---|---|
| **Age (in years)** | |
| 21-30 | 249 (69.2) |
| 31-40 | 72 (20) |
| 41-50 | 34 (9.4) |
| 51-60 | 5 (1.4) |
| **Gender** | |
| Male | 142 (39.4) |
| Female | 218 (60.6) |
| **Profession** | |
| Lab technicians | 40 (11.11) |
| Nurses | 60 (16.67) |
| Interns (house surgeons) | 100 (27.77) |
| Post-graduate students (residents) | 98 (27.22) |
| Faculty | 62 (17.22) |
| **Risk groups*** | |
| Low risk | 18 (5) |
| Intermediate risk | 63 (17.5) |
| High risk | 279 (77.5) |

*Risk groups for exposure- low risk: no exposure to infectious fluids (HCP belonging to physiology, pharmacology and community medicine); intermediate risk: exposure to infectious fluids in the form of samples and handling of contaminated equipment like containers, slides, and tools (HCP belonging to biochemistry, microbiology and pathology); and high risk: exposure to patients of known and unknown HIV status-needle-stick injury or exposure to infectious body fluids/contaminated tools during surgery (HCP belonging to anesthesiology, ENT, emergency, general medicine and surgery, nephrology, obstetrics and gynecology ophthalmology, orthopedics, pediatrics skin and STD urology, interns and nurses)

### *Knowledge*

*General awareness*

HIV was expanded correctly by 76.9% of the population. About 23.1% of the participants have written the full form of HIV as human immune virus rather than human immunodeficiency virus. Less than half of HCPs (40.8%) have rightly identified all modes of transmission of HIV. Very few HCPs thought that HIV can be transmitted through droplet infection, fomites or insect bites. Handling of contaminated sharps was not considered as possible mode of transmission by most HCPs. Of the nurses, who are most prone to needle-stick injuries, 88.3% were aware that this was a mode of transmission. Almost one third of the technicians (35%) wrongly considered intact-skin contact to be a mode of transmission. The seriousness of needle-stick injuries was underestimated by 8.4% of the HCP. The need for PEP even after washing the affected area thoroughly with soap and water was recognized by 95.8% of the HCP. An 85% of the study population believed that washing was not enough, and further steps need to be taken in case of exposure. A very high number of respondents (79.4%) wrongly believed that PEP is required in case of intact-skin contact with infectious agents; whereas PEP is not given for intact-skin contact according to the guidelines.[3] PEP is given in pregnancy/lactation also, and no conclusive evidence contraindicates its use in this condition. But 25% of the population thought that PEP should not be given to pregnant women. PEP is most effective when initiated within 2 hours after exposure; this is referred to as the 'golden period' for initiating PEP. Awareness regarding this was found to be poor (52.5%) among HCPs. Only 29.4% respondents knew that PEP cannot be taken beyond 72 hours of exposure. PEP can be initiated up to 72 hours after exposure; NACO guidelines do not recommend PEP beyond this. HIV testing is done 3 and 6 months since the initiation of PEP.[3] PEP is 80%-100% effective in preventing HIV infection after exposure. A significant 45% underestimated the effectiveness of PEP. The common adverse drug reactions (ADR) due to PEP include nausea, vomiting and rashes. It is not recommended to discontinue PEP even in case of ADR, and palliative treatment to control side-effects may be given.[1] In case of severe negative ADR, the treatment protocol may be changed to include different drugs, but PEP is not discontinued. 39.2% respondents believed that PEP has dangerous side-effects which as such, is false. A significant number of respondents overestimated the ADR and this may have affected the overall attitude towards PEP in case of exposure.

### *Attitude and practices*

The overall attitude towards PEP was found to be positive. A significant percentage (47.5) of HCP were overly anxious about the risk of infection and said that they would insist on PEP against guidelines (if classified as low risk according to guidelines). The numbers were particularly high among interns and technicians (60% of each). Out of the 24 respondents who were unwilling to take PEP in case of exposure, 58.3% gave the reason that they would like to wait until the HIV status of source is confirmed before initiating PEP. In fact, it is recommended to take PEP even if the HIV status of source is unknown (Table 3).[3]

***Comparison of various groups in knowledge***

The differences in knowledge among the various groups were found to be quite significant. Knowledge was higher among the faculty members and post-graduate students, and a significant knowledge gap was appreciated among the technicians (Figure 1). The low-risk group respondents had much higher knowledge when compared to the other groups. Thus, there is a pressing need to improve awareness of PEP for HIV among the high risk and intermediate risk groups, as they have a higher likelihood of exposure (Figure 2).

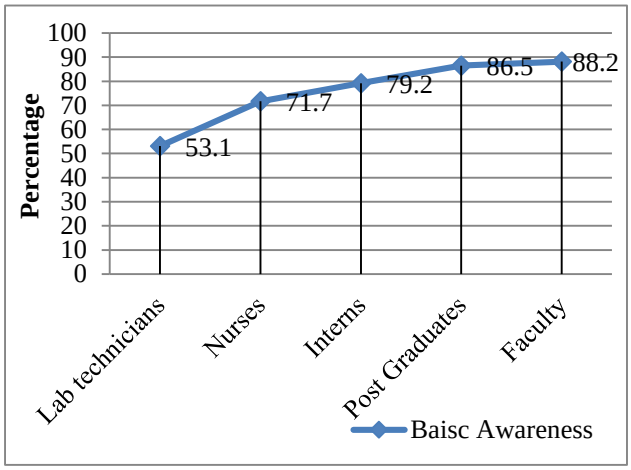


**Figure 1: Comparison of knowledge among different cadres of HCP (p<0.05).**

***Awareness on accessibility of drugs***

Overall, 78.3% respondents knew where the drugs are available and 73.6% knew whom to approach in case of exposure. This knowledge was especially poor among the technicians, and there is a definite need for improvement. PEP drugs are available free of cost at all times in emergency areas of the hospital such as casualty and labor room. The hospital is also equipped with a centre of excellence for HIV, and an ART center which deal HIV-related cases in the hospital. The staff of this department are trained to classify injuries, assess the risk and administer PEP drugs in case of exposure. The working hours of this center are from 9 am to 4 pm on all weekdays (closed on Sundays). In case of occupational exposure in the later hours, most of the ART staff are available on call.

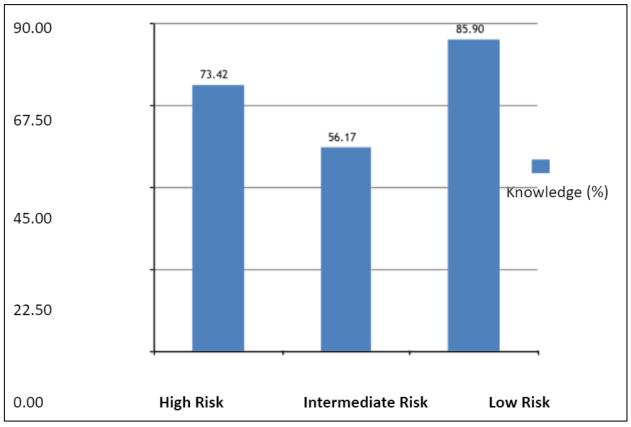


**Figure 2: Correlation of knowledge with likelihood of exposure (p<0.05).**

***Improving knowledge***

Not many respondents have attended lectures or undergone training regarding PEP and were willing to undergo training sessions if conducted in the hospital. A definite need to improve knowledge regarding various aspects of PEP was felt. This need is especially pronounced among laboratory technicians, who had significantly poor knowledge in all aspects of PEP (Table 4).

**Table 2: Knowledge of health care professionals on HIV and PEP.**

| Variables | Technicians N=40 | Nurses N=60 | Interns N=100 | Post-graduates N=98 | Faculty N=62 | Total N=360 |
|---|---|---|---|---|---|---|
| **HIV expansion correctly written** | 6 (15) | 27 (45) | 88 (88) | 96 (97.9) | 60 (96.7) | 277 (76.9) |
| **Modes of transmission of HIV** | | | | | | |
| Blood transfusion | 34 (85) | 59 (98.3) | 99 (99) | 97 (98.9) | 60 (96.7) | 349 (96.9) |
| Sexual contact | 39 (97.5) | 59 (98.3) | 99 (99) | 98 (100) | 61 (98.3) | 356 (98.8) |
| Mother to child | 34 (85) | 47 (78.3) | 89 (89) | 96 (97.9) | 57 (91.9) | 323 (89.7) |
| Droplet infection | 3 (7.5) | 3 (5.0) | 3 (3) | 4 (4.0) | 5 (8.0) | 18 (5) |
| Needle-stick | 38 (95) | 53 (88.3) | 95 (95) | 98 (100) | 60 (96.7) | 344 (95.5) |
| Intact skin contact | 14 (35) | 8 (13.3) | 7 (7) | 6 (6.1) | 2 (3.2) | 37 (10.2) |
| Fomites | 3 (7.5) | 6 (10) | 1 (1) | 2 (2.0) | 3 (4.8) | 15 (4.1) |
| Handling contaminated equipment (sharps) | 29 (72.5) | 31 (51.7) | 50 (50) | 56 (57.1) | 37 (59.6) | 201 (56.3) |
| Insect bites | 1 (2.5) | 3 (5.0) | 2 (2) | 5 (5.1) | 1 (1.6) | 12 (3.3) |
| **Ever heard of post exposure prophylaxis?** | 21 (52.5) | 48 (80) | 94 (94) | 91 (92.8) | 58 (93.5) | 312 (86.6) |

Continued.

| Variables | Technicians N=40 | Nurses N=60 | Interns N=100 | Post-graduates N=98 | Faculty N=62 | Total N=360 |
|---|---|---|---|---|---|---|
| **What is PEP in HIV?** | | | | | | |
| Treatment given to HIV infected persons | 6 (15) | 8 (13.3) | 18 (18) | 5 (5.1) | 3 (4.8) | 40 (11.1) |
| Cure for HIV | 7 (17.5) | 1 (1.7) | 2 (2) | 0 (0) | 0 (0) | 10 (2.7) |
| Given to prevent HIV infection after exposure | 14 (35) | 48 (80) | 77 (77) | 91 (92.8) | 57 (91.9) | 287 (79.7) |
| Vaccine against HIV | 13 (32.5) | 1 (1.7) | 2 (2) | 1 (1.0) | 0 (0) | 17 (4.7) |
| **What is the best time to start PEP in HIV (hours)** | | | | | | |
| Within 2 | 14 (35) | 29 (48.3) | 45 (45) | 66 (67.3) | 35 (56.5) | 189 (52.5) |
| 2-6 | 14 (35) | 17 (28.3) | 30 (30) | 24 (24.5) | 18 (29.0) | 103 (28.6) |
| >12 | 11 (27.5) | 7 (11.7) | 7 (7) | 3 (3.0) | 4 (6.5) | 32 (8.9) |
| >72 | 0 (0) | 5 (8.3) | 13 (13) | 5 (5.1) | 2 (3.2) | 25 (6.9) |
| Did not answer | 1 (2.5) | 2 (3.3) | 5 (5) | 0 (0) | 3 (4.8) | 11 (3.1) |
| **What can be the maximum delay time after exposure to start PEP (hours)** | | | | | | |
| 12 | 15 (37.5) | 24 (40) | 15 (15) | 9 (9.2) | 15 (24.2) | 78 (28.7) |
| 24 | 11 (27.5) | 17 (28.3) | 30 (30) | 17 (17.3) | 15 (24.2) | 90 (25) |
| 48 | 2 (5) | 7 (11.7) | 7 (7) | 12 (12.2) | 6 (9.7) | 34 (9.4) |
| 72 | 2 (5) | 5 (8.3) | 13 (13) | 60 (61.2) | 26 (41.9) | 106 (29.4) |
| Did not answer | 10 (25) | 7 (11.7) | 35 (35) | 0 (0) | 0 (0) | 52 (14.4) |
| **Effectiveness of PEP in preventing HIV infection after exposure (%)** | | | | | | |
| 100 | 6 (15) | 15 (25) | 14 (14) | 8 (8.2) | 6 (9.7) | 49 (13.6) |
| 80-99 | 10 (25) | 15 (25) | 48 (48) | 38 (38.8) | 38 (61.3) | 149 (41.4) |
| <80 | 24 (60) | 30 (49.9) | 38 (38) | 52 (53.1) | 18 (29) | 162 (45) |
| **Is PEP needed for intact skin contact with infectious agent** | 19 (47.5) | 41 (68.3) | 85 (85) | 90 (91.8) | 51 (82.2) | 286 (79.4) |
| **Do you think PEP is necessary even after washing the affected area with soap and water?** | 34 (85) | 58 (96.7) | 94 (94) | 98 (100) | 61 (98.3) | 345 (95.8) |
| **PEP is given for how many days?** | | | | | | |
| 7 | 11 (27.5) | 8 (13.3) | 4 (4) | 7 (7.2) | 3 (4.8) | 33 (9.2) |
| 15 | 12 (30.0) | 6 (10) | 6 (6) | 9 (9.2) | 5 (8.1) | 38 (10.6) |
| 28 | 15 (37.5) | 39 (65) | 86 (86) | 81 (82.7) | 51 (82.2) | 272 (75.6) |
| Lifetime | 2 (5.0) | 7 (11.6) | 4 (4) | 1 (1.0) | 3 (4.9) | 17 (4.7) |
| **Can PEP be given to a pregnant/ lactating woman** | 25 (62.5) | 40 (66.7) | 68 (68) | 82 (83.7) | 55 (88.7) | 270 (75) |

**Table 3: Attitude and practices of HCP towards PEP.**

| Attitude and practices of HCP towards PEP | Technicians (40) N (%) | Nurses (60) N (%) | Interns (100) N (%) | Post-graduates (98) N(%) | Faculty (62) N (%) | Total (360) N (%) |
|---|---|---|---|---|---|---|
| **Accidental needle stick is a cause of immediate concern** | 40 (100) | 53 (88.3) | 87 (87) | 91 (92.8) | 59 (95.1) | 330 (91.6) |
| **Practice in case of needle stick injury** | | | | | | |
| Wash with soap and water | 37 (92.5) | 51 (85.0) | 76 (76) | 84 (85.7) | 58 (93.5) | 306 (85) |
| Confirm HIV status of source | 33 (82.5) | 43 (71.7) | 83 (83) | 88 (89.7) | 51 (82.2) | 298 (82.7) |
| Approach concerned person for PEP | 21 (52.5) | 46 (76.7) | 76 (76) | 83 (84.7) | 57 (91.9) | 283 (78.6) |
| No need to take immediate action | 0 (0) | 3 (5.0) | 0 (0) | 1 (1.0) | 0 (0) | 4 (1.1) |
| If needle stick injury doesn't draw blood, it can be ignored | 5 (12.5) | 8 (13.3) | 16 (16) | 23 (23.5) | 11 (17.7) | 61 (16.9) |
| Would undergo necessary tests in case of exposure to confirm self-HIV status as soon as possible | 37 (92.5) | 50 (83.3) | 71 (71) | 65 (66.3) | 37 (59.6) | 260 (72.2) |
| Would take PEP in case of occupational exposure? | 32 (80) | 54 (90) | 96 (96) | 95 (96.9) | 59 (95.2) | 336 (93.3) |

Continued.

| Attitude and practices of HCP towards PEP | Technicians (40) N (%) | Nurses (60) N (%) | Interns (100) N (%) | Post-graduates (98) N(%) | Faculty (62) N (%) | Total (360) N (%) |
|---|---|---|---|---|---|---|
| Insist on PEP against guidelines? (even if considered minimal risk of infection by concerned doctor) | 16 (40) | 33 (55) | 40 (40) | 51 (52.0) | 31 (50) | 171 (47.5) |
| PEP has dangerous side- effects | 22 (55) | 25 (41.7) | 36 (36) | 42 (42.9) | 16 (25.8) | 141 (39.2) |

**Table 4: Assessment of the need for sensitization on PEP in HCP.**

| Need for sensitization | Technicians (40) N (%) | Nurses (60) N (%) | Interns (100) N (%) | Post-graduates (98) N (%) | Faculty (62) N (%) | Total (360) N (%) |
|---|---|---|---|---|---|---|
| **Knowledge on availability of PEP drugs in hospital** | 21 (52.5) | 51 (85) | 68 (68) | 87 (88.8) | 55 (88.7) | 282 (78.3) |
| **Knowledge on concerned responsible person in case of exposure** | 11 (27.5) | 46 (76.7) | 70 (70) | 85 (86.7) | 53 (85.5) | 265 (73.6) |
| **Trained/attended a lecture on awareness on PEP after entering this profession** | 9 (22.5) | 35 (58.3) | 35 (35) | 30 (30.6) | 27 (43.5) | 136 (37.8) |
| **Necessity of a lecture/awareness programme to improve knowledge on PEP** | 36 (90) | 57 (95) | 98 (98) | 98 (100) | 62 (100) | 351 (97.5) |
| **Interested in attending such a programme if conducted in future** | 38 (95.0) | 57 (95) | 96 (96) | 96 (97.9) | 61 (98.4) | 348 (96.7) |

## DISCUSSION

86.6% HCP have heard of PEP, which is much higher than the study in Uttarakhand where only 65.5% had heard of PEP but much lower than the study in Karnataka where 99% HCP (100% nurses, 100% doctors, 100% surgeons and 95% dentists) were aware of PEP.[4,5] The steps to be taken in case of a needle-stick injury were known to 179 (49.7%) respondents. 85% of the HCP knew about the first-aid (washing with soap and water) to be performed, which is higher than the study in New Delhi, where only 71.4% health care workers knew about the importance of wound toilet.[6] 16.9% respondents incorrectly believed that needle-stick injuries can be ignored if they don't draw blood. Only 63.9% respondents were aware (albeit vaguely) of the PEP guidelines given by the National AIDS Control Organisation, whereas 98% health care workers in a study in Karnataka knew these guidelines.[5] Only 20.6% HCP knew that intact-skin contact is not an indication for PEP, which is markedly lower than 66.4% of the health care workers in a study in Mumbai and 89% of the health care workers in a study in Karnataka.[5,7] The duration of PEP was correctly answered by 75.6% respondents, which is considerably higher than most other studies where the percentage of respondents who answered correctly ranged from 6% to 62%.[4,5,8-11] 75% of all respondents rightly said that PEP can be given to a pregnant/lactating woman, which is similar to a study in Karnataka, where 71% respondents answered the same.[5] Only 52.5% of all respondents answered correctly the best time to start PEP, which is within 2 hours of exposure.[8] This is notably higher than studies in Mangalore among post-graduate residents and in Cameroon among medical students where 30.6% and 35.1% respondents respectively answered this question correctly; and also considerably lower when compared to other studies among Nigerian family physicians and health care workers in Karnataka, where 93.9% and 87% respondents respectively answered the question correctly.[5,9] In our study, 11.7% nurses answered correctly, which is markedly lower than a study among nursing staff by Maharashtra where 30.3% nursing staff answered correctly.[10] The maximum delay to start PEP after exposure is 72 hours, beyond which it is not found to be effective. Only 29.4% respondents answered correctly the maximum delay to start PEP. This is higher than that of the study by Singh et. al. among health care workers in Uttarakhand, where only 23.2% respondents answered correctly; and notably lower than the studies in Karnataka, and in Southeast Ethiopia by Alemu et al, where 49% and 65.7% of health care workers respectively answered the question correctly.[4,5,11] Only 41.4% HCP answered correctly the effectiveness of PEP in preventing HIV infection as 80-100%, which is lower than 60% health care workers in Karnataka who answered correctly.[5] In our study, only 25% nurses answered this correctly as compared to 47% nurses in Karnataka.[5]

### *Limitations*

Most of the HCP's are at the primary care settings, but the study could be done only at a tertiary care setup.

Information could not be gathered on supply chain of the PEP availability at high-risk areas.

## CONCLUSION

The study results have demonstrated the importance of compulsory induction training and regular workshops regarding PEP for all undergraduates before entering internship, and to all HCP at the time of joining the job. Yearly refresher training can also be organised. The NACO PEP guidelines regarding the type of exposure, HIV status of source and need for PEP should be put up as posters at several locations in the hospital, such that they are easily accessible in case of exposure in various locations. The PEP drugs should be made available at all places where exposure is likely, for example, operation theatres. ART centre staff must be always available on call to advise HCP regarding PEP in case of exposure.

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