# Rethinking the 28-day HIV nPEP Dispensing Practice: A Pediatric ID Clinic Analysis

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## Background

- Pediatric patients presenting to the Comer emergency department (ED) after sexual assault are eligible for non-occupational human immunodeficiency virus (HIV) postexposure prophylaxis (nPEP) if initiated within 72 hours of the potential exposure.
- 2016 Centers for Disease Control and Prevention guidelines on antiretroviral postexposure prophylaxis recommend prescribing either a starter pack of HIV PEP or a full 28-day supply.[1]
- In July 2017, the University of Chicago Comer Children's Hospital ED transitioned from a 5-day to a 28-day HIV nPEP dispensation model to increase adherence.
- Anecdotal reports of patients lost to follow-up after ED discharge call into question the utility and cost-effectiveness of this practice.

## Goal

- To evaluate the effect of dispensing full 28-day HIV nPEP supply on appointment follow-up rates and adherence.
- To assess the cost of dispensing 28-days of HIV nPEP and the cost savings associated with dispensing a shorter course

## Methods

- A retrospective chart review of both electronic health and pharmacy records was conducted for patients prescribed 28-days of HIV nPEP in the ED and scheduled for outpatient follow-up in pediatric infectious disease clinic from July 2017-June 2019.
- Clinic provider documentation of nPEP adherence and reasons for nonadherence were examined.
- Using average wholesale price (AWP), total costs of each regimen were calculated, in addition to potential savings if a shorter duration of HIV nPEP was dispensed.

## Results

**Table 1: Baseline Patient Characteristics and Outcomes Data**

| Total (n=50) | N (%) |
|---|---|
| **Mean age in years (range)** | 12.4 (3.0-17.0) |
| **Female** | 46 (92%) |
| **nPEP prescribed** | |
| Emtricitabine-tenofovir/Raltegravir | 41 (82%) |
| Zidovudine/Lamivudine/Raltegravir | 9 (18%) |
| **Follow-up (regimen based, n=19)** | |
| Emtricitabine-tenofovir/Raltegravir | 14 (74%) |
| Zidovudine/Lamivudine/Raltegravir | 5 (26%) |
| **Follow-up (Age based, n=19)** | |
| ≤8 years | 5 (26%) |
| 9-12 years | 3 (16%) |
| 13-18 years | 11 (58%) |
| **Adherence (n=50)** | |
| Yes | 16 (32%) |
| No | 3 (6%) |
| Unknown | 31 (62%) |
| **Adherence based on dosage form (n=16)** | |
| Emtricitabine-tenofovir/Raltegravir | 12 (75%) |
| Zidovudine/Lamivudine/Raltegravir | 4 (25%) |
| **Adverse effects (n=50)** | |
| Yes | 9 (18%) |
| No | 8 (16%) |
| Unknown | 33 (66%) |
| **Adverse effects (reason, n)*** | |
| Nausea/vomiting | 5 |
| Abdominal pain | 2 |
| Diarrhea | 1 |
| Decreased appetite | 1 |
| Other | 2 |

*2 patients reported more than 1 adverse effect.

- 19 (38%) patients had documented outpatient follow-up after nPEP initiation
- 3 of the 19 patients who followed up admitted to medication nonadherence
- Median time to follow-up was 6 days (IQR: 3.0-9.0)
- One patient cited medication intolerance as the reason for discontinuing their nPEP.

**Table 2: Average nPEP Regimen Costs & Potential Savings***

| | All (n=50) | Zidovudine/Lamivudine/ Raltegravir (n=9) | Emtricitabine-tenofovir/ Raltegravir (n=41) |
|---|---|---|---|
| **Cost ($)** | | | |
| **Per patient** | 3440 | 1545 | 3905 |
| **Per patient per day** | 123 | 55 | 139 |
| **Potential savings per patient ($, % cost savings)** | | | |
| **If 10-d regimen dispensed** | 2211 (64%) | 993 | 2510 |
| **If 14-d regimen dispensed** | 1720 (50%) | 772 | 1952 |

*Based on average wholesale price (AWP)

**Table 3: Regimen, Follow-up, and Adherence Stratified by Age**

| | ≤8 years (n=9) | 9-12 years (n=7) | 13-18 years (n=34) |
|---|---|---|---|
| **Regimen** | Zidovudine/Lamivudine/ Raltegravir | Emtricitabine-tenofovir/ Raltegravir | |
| **Follow-up (n, %)** | 5 (56%) | 3 (43%) | 11 (32%) |
| **Adherence (n, %)** | | | |
| **Yes** | 4 (44%) | 2 (29%) | 10 (29%) |
| **No** | 1 (11%) | - | 1 (3%) |
| **Unknown** | 4 (44%) | 5 (71%) | 23 (68%) |

## Conclusions

- A significant amount of patients prescribed HIV nPEP from our ED did not maintain follow-up appointments in our clinic and subsequently, adherence was unable to be assessed.
- Significant cost-savings associated with dispensing a shorter supply of nPEP at the outset may encourage increased rates of clinic follow-up and improved nPEP adherence.
- Future dispensation of 10-14 days of HIV nPEP will be evaluated for clinic follow-up rates and nPEP adherence.

## References

[1]Centers for Disease Control and Prevention, US Department of Health and Human Services. Updated guidelines for antiretroviral postexposure prophylaxis after sexual, injection drug use, or other nonoccupational exposure to HIV-United States, 2016. Available at: https://www.cdc.gov/HIV/pdf/programresources/cdc-HIV-npep-guidelines.pdf.