Reducing Delays to Antiretroviral (ARV) Receipt in Children Prescribed Post-Exposure Prophylaxis (PEP) for HIV: ‘Meds-In-Hand’ and a Multidisciplinary Team Approach

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Introduction

- Prescription of HIV post-exposure prophylaxis (PEP) poses many challenges, especially in pediatrics:
  - Most pharmacies do not stock liquid antiretrovirals (ARV)
  - Insurances often require prior authorizations
  - Misunderstanding of medication quantity and urgency
  - Even with 3- to 5-day starter packs as standard of care for patients prescribed PEP in Emergency Departments (ED), delays in prescription filling do occur and can result in treatment interruptions, risking PEP’s efficacy
  - Boston Medical Center demonstrated decreased readmissions with ‘Meds-In-Hand’ – an inpatient program to deliver medications to asthma patients prior to discharge instead of paper scripts to fill1

Objective

- To assess the percentage of patients with delays in receipt of HIV PEP before and after formation of a collaborative PEP Squad and workflow to help deliver ‘Meds-In-Hand’

Methods

- Using Plan-Do-Study-Act (PDSA) cycles, we implemented three key interventions from July-October 2016:
  - Cycle 1: Initiation of ‘Meds-In-Hand’ for patients prescribed PEP while outpatient pharmacy open: the entire course of ARVs is dispensed and handed to the patient in the ED
  - Cycle 2: Establishment of a troubleshooting PEP Squad email chain for medication receipt
  - Cycle 3: Creation of an ED-Pharmacy workflow* & algorithm to help providers avoid logic prescription errors
  - Formalization of pharmacy assistance to arrange and confirm starter pack + prescription receipt
  - We tracked proportion of patients from Jan-Dec 2016 who:
    - Had any ≥ 24hr treatment interruption
    - Received ‘Meds-In-Hand’ or starter pack
    - Needed Pediatric Infectious Diseases (ID) Troubleshooting to resolve a prescription roadblock
  - As follow-up, in August 2017, we surveyed residents, fellows, and attendings, who rotate through the Pediatric ED on knowledge & use of the workflow and algorithm

Results

Table 1: Demographics / Description of children prescribed HIV PEP over the study period

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Pre-Intervention (N=11)</th>
<th>Intervention Period (N=19)</th>
<th>P-Value1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (range)</td>
<td>12.9 (1.5-20)</td>
<td>13.6 (2-21)</td>
<td>0.77</td>
</tr>
<tr>
<td>Female</td>
<td>10 (91%)</td>
<td>13 (90%)</td>
<td>0.90</td>
</tr>
<tr>
<td>Type of PEP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Assault</td>
<td>7 (64%)</td>
<td>15 (79%)</td>
<td>0.42</td>
</tr>
<tr>
<td>Needlestick</td>
<td>2 (18%)</td>
<td>2 (11%)</td>
<td>0.67</td>
</tr>
<tr>
<td>Other</td>
<td>2 (18%)</td>
<td>2 (11%)</td>
<td>0.67</td>
</tr>
<tr>
<td>Time Period Seen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday*</td>
<td>5 (45%)</td>
<td>6 (32%)</td>
<td>0.66</td>
</tr>
<tr>
<td>Weeknight</td>
<td>2 (18%)</td>
<td>6 (32%)</td>
<td>0.66</td>
</tr>
<tr>
<td>Weekend</td>
<td>4 (36%)</td>
<td>7 (37%)</td>
<td>0.66</td>
</tr>
<tr>
<td>Meds Given</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDF/FTC</td>
<td>7 (64%)</td>
<td>12 (63%)</td>
<td>0.22</td>
</tr>
<tr>
<td>TDF/FTC + DTG</td>
<td>1 (9%)</td>
<td>1 (5%)</td>
<td>0.91</td>
</tr>
<tr>
<td>AZT, 3TC</td>
<td>3 (27%)</td>
<td>6 (32%)</td>
<td>0.80</td>
</tr>
<tr>
<td>Dosage Form</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid + Chewable</td>
<td>3 (27%)</td>
<td>6 (32%)</td>
<td>0.80</td>
</tr>
<tr>
<td>Pills</td>
<td>8 (72%)</td>
<td>13 (68%)</td>
<td>0.80</td>
</tr>
</tbody>
</table>

Figure 1: Run Chart for ≥ 24 Hour Interruptions in HIV PEP

- Total of 41 patients evaluated by Pediatric ID for HIV PEP in 2016
- 11 deemed low risk or seen >72hrs after exposure
- 30 prescribed HIV PEP: Similar characteristics pre- and during intervention period

- Figure 2: Run Chart - Starter Pack Receipt, ID Troubleshooting

Survey Results

- 117/228 (51%) physicians completed the survey
- 88% rated the PEP algorithm helpful (4/5 rating)
- 69% rated it easy to use (4/5 or 5/5 rating)
- 22 (32%) of 69 who worked in the Pediatric ED over the study period were aware of the algorithm – including 17/19 (89%) of those who had seen a PEP patient before
- Physicians aware of the algorithm averaged 91% on PEP timing and prescription questions

Conclusions

- A multi-disciplinary team approach involving pharmacy and pediatric ID and ED improved patient care
- Improvements focused on:
  - Communication
  - Assistance with medication ordering & delivery
  - Pre-empting insurance issues
- This quality improvement initiative demonstrates simple collaborative interventions to reduce critical delays in HIV prevention for a vulnerable population


Figure 1: Run Chart for ≥ 24 Hour Interruptions in HIV PEP

- Proportion of patients with delays in prescription pick-up that would result in gaps in therapy decreased from 45% (5/11) to 6% (1/18) during the intervention period

Figure 2: Run Chart - Starter Pack Receipt, ID Troubleshooting

- During 3 of 4 pre-intervention months, at least one patient left the ED without a starter pack
- All patients in the intervention period left with either a 3-day (starter pack) or complete 28-day ‘Meds-In-Hand’ supply
- Of patients seen during pharmacy business hours, 75% (3/4) during PDSA cycle 2 and 100% (3/3) during cycle 3 received the full 28-day medication course before leaving the ED
- Intervention months demonstrated less troubleshooting need