The Bug-Bag: Consolidating Medications to Cut Costs

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Background

Founded in 1991, JeffHOPE is an organization of student-run medical clinics providing care to the homeless and underserved populations of Philadelphia. JeffHOPE currently operates at 5 different sites
- Eliza Shirley
  - Population served: Women and children
  - Serves as a transitional shelter offering housing for 30 days for homeless men
- Sunday Breakfast
  - Population served: Men older than 18
  - Serves as a transitional shelter offering housing for 30 days for homeless men
- ACTS
  - Population served: Women and children
  - Provides long term housing for women and children who are homeless. The shelter is also located next to a recovery house for drugs and alcohol whose participants are also seen in clinic.
- Our Brothers’ Place
  - Population served: Men older than 18
  - Serves as a long term men’s homeless shelter. Most residents stay in the shelter for 60-90 days before finding more permanent housing.
- Prevention Point
  - Population served: Men, women, and children
  - Mobile clinic conducted along with a needle exchange program using a harm reduction model of care.

Pharmacy at JeffHOPE

- Pharmacy committee consists of a MS3 director, MS2 committee members at each clinic, pharmacy residents and pharmacy students.
- MS2 committee members are responsible for dispensing and ordering medications.
- Each clinic has a separate supply of medications based on their individual needs.
- Medications are ordered from different sources with different grants.
  - General: Using McKesson as a wholesaler, medications are ordered in bulk and priced based on acquisition cost (ACQ).
  - Apothecary Grant: Yearly grant from the Jefferson Apothecary. Medications can be ordered in smaller quantities, and are priced based on average wholesale price (AWP).
  - Additional grants exist for medications ordered for the women and children clinics.

Criteria / Formulary

In order to maximize the impact on centralizing supply, medications were chosen based on certain criteria.

1. Antibiotics: Antibiotics were included for multiple reasons. Anecdotally, these tended to be the medications that were returned expired while being the most costly. Antibiotic use was also sporadic and unpredictable, so always having a supply on hand was essential for prompt care.
2. Inhaled/Inhaler: Keeping individual clinics stocked with expensive items had led to overordering and underutilization. We decided to these, since they were dispensed as a single unit and required multiple units at each clinic.
3. Items used sporadically with increased frequency: We decided to include certain topical agents, such as topical corticosteroids and antifungal medications.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Min Quantity</th>
<th>Medication</th>
<th>Min Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin 250mg</td>
<td>42 capsules</td>
<td>Fluconazole 150mg</td>
<td>6 tablets</td>
</tr>
<tr>
<td>Amoxicillin 250mg/500mg</td>
<td>2 bottles</td>
<td>Clotrimazole 1%</td>
<td>6 tubes</td>
</tr>
<tr>
<td>Amox/Clav 500/125mg</td>
<td>28 tablets</td>
<td>Hydrocortisone 1%</td>
<td>6 tubes</td>
</tr>
<tr>
<td>Amox/Clav 875/125mg</td>
<td>28 tablets</td>
<td>Ventolin HFA inhaler</td>
<td>5 inhalers</td>
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<tr>
<td>Cephalexin 250mg</td>
<td>56 capsules</td>
<td>Fluticasone NS</td>
<td>3 tubes</td>
</tr>
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<td>Ceftriaxone 250mg IM</td>
<td>5 vials</td>
<td>Ondansetron 4mg</td>
<td>21 tablets</td>
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<td>Cefdinir 150mg</td>
<td>42 capsules</td>
<td>Colchicine 0.6mg</td>
<td>6 tablets</td>
</tr>
<tr>
<td>Cefuroxime 300mg</td>
<td>42 capsules</td>
<td>Nicotine 7mg patch</td>
<td>28 patches</td>
</tr>
<tr>
<td>Levofloxacin 500mg</td>
<td>28 tablets</td>
<td>Nicotine 14mg patch</td>
<td>28 patches</td>
</tr>
<tr>
<td>Ciprofloxacin 250mg</td>
<td>28 tablets</td>
<td>Nicotine 21mg patch</td>
<td>28 patches</td>
</tr>
<tr>
<td>Azithromycin 250mg</td>
<td>30 tablets</td>
<td>Nicotine 2mg gum</td>
<td>1 box (110 pc)</td>
</tr>
<tr>
<td>Doxycycline 50mg</td>
<td>28 capsules</td>
<td>Nicotine 4mg gum</td>
<td>1 box (110 pc)</td>
</tr>
<tr>
<td>Doxycycline 100mg</td>
<td>28 capsules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acyclovir 400mg</td>
<td>35 capsules</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metrodiazole 500mg</td>
<td>42 tablets</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Implementation and Challenges

- Step 1: Worked with pharmacist and attending to develop the formulary
  - Initially, one strength of a given medication was included
  - Alternative strengths would be made by doubling/splitting pills
  - This led to shortages on medications; ultimately we included multiple strengths to make stocking easier
- Step 2: Medications were organized inside the bag by drug class (e.g. beta-lactams vs. fluoroquinolones)
  - Since MS2 committee members have not had pharmacology training, an easy to use key was developed
- Step 3: Order-up-to levels (i.e. the quantity at which a medication should be reordered) were established
  - This was initially based on the typical quantity dispensed and frequency of dispensing
  - Step 4: Medications were added or removed on a per-item basis
  - Additional items (e.g. colchicine and ondansetron) were added as they were expensive medications that were used infrequently
  - Most clinics dispensed approximately 13-26% of medications from the pharmacy bag.

Areas for Future Research and Improvement

- Developing an inventory system to track dispensing and provide updated inventory
- Assisting the impact of the pharmacy bag on decreasing waste, by tracking expired items from both the clinics and the pharmacy bag
- Assessing the impact of cost, by measuring trends in ordering
- Using economic formulas to determine order-up-to levels
- Determine trends in prescribing to predict future needs

References