**Introduction**

The CDC estimates that 30 to 50% of antibiotic usage in hospitals is unnecessary or inappropriate. Increased antibiotic use, particularly inappropriate use, has been linked to rising rates of antimicrobial resistance and hospital-onset Clostridium difficile infection due to selective pressure. One of the core elements of an antibiotic stewardship program is incorporating data on local antimicrobial susceptibilities and local antimicrobial flora into clinician education in an effort to improve antibiotic use and limit or reverse worsening susceptibility trends.

**Background**

The inpatient antibiogram data at Bronx Lebanon Hospital Center (BLHC) had shown rising rates of resistance to fluoroquinolones (FQ) in Gram negative pathogens. FQ were one of the top three most used antibiotics at BLHC.

A study conducted at BLHC using antibiogram data from 2007 to 2011 showed that ciprofloxacin was adding very little in terms of coverage to combination therapy for non-

coloi showing that FQ in combination therapy against Gram negative isolates contributed little to the overall effectiveness of the regimen (Table 1).

UTI Guidelines implemented during 2011-2012 emphasizing the use of an alternate empiric first line agent for UTI based on antibiogram data showing that E. coli susceptibilities were less than the 80% threshold considered for utility by IDSA guidelines.

Education of the medical staff.

**Objective**

- To evaluate the impact of a multifaceted strategy to reduce FQ use on overall broad-spectrum antimicrobial use over an 8 year period.

**Methods**

Over the 8 year period, FQ use decreased significantly from 111.5 (July-Dec 2007) to 43.6 (Jan-June 2015) DOT/1000 DAR (-0.96, p < 0.0001). During that time there was a significant increase in use of 3/4 Ceph (69 to 90.5 [0.83, p < 0.0001]), P -T (76.1 to 102.9 [0.88, p < 0.0001]), and CB (18.4 to 28.4 [0.84, p = 0.0005]). However, combined FQ, 3/4 Ceph, P, and CB use was significantly lower at the end of the study period (274.9 to 265.4 [-0.78, p = 0.0049]).

**Results**

Table 1: Combination antibiogram of Non-

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>FQ</td>
<td>111.5</td>
<td>74.0</td>
<td>79.0</td>
<td>76.0</td>
<td>43.7</td>
</tr>
<tr>
<td>3/4 Ceph</td>
<td>67.0</td>
<td>102.9</td>
<td>74.0</td>
<td>68.0</td>
<td>60.4</td>
</tr>
<tr>
<td>P -T</td>
<td>76.1</td>
<td>102.9</td>
<td>76.1</td>
<td>82.7</td>
<td>78.0</td>
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<tr>
<td>CB</td>
<td>19.4</td>
<td>28.4</td>
<td>20.2</td>
<td>18.4</td>
<td>11.0</td>
</tr>
</tbody>
</table>

**Conclusion**

Most effective antibiotic stewardship policies appear to center around restriction policies and prior approval. In our study a series of interventions including development of disease specific guidelines using local susceptibility data, computer algorithms and education over time were found to be very effective in curbing quinolone use. Each initiative, IV to PO and UTI and pneumonia guidelines, contributed to the reduction of FQ use.

**References**

5. Multifaceted strategies to impact FQ use at an inner city hospital resulted in a significant decrease in FQ use and an associated decrease in broad-spectrum antimicrobial use over time. Such strategies can impact related antimicrobial resistance.