An ASP was established in Feb 2016 consisting of an administrative champion, hospitalist, microbiologist, intensivist and 5 pharmacists. Daily post-prescripive review of targeted antimicrobials: polymyxins, carbapenems, tigecycline, and linezolid. Institutional guidelines for polymyxins were created. Socioadaptive strategies included empowering pharmacist champions. The ASP evaluated & tracked appropriateness of antimicrobial dosing, frequency, route, duration of therapy, de-escalation & compliance with ASP recommendations. We compared economic impact from pre-intervention period (Feb 2015 to Jan 2016) to post intervention period (Feb 2016 to Jan 2017).

### RESULTS

#### Background
- Access to antimicrobials in India is unregulated
- Retail data confirm antibiotic prescriptions have escalated in the last decade, contributing to antimicrobial resistance
- Multi-drug resistant gram negatives are common in India and novel resistance mechanisms have emerged
- Antimicrobial stewardship programs (ASP) are rare in India but are gaining momentum with government support
- We describe implementation of an ASP in a 1300-bed, private, tertiary-care center in India in Southern India

#### Aims
- Implement a multidisciplinary ASP built with CDC core elements
- Measure compliance with ASP recommendations
- Understand stewardship gaps to design future ASP interventions
- Evaluate financial impact of an ASP

#### Methods
- An ASP was established in Feb 2016 consisting of an administrative champion, hospitalist, microbiologist, intensivist and 5 pharmacists
- Daily post-prescripive review of targeted antimicrobials: polymyxins, carbapenems, tigecycline, and linezolid
- Institutional guidelines for polymyxins were created
- Socioadaptive strategies included empowering pharmacist champions
- The ASP evaluated & tracked appropriateness of antimicrobial dosing, frequency, route, duration of therapy, de-escalation & compliance with ASP recommendations
- We compared economic impact from pre-intervention period (Feb 2015 to Jan 2016) to post intervention period (Feb 2016 to Jan 2017)

#### Table 1. General Characteristics of Patients with ASP Intervention

<table>
<thead>
<tr>
<th>Age</th>
<th>0-17</th>
<th>18-60</th>
<th>Above 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>192</td>
<td>366</td>
<td>384</td>
</tr>
<tr>
<td>%</td>
<td>14.9</td>
<td>28.3</td>
<td>35.8</td>
</tr>
</tbody>
</table>

#### Figure 1. Reasons for Inappropriate Antibiotic Therapy

- 1295 patients were prescribed targeted antibiotics in the study period
- 64.9% of these patients were male
- Bloodstream infection was the most common type of infection (31.4%)
- There were 3278 total ASP interventions
- 7.9% of the cases had no specimen to help narrow therapy

#### Figure 2. Financial Impact of ASP on Selected Antimicrobials

<table>
<thead>
<tr>
<th>Antimicrobials</th>
<th>Cost in INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colistin</td>
<td>9833208</td>
</tr>
<tr>
<td>Linezolid</td>
<td>9337080</td>
</tr>
<tr>
<td>Ertapenem</td>
<td>1384810</td>
</tr>
<tr>
<td>Amphotericin</td>
<td>4199142</td>
</tr>
<tr>
<td>Doripenem</td>
<td>2913343</td>
</tr>
</tbody>
</table>

#### Conclusions
- Preliminary results of an ASP in a large Indian hospital are encouraging
- Compliance with ASP recommendations was about 50%
- Potential antibiotic and department-specific targets for advanced stewardship interventions were identified
- More ASP studies in settings with high gram-negative resistance are needed
- Utilization of five antibiotics (colistin, linezolid, ertapenem, amphotericin B, and doripenem) dropped following implementation of ASP

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