Outpatient Parenteral Antimicrobial Therapy Program Evaluation within a Large Veterans Affairs Health Care System

Michael Kent, PharmD; Marcus Kouma PharmD, BCP5; Tomasz Z. Jodlowski, PharmD, BCP5-AQ ID; James B. Cutrell, MD, MPH

Background
- Outpatient parenteral antimicrobial therapy (OPAT) allows safe delivery of IV antibiotics in ambulatory settings to facilitate hospital discharge.
- Within the Veterans Affairs (VA) system, OPAT programs face the unique challenges of large geographic coverage areas and referrals for veterans from non-VA hospitals.
- Optimal logistical and structural implementation of OPAT program management has not been established.

Study Design & Objectives

Study Design
- Patients enrolled in the VA North Texas Health Care System OPAT program during fiscal years 2016 to 2018 had data collected on demographics, comorbidities, OPAT indications, antimicrobials used, pharmacist interventions, and complications during therapy. Data were collected from retrospective chart review as a quality improvement project. All enrolled OPAT patients required either an inpatient infectious disease (ID) consult or, for patients from non-VA facilities, required medical records review and telephone consultation with approval by a VA ID clinician. A third-party insurance company provided all medications and line care. Weekly laboratory monitoring and follow-up telephone visits were conducted by ID-trained pharmacists.

Results

Figure 1. Geographic Area Served by VA North Texas OPAT Program from 2016-2018

Table 1: OPAT Patient Demographics and Outcomes

| Year | OPAT Enrollments | Median Age | Gender | Median Length of Therapy | Number of OPAT Extensions | Number of Pharmacist Interventions | Number of Pharmacist Notes | Days of OPAT | Complications
|------|------------------|------------|--------|--------------------------|--------------------------|-----------------------------|-------------------------|-------------|-----------------
| FY 2016 | 145               | 62 (41-73) | 143    | 29 days                  | 11 (7.5%)                | 75                          | 59                      | 40 (26.8%) | 2063 (20.8%) |
| FY 2017 | 149               | 66 (46-78) | 145    | 33 days                  | 11 (7.4%)                | 58                          | 127                     | 66 (44.3%) | 2057 (20.8%) |
| FY 2018 | 191               | 65.5 (26-92)| 185    | 34 days                  | 24 (12.6%)               | 227                         | 496                     | 66 (43.3%) | 3138 (25.3%) |

Table 2: Complications in Patients Receiving OPAT

<table>
<thead>
<tr>
<th>Year</th>
<th>OPAT Enrollments</th>
<th>Readmissions during OPAT therapy</th>
<th>Readmissions due to underlying infection</th>
<th>Readmissions due to ADR</th>
<th>Intravenous Line Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2016</td>
<td>145</td>
<td>20 (13.7%)</td>
<td>10 (6.9%)</td>
<td>5 (3.4%)</td>
<td>19 (13.1%)</td>
</tr>
<tr>
<td>FY 2017</td>
<td>149</td>
<td>20 (13.4%)</td>
<td>8 (5.4%)</td>
<td>3 (2.0%)</td>
<td>10 (6.7%)</td>
</tr>
<tr>
<td>FY 2018</td>
<td>191</td>
<td>26 (13.6%)</td>
<td>8 (4.2%)</td>
<td>6 (3.1%)</td>
<td>10 (5.2%)</td>
</tr>
</tbody>
</table>

Discussion
- This implementation of an OPAT program may not relate to non-VA facilities. The most common pharmacist interventions involved patient follow up, notifying a provider to an adverse drug reaction or OPAT complications, and recommendations for dose adjustments.

Conclusion
- Our program has demonstrated the ability to safely and effectively provide OPAT across a large geographic region from a central location. ID-trained clinical pharmacists are critical to the care coordination and safety monitoring of OPAT in this unique setting.