Background
In 2015 the CDC classified carbapenem-resistant CRE as an urgent threat. The purpose of this study was to estimate the national prevalence of CRE events in the acute care and ambulatory settings based on a single database from Becton Dickinson & Company.

Methods
Susceptibility data from non-duplicate 5,794 CRE isolates were obtained from all 348 hospitals nationwide from July 2015 to June 2016. Organisms were classified into carbapenem-resistant Enterobacteriaceae (CRE) and non-CRE Enterobacteriaceae. Isolates were categorized into three settings by the specimen collection time: hospital-onset (HO) events in the hospital-onset period, followed by admission and ambulatory. Approximately the highest prevalence of CRE events occurred in the HO period, CRE events were highest in frequency in the ambulatory period. The highest rates of observed CRE were: Enterobacter, k. pneumoniae, and P. mirabilis isolates were: urin (64.2% of isolates), skin (16.7%) and respiratory (9.4% of isolates) (Figure 1).

Results
Of 878,777 isolates tested, 5,794 were CRE and the total number of observed CRE events was 5,794 (Table 2) (Figure 1). The CRE rates were highest in the hospital-onset period, followed by admission and ambulatory. Approximately 72% of CRE events occurred in the admission or ambulatory settings. Overall CRE rates between the ranges from 0.5% to 0.7% were more variability between the regions with admission (range 0.5–1.5%) and hospital-onset (range 1.4–2.9%).

Conclusions
These data estimate that the number of hospital-onset CRE events nationwide in July 2015 to June 2016 was higher than previously reported. Although the highest prevalence of CRE events occurred in the HO period, CRE events were highest in frequency in the ambulatory period. The highest rates of observed CRE were in the Midwest, Northeast, and South West regions, respectively (Table 3).

Table 1: Hospital Characteristics

<table>
<thead>
<tr>
<th>Hospital Characteristics</th>
<th>HO Rate</th>
<th>Admission Rate</th>
<th>Ambulatory Rate</th>
<th>Total Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>HO Rate</td>
<td>12.9%</td>
<td>19.3%</td>
<td>7.8%</td>
<td>11.4%</td>
</tr>
<tr>
<td>Total</td>
<td>11.5%</td>
<td>13.9%</td>
<td>8.1%</td>
<td>11.8%</td>
</tr>
</tbody>
</table>

Figure 1: Source distribution of CRE. E. coli, K. pneumoniae, and P. mirabilis

The national projected number of CRE isolates tested was 878,777, and the total number of observed CRE events was 5,794 (Table 2) (Figure 1). The CRE rates were highest in the hospital-onset period, followed by admission and ambulatory. Overall CRE rates between the ranges from 0.5% to 0.7% were more variability between the regions with admission (range 0.5–1.5%) and hospital-onset (range 1.4–2.9%).

Figure 2: Source distribution of CRE. E. coli, K. pneumoniae, and P. mirabilis.