Trends in Important Resistant Gram-negative (GN) and Gram-positive (GP) Urine Bacterial Pathogens in Hospitalized Patients in the US: A Multicenter Evaluation from 2013-2018

Thomas Lodise1; Steven Gelone2; Kalvin Yu3; Kalpana Gupta4; Maureen Early5; Gang Ye6; Jennifer Scharanz7; Vikas Gupta8

1Albany College of Pharmacy and Health Sciences, Albany, NY; 2Nabriva Therapeutics US, Inc., King of Prussia, PA, USA; 3Becton, Dickinson and Company, Franklin Lakes, NJ, USA; 4Division of Infectious Diseases, Veterans Affairs Boston Healthcare System and Boston University School of Medicine, West Roxbury, Massachusetts

BACKGROUND

• The US Centers for Disease Control and Prevention (CDC) has identified a number of antibiotic resistant Gram-negative and Gram-positive bacteria as urgent public health threats.1

• The result of these studies has been to increase awareness of these antibiotics and their importance in clinical settings.2

• Antibiotic resistant bacteria have been found in urban and rural areas, in hospitals and ambulatory settings, and in healthcare and non-healthcare settings.2

• The goal of this research is to determine the antibiotic resistance rates across US hospitals.

• The resistance rates of specific antibiotic resistant bacteria were evaluated by the following hospital demographics: hospital bed size, teaching or non-teaching status, urban or rural setting, and geographic region.

RESULTS (continued)

Table 1. Summary (unadjusted) Statistics of Admissions, Urine Isolates, Resistance (%NS and per 1000 Admissions) over Time and by Hospital Characteristics.

<table>
<thead>
<tr>
<th>Hospital Characteristics</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed Size (1,000 beds)</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
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<tr>
<td>Teaching Status</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Rural Status</td>
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<td>Yes</td>
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<td>Northeast</td>
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<td>Yes</td>
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<td>Yes</td>
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<td>Midwest</td>
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<tr>
<td>South</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tr>
</tbody>
</table>

CONCLUSIONS

• There was a significant decrease in CR-PSA, MRSA and VRE between 2013 and 2018.

• These data were collected from the laboratory information system feeds provided by participating hospitals and related to interpretive results reported at each facility.

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Figure 1. GEE Model Adjusted Percent of NS and Rate of NS per 1000 Admissions (Urine isolates) over Time (Year).

Figure 2. Trend in Rate of NS per 1000 Admissions.

Trend in Percent of NS (P < 0.0001)

Trend in Rate of NS (P < 0.0001)

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