Regional Differences in Carbapenem Non-Susceptibility in US Hospitals in 2015-2016

**Abstract**

**Background:** Carbapenem non-susceptibility (NS) in Gram-negative (GN) bacteria is recognized as a serious issue in the US, though regional data are limited.

**Methods:** Electronic data from a Becton, Dickinson & Company research database for 348 US hospitals were analyzed for July 2015 to June 2016. All isolates, non-duplicate GN isolates (first isolate of a species per 30-day period) from all sources (urine, blood, respiratory, wound, etc.) were reported, were classified as carbapenem NS if intermediate or resistant to: a) imipenem or meropenem for Enterobacteriaceae, b) imipenem, meropenem, or ertapenem for Enterobacteriaceae. Geographic regions were as per National Healthcare Safety Network regions.

**Results:** Enterobacteriaceae is recognized as a serious issue in the US, though regional data are limited. In 2015-2016, 24.1% of all non-duplicate isolates tested were carbapenem non-susceptible (Carb NS). The highest NS rates were in P. aeruginosa, ranging from 11.9% (Region 10) to 27.0% (Region 2) (all regions 0.4% (range 0.0% - 0.05%)). The NS rate for K. pneumoniae ranged from 0.4% (Regions 1, 7, 8 combined) to 0.10 (Regions 2 and 4). The highest NS rates were in PsA, ranging from 11.9% (Region 10) to 27.0% (Region 2) (all regions 0.4% (range 0.0% - 0.05%). The NS rate for K. pneumoniae ranged from 0.4% (Regions 1, 7, 8 combined) to 0.10 (Regions 2 and 4).

**Strength of the Study**

- Large data set with nearly 400 hospitals.
- Data were current one-year data available (July 2015 to June 2016).

**Conclusions:** Carbapenem NS is recognized in US hospitals. Of the most commonly reported Enterobacteriaceae, K. pneumoniae has the highest rate of NS. Regional differences are considerable, clinicians should be aware of their local antibiogram and reporting patterns when creating treatment protocols.

**References**
