Zyvox® Annual Appraisal of Potency and Spectrum (ZAAPS) Program 2008 (Europe, Latin America, Canada, Asia Pacific, South Africa)  
Linezolid Global In Vitro Susceptibility Analyses

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RESULTS

- A total of 3,240 S. aureus isolates were tested (1,416/2,767/3,000 tested in 2005/2006/2007) from 24 countries. MSSA rates were as follows: Canada (72% at initial year of prevalence design), for Latin America (range 42.0%, range 72.0% in Mexico to 60.0% in Chile), for Europe and Turkey (average 25.9%, range 1.5% (Switzerland) to 50.0% (Japan) and the Asian region (average 41.9%: New Zealand to 78.2% (Singapore), Table 1 and 2).
- No evidence of linezolid resistance was noted during 2008 and the MIC90 result for linezolid was ≤2 µg/ml against S. aureus (Tables 2 and 3). Linezolid activity was not affected by methicillin resistance in S. aureus as the MIC50/MIC90 was 2 µg/ml for both MRSA and MSSA.
- Among the 748 CoNS tested, oxacillin-resistant rates ranged from 0.0% in several countries to 36.0% in Singapore (Table 4). Of the 17 of the 24 monitored countries had rates greater than 80%. Linezolid was consistently more potent by one doubling dilution step against CoNS when compared to S. aureus (Tables 2 and 3).
- Three S. epidermidis isolates were tested with linezolid MIC results of ≤1.0 µg/ml (non-susceptible). Oct 3 of these S. epidermidis strains isolated in Rome, Italy had a deletion of the other non-susceptible CoNS genes found in Genoa, Italy (mutation or resistance gene found) and Metz, France (S252T mutation observed).
- Among 844 summarized enterococcal isolates (Table 2), the species distribution was E. faecalis (51%), and E. faecium (20%) (Table 2). The MIC90/SUS (MIC) for linezolid were 0.5–4 µg/ml (97.2%) (Table 2). 100.0% of MSSA (MICMIC = 2 µg/ml) and of VSE (MICMIC = 2 µg/ml).
- Penicillin resistance among S. staphylococci averaged 10.2% with a range of the lowest rates in Canada, Sweden, United Kingdom (0.0%) to the highest rates in Taiwan (88.9%), Korea (64.4%) and Turkey (53.9%).
- Linezolid demonstrated excellent in vitro activity against staphylococci (Table 2). The MIC50 and MIC90 were 1 µg/ml for each of the three staphylococcal groups tested.
- Overall, linezolid remains stable and without significant occurrence of isolates with MIC values of ≤3 µg/ml (no isolates or ≤0.13 of all organisms tested).

CONCLUSIONS

- Linezolid remained highly active against contemporary pathogens in all organism groups including S. aureus (MIC= 2 µg/ml), CoNS (MIC= 0.5 µg/ml), S. pneumoniae (MIC= 2 µg/ml), Enterococcus (MIC= 2 µg/ml) and three groups of streptococci (MIC= 2 µg/ml).
- Overall, linezolid remained active against 99.97% of tested strains that were processed in the 2008 ZAPS Program.
- As another commonly used antimicrobials continue to be compromised by evolving resistances, linezolid refractory strains appear to be unusual. It is not likely to occur among the enterococci and CoNS species exposed to long courses of therapy or endemic clonality/ genotypes.

SELECTED REFERENCES