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Abstract (poster session)

Report of linezolid resistance from the Zyvox® Annual Appraisal of Potency and Spectrum programme (Europe, Latin America, Asia Pacific)

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Objectives: To monitor the in vitro activity and to detect resistance (R) to linezolid (LZD) in various geographic areas of the world, excluding the United States (USA), the Zyvox® Annual Appraisal of Potency and Spectrum Program (ZAAPS) surveillance program was established in 2002. LZD, the first oxazolidinone agent clinically applied, is an important therapeutic option for infections caused by antimicrobial-R Gram-positive (GP) pathogens. Although rare, LZD-R has been observed among coagulase-negative staphylococci (CoNS) in more frequency than enterococci (ENT). R rates remain extremely low for indicated S. aureus (SA) and streptococci. Methods: 5,769 isolates were collected from 57 sites in 34 countries in 2011. Isolates were received from the following organism groups (n): SA (2,831), CoNS (656), ENT (747), Streptococcus pneumoniae (SPN; 878), viridians group streptococci (VGS; 244) and beta-haemolytic streptococci (BHS; 413). At least 200 isolates from each country (expect China [n=800]; the United Kingdom and Japan [n=400]) were requested to be sent to a reference laboratory. CLSI broth microdilution susceptibility (S) testing was performed using TREK Diagnostic (Cleveland, OH, USA) panels. LZD-R isolates were confirmed with frozen broth microdilution, Etest (BioMerieux, Marcy l'Etoile, France) and disk diffusion methods. PCR and sequencing were performed to detect mutations in 23S rRNA, L3, L4, and L22 proteins, and acquired genes (cfr). Results: Overall LZD -S in the ZAAPS study was >99.8% with only 9 isolates identified as non-susceptible (NS). LZD-S by organism group: SA 100.0%; CoNS 98.9%; ENT 99.7%; all streptococci had LZD MIC values of <=2 mg/L (S). The cfr gene was identified in 3 CoNS strains with LZD MIC values of 4mg/L (Mexico and France), also in a S. epidermidis from Spain with a LZD MIC of 8 mg/L and a S. epidermidis from France had both a G2576T mutation and cfr gene with a LZD MIC of >128mg/L (3 isolates with cfr in 2010 ZAAPS study). MRSA rate was 33.4% overall (27.7% Europe [EU]; 42.4% Latin America [LA]; 42.2% Asia Pacific [AP]). VRE rates were 9.2% in EU, 8.9% in LA and 1.1% in AP. SPN had overall penicillin and erythromycin R rates of 24.7% (MIC,>=2mg/L) and 45.0%, respectively. Conclusions: LZD-R remains low at <1% among contemporary pathogens from surveyed organism groups. Continued worldwide monitoring of in vitro LZD activity appears warranted as the species containing the cfr gene continue to evolve.

Table: Linezolid-R isolates found in the 2011 ZAAPS Program.

Species	City/Country	LZD MIC (mg/L)	R- mechanism
E. faecium	Leipzig/Germany	8	G2576T
E. faecium	Dublin/Ireland	8	G2576T
S. capitis	Athens/Greece	16	G2576T
S. epidermidis	Sao Paulo/Brazil	8	G2576T
S. epidermidis	Sao Paulo/Brazil	8	G2576T
S. epidermidis	Sao Paulo/Brazil	16	G2576T
S. epidermidis	Madrid/Spain	8	*cfr*
S. epidermidis	Genova/Italy	16	G2576T
S. epidermidis	Lille Cedex/France	>128	G2576T and *cfr*

a. 3 CoNS had a *cfr* associated with LZD MIC at 4mg/L.