P1202
Poster Session V
Worldwide spread of carbapenem resistance

PREVALENCE OF CARBAPENEM-RESISTANT GRAM-NEGATIVE BACTERIAL PATHOGENS IN EUROPEAN COUNTRIES, INCLUDING SUSCEPTIBILITY OF TIGECYCLINE AND COMPARATOR AGENTS - TEST 2013

S. Bouchillon[1], M. Hackel[1], R. Badal[1], S. Hawser[2], D. Biedenbach[1], H. Leister-Tebbe[3]

[1]Microbiology, IHMA Inc., Schaumburg, USA ; [2]Microbiology, IHMA Europe Sarl, Epalinges, Switzerland ;

[3]Microbiology, Pfizer Inc., Collegeville, USA

Objectives: Carbapenem resistant *Enterobacteriaceae* (CRE), once rare, are increasing in prevalence worldwide. The limited availability of therapeutic agents for the treatment of CRE are a cause of major concern for clinicians because of the association of CRE with increased hospital cost, length of stay, and increases in morbidity and mortality. The Tigecycline European Surveillance Trial (TEST) program has been monitoring the development of resistance of Gram-negative pathogens to carbapenems since 2004. This study evaluates the development of CRE in Europe and the *in vitro* activity of tigecycline against these pathogens during the years 2007 – 2013. **Methods**: 526 CRE were analyzed from a collection of 44,890 *Enterobacteriaceae* from 692 cumulative sites in 26 countries during 2007-2013. Carbapenem resistance was determined by meropenem susceptibility. MICs were determined by broth microdilution, and interpreted using current EUCAST guidelines. **Results**: The *in vitro* activity of tigecycline and 8 comparators are presented in the following table for all CRE:

Organism	**TGC**	**AMC**	**AMK**	**CRO**	**FEP**	**LVX**	**MIN**	**TZP**	**MEM**
Enterobacteriaceae (526)	72.6	0.4	21.7	0.6	0.8	7.0	0.0	1.9	0.0
Enterobacter aerogenes (18)	61.1	0.0	44.4	0.0	0.0	27.8	0.0	5.6	0.0
Enterobacter cloacae (62)	69.4	0.0	54.8	1.6	3.2	21.0	0.0	4.8	0.0
Escherichia coli (9)	88.9	0.0	55.6	0.0	0.0	33.3	0.0	0.0	0.0
Klebsiella oxytoca (7)	57.1	14.3	57.1	14.3	14.3	28.6	0.0	14.3	0.0
Klebsiella pneumoniae (406)	73.2	0.0	13.6	0.0	0.3	2.0	0.0	0.5	0.0
Serratia marcescens (18)	77.8	0.0	27.8	0.0	0.0	16.7	0.0	11.1	0.0

TGC, tigecycline; **AMC**, amoxicillin/clavulanic acid; **AMK**, amikacin; **CRO**, ceftriaxone; **FEP**, cefepime; **LVX**, levofloxacin; **MIN**, minocycline; **TZP**, piperacillin tazobactam; **MEM**, meropenem.

Conclusions: The carbapenem resistance rate in Europe has steadily increased from 0.3% in 2007 to 2.0% in 2012, and is currently 1.2% in 2013 (R^2=0.3075, p<0.0001, Cochran-Armitage trend test). The vast majority, 77%, of all CREs were *K. pneumoniae*. Only tigecycline retained *in vitro* activity against CREs with activity >60% susceptible against most species. Tigecycline's susceptibility rate of 72.6% for all CREs was the highest of all antimicrobial agents in this study. This compares to a susceptibility rate of 91% when using the CLSI BP of ≤ 2 µg/ml. Tigecycline demonstrated *in vitro* activity against the majority of CREs from a European population of *Enterobacteriaceae* from all sources.