

Activity of Gram-negative Resistant Anaerobes from Europe to Tigecycline and Comparators: TEST Europe 2009-2010



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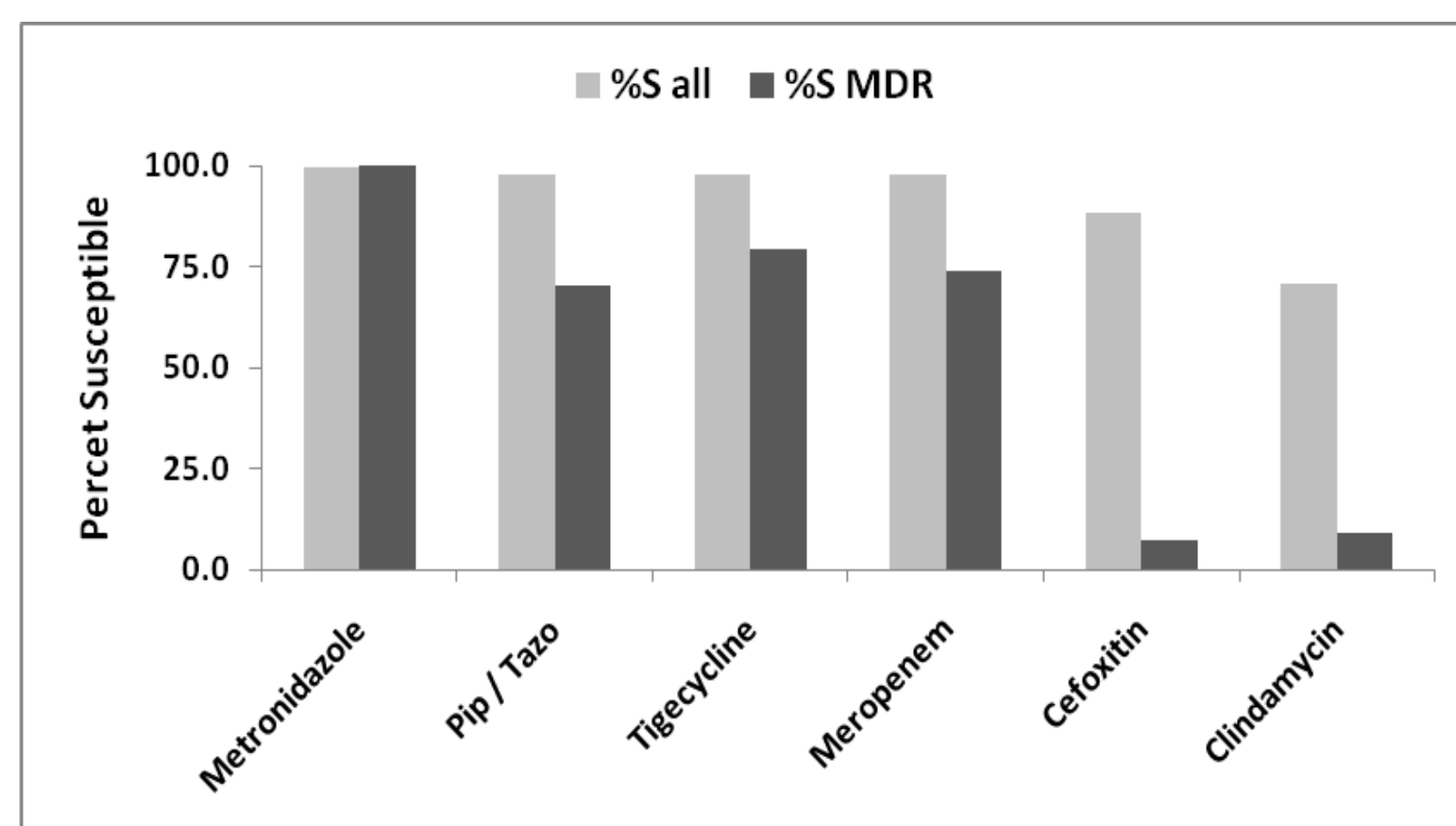
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Revised Abstract

Background: The Tigecycline Evaluation and Surveillance Trial (TEST) monitors the activity of tigecycline and comparators against multiple pathogens collected worldwide. Such monitoring assists in investigating resistance rates either globally, regionally or by country. The current report describes susceptibility to tigecycline and comparators against gram-negative anaerobes isolated from Europe during 2009-2010. **Methods:** A total of 1,392 clinical isolates were collected from multiple infection sources in Europe during 2009-2010 of which 54 (4%) were multi-drug resistant (MDR). Susceptibility testing was performed as per CLSI guidelines and interpreted using CLSI/FDA clinical breakpoints.

Results: Susceptibility of all and MDR isolates to tigecycline and comparators were as follows.



Conclusions: Of the agents tested, only metronidazole, piperacillin/tazobactam, tigecycline and meropenem had >90% *in vitro* susceptibility against all gram-negative anaerobes. Against the MDR sub-population, the most active agents were metronidazole > tigecycline > meropenem > piperacillin-tazobactam > clindamycin > cefoxitin. Tigecycline continues to exhibit good activity against gram-negative anaerobes, including MDR isolates.

Introduction

Susceptibility patterns of anaerobes have become less predictable owing to increasing antibacterial resistance. Emergence of highly virulent or multidrug-resistant strains is challenging the current therapy [1]. Management of anaerobic infections encompasses surgical procedures, antibacterial therapy and adjuncts. At present, metronidazole, penems, and beta-lactam/beta-lactamase inhibitor combinations exhibit the most promising activity although there are increasing reports of resistance even among these agents are emerging [1]. Recent data from the Tigecycline European Surveillance Trial (TEST) has shown that in addition to the above agents, tigecycline also exhibits promising activity and high susceptibilities against a wide range of anaerobes [2]. Tigecycline has also been shown to demonstrate promising activity against recent clinical isolates of *Bacteroides fragilis*, including isolates with reduced carbapenem susceptibility [3]. The current study describes data from TEST, from 2009 to 2010, based on the activity of tigecycline and comparators against 1,392 gram-negative anaerobic isolates from various European countries.

Materials & Methods

- ❖ **Clinical isolates:** A total of 1,392 clinical isolates of gram-negative anaerobes were studied. These included 982 isolates of *Bacteroides* spp., 408 isolates of *Prevotella* spp. and 2 isolates of *Veillonella parvula*. Isolates were identified to the species level and tested at each participating laboratory. All organisms were deemed clinically significant by local participant criteria. Isolate inclusion was independent of medical history, antimicrobial use, age or gender. All sites identified each study isolate utilizing local laboratory criteria. All isolates were from the period 2009-2010 and originated from various countries in Europe and from multiple clinical sources and locations.
- ❖ **Susceptibility testing:** Minimum inhibitory concentrations (MICs) were determined by agar dilution as specified by the Clinical and Laboratory Standards Institute (CLSI) [4]. Susceptibility was determined using clinical breakpoints published by CLSI [4].

References

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Acknowledgements

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Results

Figure 1. Distribution of all isolates (n = 1,392) and MDR isolates (n = 54) by species.

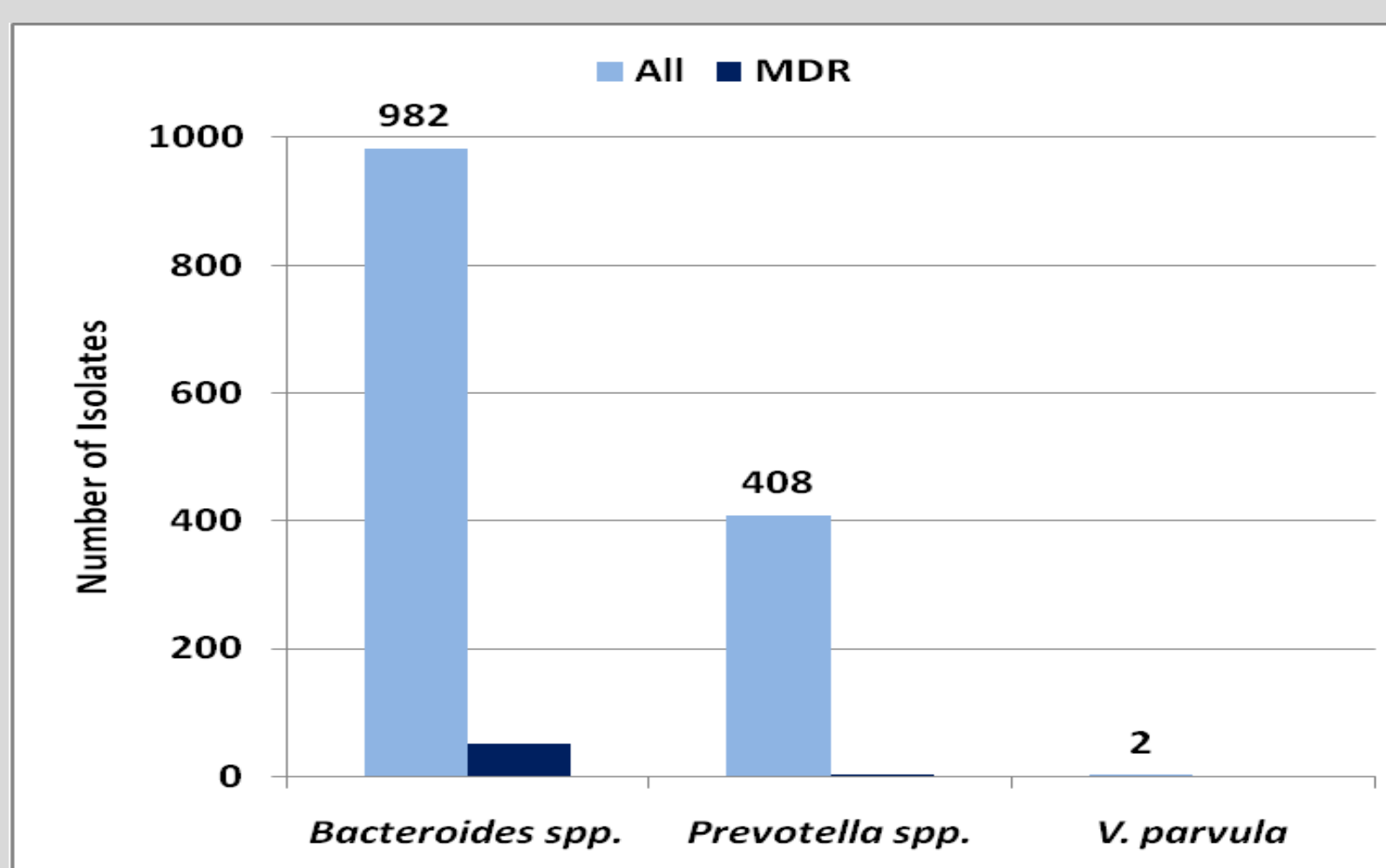


Figure 2. Geographical distribution of MDR isolates (n = 54) by country.

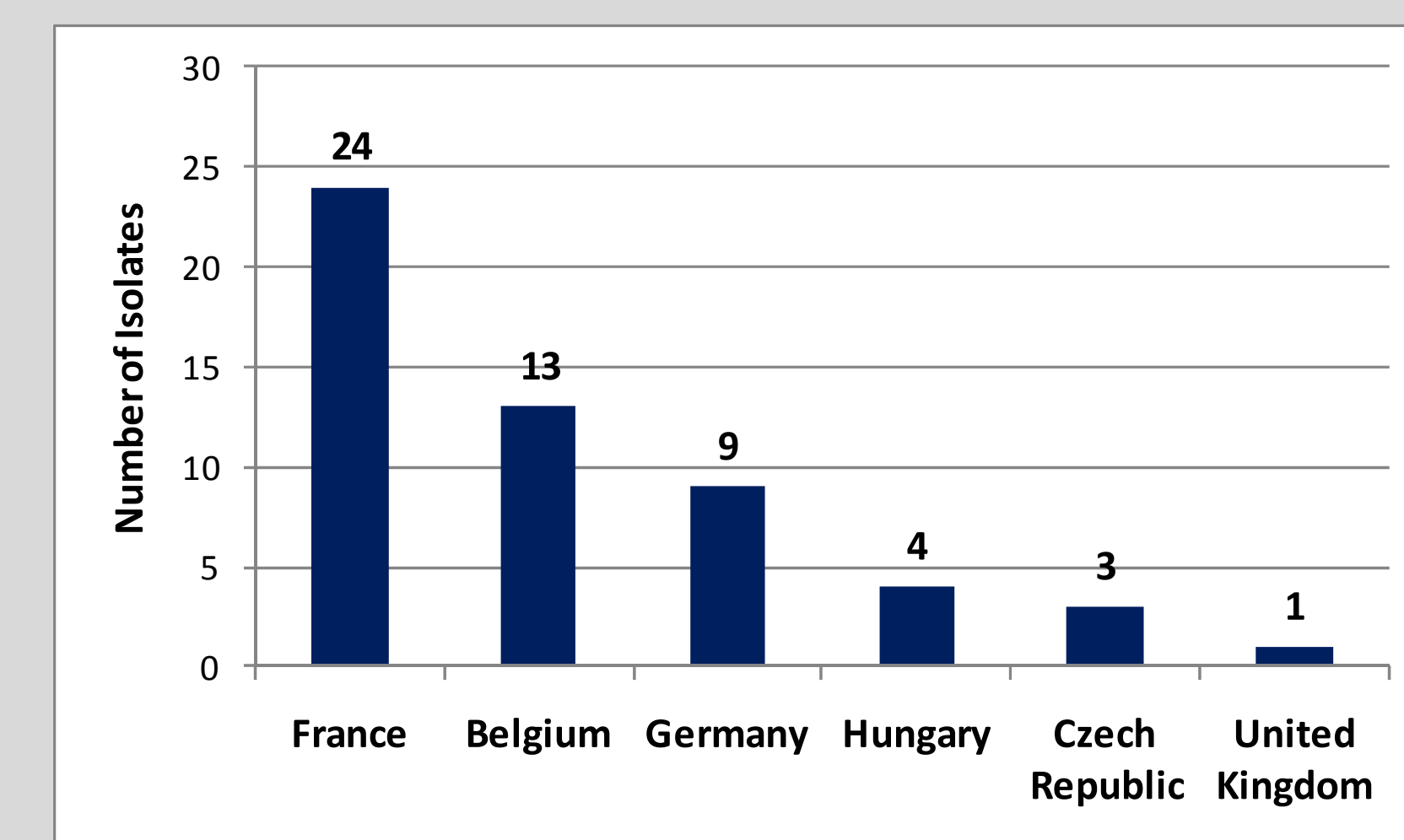


Figure 3. Number of MDR isolates by infection location (2009-2010).

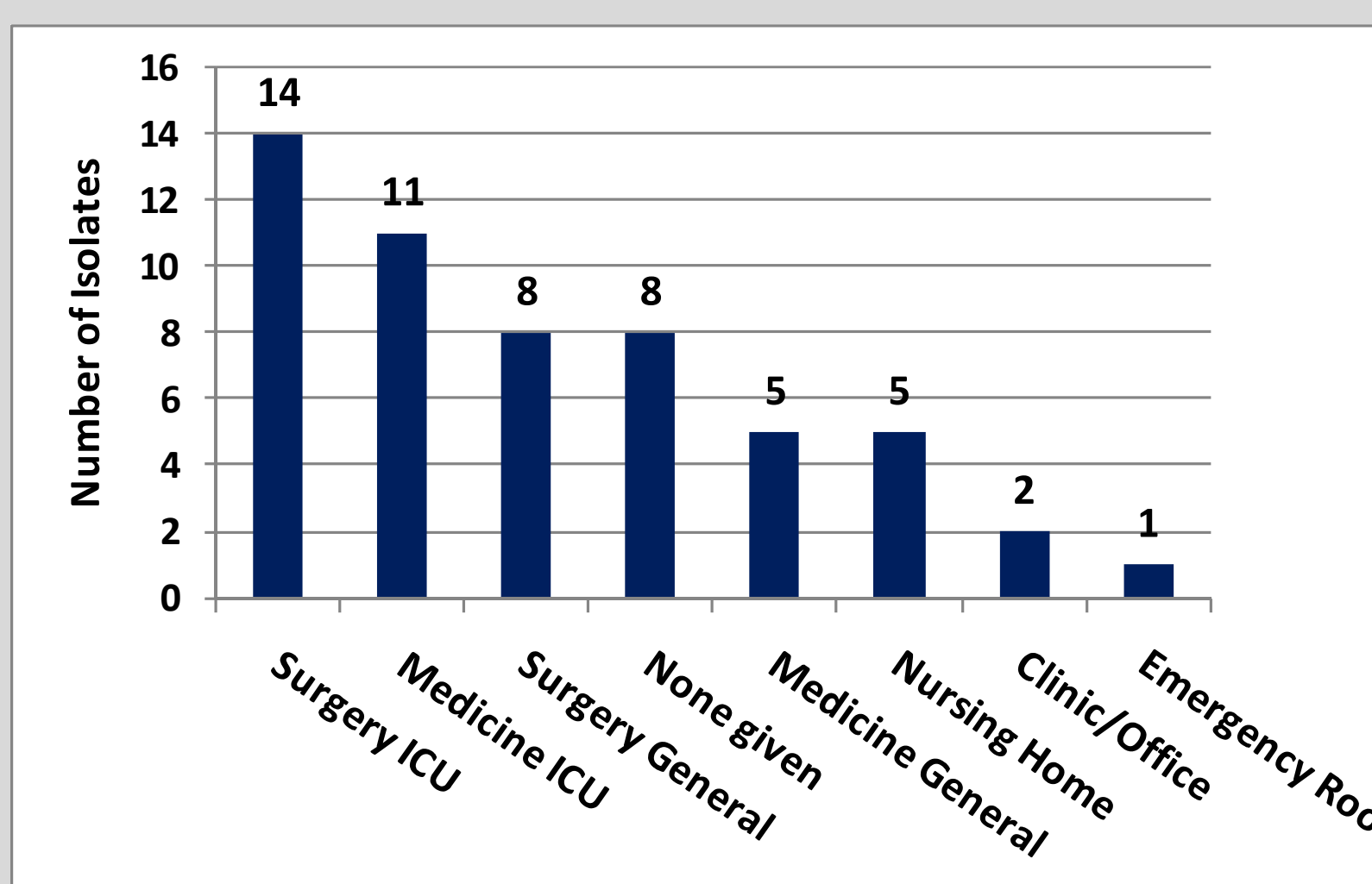


Figure 4. Number of MDR isolates by infection source (2009-2010).

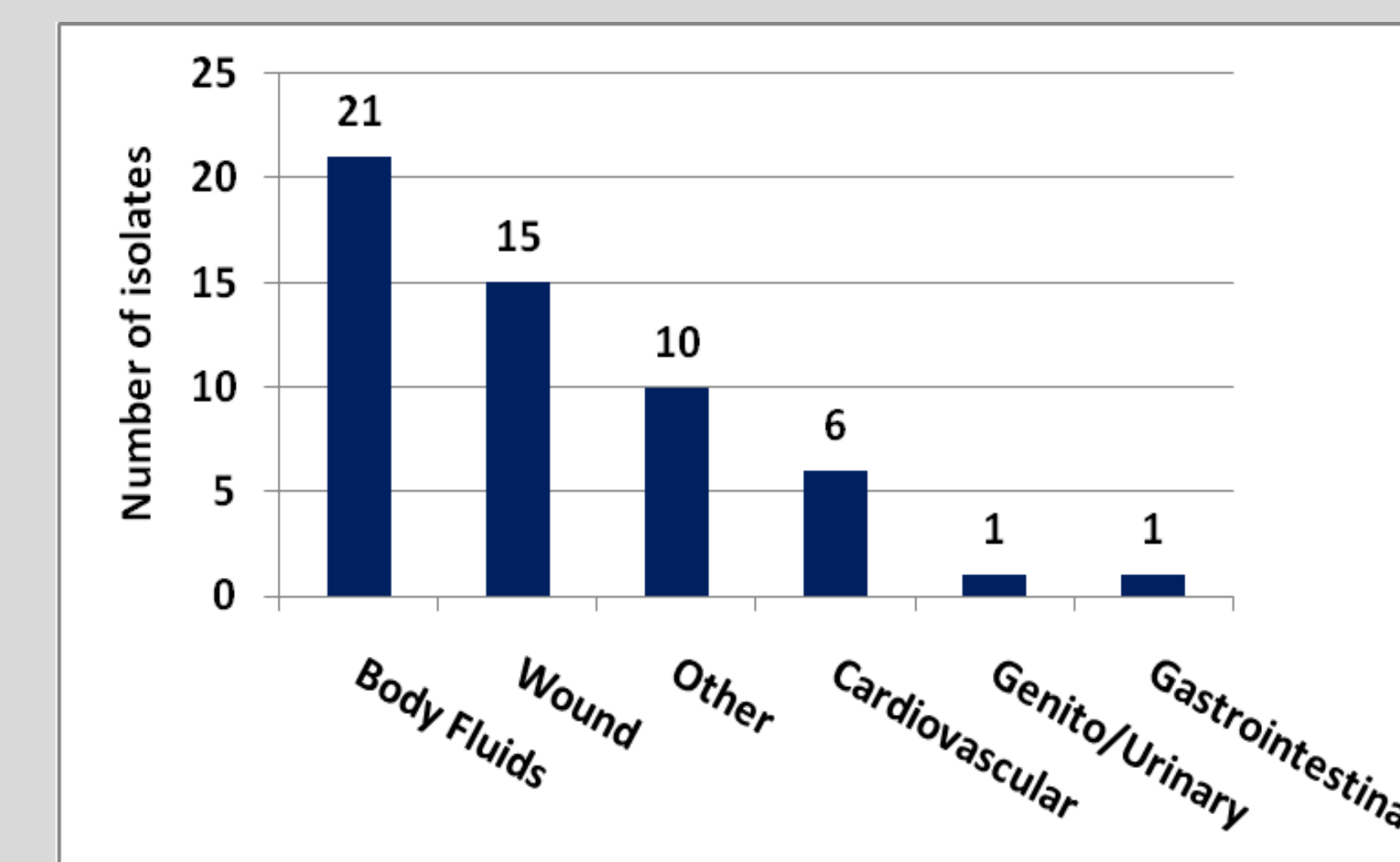


Table 1. Activity of antimicrobial agents against all isolates (n = 1,392) and MDR isolates (n = 54).

Agent	All Isolates (n = 1,392)				Agent	MDR Isolates (n = 54)			
	MIC ₅₀	MIC ₉₀	MIN	MAX		MIC ₅₀	MIC ₉₀	MIN	MAX
Meropenem	≤ 0.06	0.5	≤ 0.06	> 8	Meropenem	0.5	> 8	0.06	> 8
Metronidazole	0.5	1	≤ 0.12	16	Metronidazole	0.5	1	≤ 0.12	4
Cefoxitin	4	32	≤ 2	> 32	Cefoxitin	> 32	> 32	4	> 32
Tigecycline	0.25	2	≤ 0.06	> 32	Tigecycline	1	32	≤ 0.06	> 32
Clindamycin	0.5	> 8	≤ 0.25	> 8	Clindamycin	> 8	> 8	≤ 0.25	> 8
Pip-Tazo	0.25	8	≤ 0.06	> 64	Pip-Tazo	16	> 64	0.25	> 64

MIN, minimum MIC; MAX, maximum MIC

Conclusions

- ❖ Of the agents tested, only metronidazole, piperacillin-tazobactam, tigecycline, and meropenem had >90% *in vitro* susceptibility against all gram-negative anaerobic bacteria.
- ❖ Against the MDR sub-population representing 4% of all isolates, the most active agents were metronidazole > tigecycline > meropenem > piperacillin-tazobactam > clindamycin > cefoxitin.
- ❖ Tigecycline continues to exhibit good activity against gram-negative anaerobes, including MDR isolates.