Bloodstream Infections in Europe: Aetiology and Antimicrobial Susceptibility Results from the SENTRY Antimicrobial Surveillance Program (2019-2021)

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Objective

- To evaluate the antimicrobial susceptibility results for BSI in European medical centres.

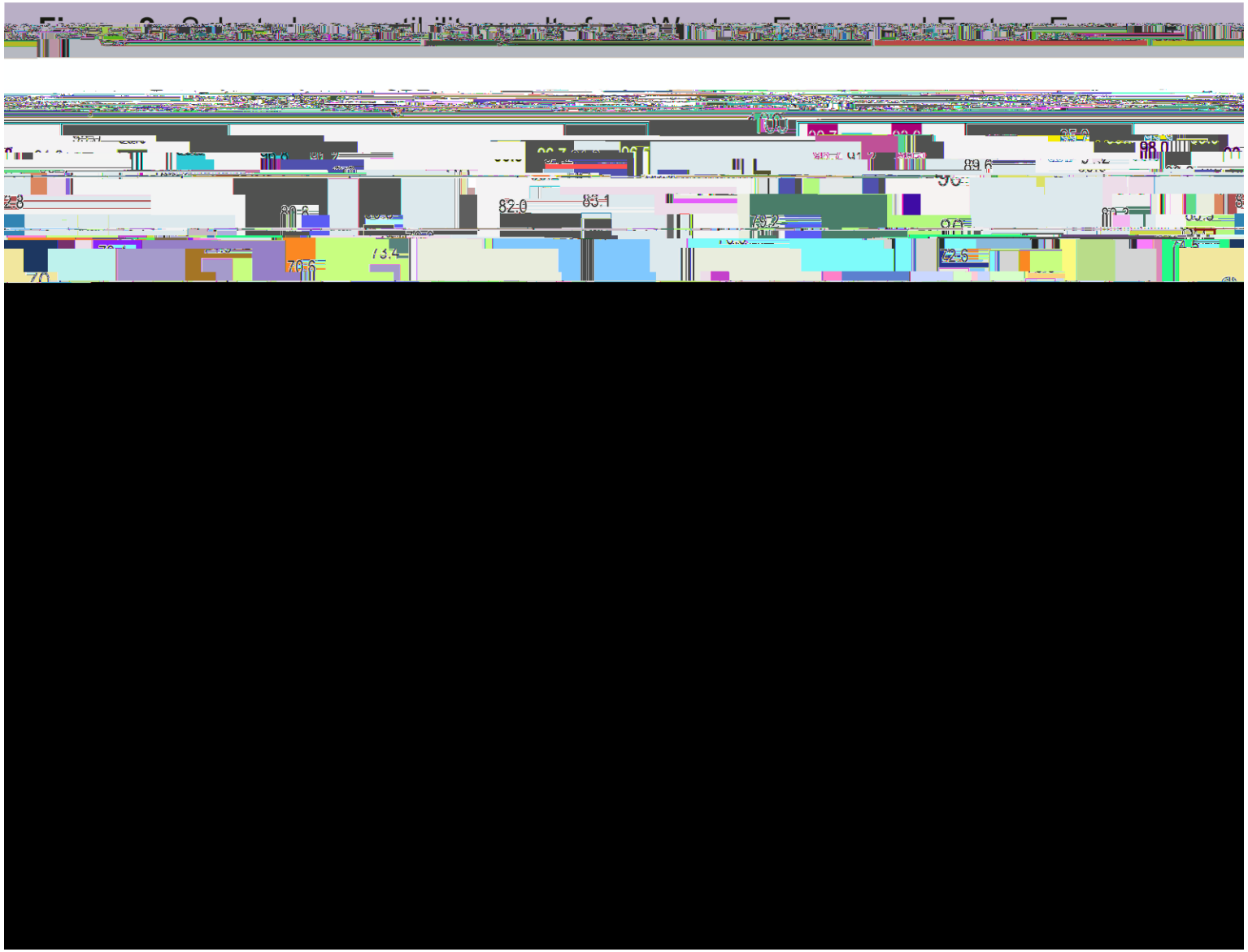
Methods

- 8,571 organisms were consecutively collected (1/patient) as part of the SENTRY Program:
  - Western Europe (W-EU): 7,011 isolates from 26 medical centres in 10 countries: Belgium, France, Germany, Ireland, Italy, Portugal, Spain, Sweden, Switzerland, and the United Kingdom
  - Eastern Europe and Mediterranean region (E-EU): 1,560 isolates from 12 medical centres in 9 countries: Belarus, Czech Republic, Greece, Hungary, Israel, Romania, Russia, Slovenia, and Turkey
- Organisms were susceptibility tested by reference broth microdilution methods in a central laboratory.
- EUCAST breakpoints were applied.

Results

- E. coli, S. aureus, and K. pneumoniae represented the top 3 organisms in W-EU and E-EU and accounted for 55.9 and 58.3% of the collection, respectively.
- Gram-negative bacilli represented 60.7% of organisms in W-EU and 66.5% in E-EU.

Results



- CAZ-AVI and MEM-VAB were very active against Enterobacterales from W-EU and E-EU
- CRE from E-EU: Only 59.1%S to MEM-VAB
- E. coli: Lower susceptibility to CRO, LEV, and other drugs in E-EU than W-EU
- K. pneumoniae: Only 35.8%S to CRO and 80.8%S to MEM in E-EU
- P. aeruginosa: Increasing resistance to CAZ-AVI, C-T, PIP-TAZ, and MEM in E-EU
- S. aureus: Higher MRSA rates in E-EU than W-EU
- E. faecalis: Very low vancomycin resistance (VRE) in both W-EU (1.6%) and E-EU (0.0%)
- E. faecium: VRE rates of 24.3% in W-EU and 30.9% in E-EU

Results

- Carbapenem-resistant (CRE), multidrug-resistant (MDR), and extensively drug-resistant phenotypes among Enterobacterales were markedly higher in E-EU compared to W-EU.

Phenotype	W-EU	E-EU
CRE	2.2%	8.6%
MDR	13.6%	30.0%
XDR	2.0%	7.3%

Conclusions

- The frequency of organisms and susceptibility rates varied considerably between W-EU and E-EU.
- Increased resistance to newer β-lactamase inhibitor combinations among CRE and P. aeruginosa from E-EU countries is of great concern.

Acknowledgements

This study was sponsored by JMI Laboratories, North Liberty, IA, USA.
We thank all participants of the SENTRY Program for providing isolates.

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SENTRY results are available: **sentry-mvp.jmilabs.com**