life-year for patients who survived. All analyses were performed using TreeAge Software (2008).

Results: The overall mortality rates for empiric vancomycin (V) and semi-synthetic-penicillin (SSP) was 30% and 35%, respectively, as apposed to 24% for those receiving the rapid MRSA PCR testing. These mortality rates were similar in both the EU and US subsets. Furthermore, the number needed to test in order to save one life was 20 and 11 for empiric V and SSP, respectively. Using sensitivity analysis the prevalence of MRSA was varied from 5% to 80% and yielded an absolute mortality difference favouring the PCR testing group of 10% and 2%, respectively as compared to empiric V and 1% and 18% compared to empiric SSP. In EU the C/E for empiric V and SSP treated patients was €873 and €949, respectively as compared to €807 for rapid PCR testing. In the US the C/E for empiric V was $1,049 as compared to $971 for rapid PCR testing. Using sensitivity analysis the prevalence of MRSA was varied from 5% to 80% and yielded favourable C/E in both the EU and US for rapid PCR testing regardless of the empiric treatment regimen.

Conclusion: Rapid MRSA PCR testing using the Xpert MRSA/SA Blood Culture PCR assay appears to improve mortality rates and is cost effective in the EU and US across a wide range of MRSA prevalence rates.

O251 Evaluation of culture-based approaches for rapid detection of glycopeptide-resistant enterococci: a randomised, investigator-blinded study

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Background: Rapid detection of gastro-intestinal carriage of glycopeptide-resistant enterococci (GRE) from screening cultures is crucial for an efficient control of their spread. We assessed 4 media – 2 chromogenic, ChromID, (bioMérieux), and CHROMagar (CHROMagar Microbiology), and 2 selective, VRE Selective (Oxoid) and ECCV (BD) – for their ability to detect GRE using well-characterised isolates and stool samples from hospitalised patients at high risk of GRE colonisation.

Methods: Twenty-five isolates consisting of 13 GR*E. faecalis/faecium* carrying various van genes and 12 non-VRE at concentrations of 10^6-10^1 CFU/ml and 10^6 CFU/ml, respectively, and 37 stool samples were randomised and spiral plated on all media and scored by 5 blinded investigators for characteristic colonies after 24 hrs incubation. Standard confirmatory tests were done on 1 putative GRE colony or on 1 characteristically coloured colony each for *E. faecalis/faecium* from the selective and chromogenic media, respectively. Detection of van genes, and ddl or sodA based speciation was done on PCR-sequencing. Mean sensitivity (SEN) and specificity (SPEC), and confidence intervals (CIs) were estimated for each medium by a logistic regression model using a penalised likelihood approach based on the reader response for the stool samples and isolates, and additionally on confirmation test results for the stool samples, both at the aggregated (GRE detected) and penalised level (correct species–colony colour correlation).

Results: CHROMagar showed the highest SEN based on reader response at the aggregated and penalised level for both stool samples and isolates (Table). Using confirmation test results at the aggregated level, SEN for ECCV was highest while the two chromogenic media showed a decrease in SEN by at least 11% in comparison to the values obtained based on reader response. SENs for the 2 chromogenic media were even lower (<70%) based on confirmation test results at the penalised level. ECCV and ChromID showed the highest SPECs with both reader response (stool samples) and confirmation test results at the aggregated level, and ChromID also at the penalised level, with narrow CIs indicating a high precision of this parameter estimate. For isolates, SPECs were highest for CHROMagar at both levels.

Conclusions: CHROMagar showed the best overall performance considering both SEN and SPEC estimates. ECCV performed well as a selective medium for GRE detection from stool samples.

Table. Mean sensitivities and specificities of media for detection of GRE after 24 hrs incubation

Samples	Variable	Medium for GRE detection	Aggregated				Penalised			
			Sensitivity (%)		Specificity (%)		Sensitivity (%)		Specificity (%)	
			Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI
Stools	Reader response	ECCV[a]	86.1	77.6–92.1	98.8	96.0–99.7	NA*	NA	NA	NA
		VRE Selective[b]	57.0	44.6–69.1	93.7	86.6–97.5	NA	NA	NA	NA
		ChromID[c]	83.3	73.7–90.0	98.9	96.1–99.7	82.9	73.8–89.5	98.6	95.6–99.6
		CHROMagar[d]	91.4	85.5–95.2	96.2	91.8–98.4	88.6	82.2–93.2	95.5	90.5–98.0
	Confirmation tests	ECCV[a]	82.9	74.1–89.5	99.1	96.6–99.8	NA	NA	NA	NA
		VRE Selective[b]	33.5	23.6–44.6	98.4	95.5–99.5	NA	NA	NA	NA
		ChromID[c]	72.3	61.6–81.3	99.4	97.4–99.9	64.8	53.7–76.8	98.1	94.3–99.4
		CHROMagar[d]	72.0	61.7–80.7	98.5	96.2–99.5	67.9	57.6–76.8	94.4	89.4–97.2
Isolates	Reader response	ECCV[a]	83.4	77.7–87.8	96.3	91.7–98.3	NA	NA	NA	NA
		VRE Selective[b]	65.9	58.3–72.8	94.2	87.8–97.2	NA	NA	NA	NA
		ChromID[c]	87.3	82.3–91.0	97.4	93.9–98.9	78.2	72.2–83.1	95.1	90.0–97.6
		CHROMagar[d]	91.5	87.4–94.2	99.7	98.3–99.9	86.4	81.4–90.1	99.4	97.0–99.9

*Selective media do not differentiate between GR*E. faecalis/faecium* and thus, the aggregated and penalised responses are the same.

[a]BD, BE; [b]Oxoid, UK; [c]BioMérieux, FR; [d]CHROMagar Microbiology, FR.

O252 Evaluation of a new E-test to detect metallo-beta-lactamases in Enterobacteriaceae

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Objectives: Metallo-beta-lactamases (MBLs) expressed from *Pseudomonas* are able to confer resistance to all beta-lactams with the exception of aztreonam. However, Enterobacteriaceae possessing MBLs exhibit moderate cephalosporin and low carbapenem MICs and thus are often underestimated. Herein, we describe data from new Etest prototypes specifically designed to detect this problematic resistance mechanism.

Methods: 82 MBL-positive (VIM or IMP derivatives) Enterobacteriaceae clinical isolates from 8 countries and 27 randomly selected Enterobacteriaceae negative controls (including the ATCC type strains) were tested against the 4 different Etest MBL prototypes. Beta-lactam substrates used were imipenem (IP), meropenem (MP), ceftazidime (TZ) and cefotaxime (CT) with or without the inhibitors dipicolinic acid (DPA) and EDTA. The Etest standard procedure for Gram negative aerobes was used and a reduction of beta-lactam MIC by equal to or greater than 3 dilutions by EDTA or DPA was interpreted as positive for MBL. Presence of ESBLs was tested using the Etest CT/CTL, TZ/TZL and cefepime (PM)/PML strips. AmpC production was detected using the Etest cefoxitin (FX)/FXI and cefotetan (CN)/CNI strips.

	N	Etest Combinations																					
		IP/EDTA			IP/DPA			MP/EDTA			MP/DPA			TZ/EDTA			TZ/DPA			CT/EDTA			CT/DPA		
		+	−	ND	+	−	ND	+	−	ND	+	−	ND	+	−	ND	+	−	ND	+	−	ND	+	−	ND
MBL-positive isolates	82	53	28	1	26	47	9	79	3	0	76	3	3	69	5	8	67	7	8	62	9	11	59	13	10
Negative controls	27	0	27	0	0	27	0	0	27	0	0	27	0	0	27	0	0	27	0	0	27	0	0	27	0
Total	109																								
Sensitivity		64.6			31.7			96.3			92.7			84.1			81.7			75.6			72.0		
Specificity		73.4			48.6			97.2			94.5			88.1			86.2			81.7			78.9		

Results: The Results are summarised in the Table. The highest level of detection occurred with MP/EDTA with a sensitivity of 96.3% and a specificity of 97.2% even though most MP MICs were below 8 mg/l. ESBLs and AmpC (derepressed native or acquired) were detected in 20/82 and 18/20 strains, respectively. The presence of ESBL and AmpCs can occlude the presence of MBLs when TZ and/or CT are used as substrates. Accordingly, the sensitivity increased – 93% and 89% for TZ/EDTA and CT/EDTA, respectively – when cloxacillin (150 mg/l) and clavulanic acid (4 mg/l) was added to the medium on a subset of strains.

Conclusion: Etest with EDTA performed marginally better than with DPA. Interestingly, the IP/EDTA performed poorly whereas the MP/EDTA gave the highest rates of detection. When clavulanic acid and cloxacillin was added to the TZ/EDTA combination, the detection rates were also acceptable. Such a method could prove invaluable