

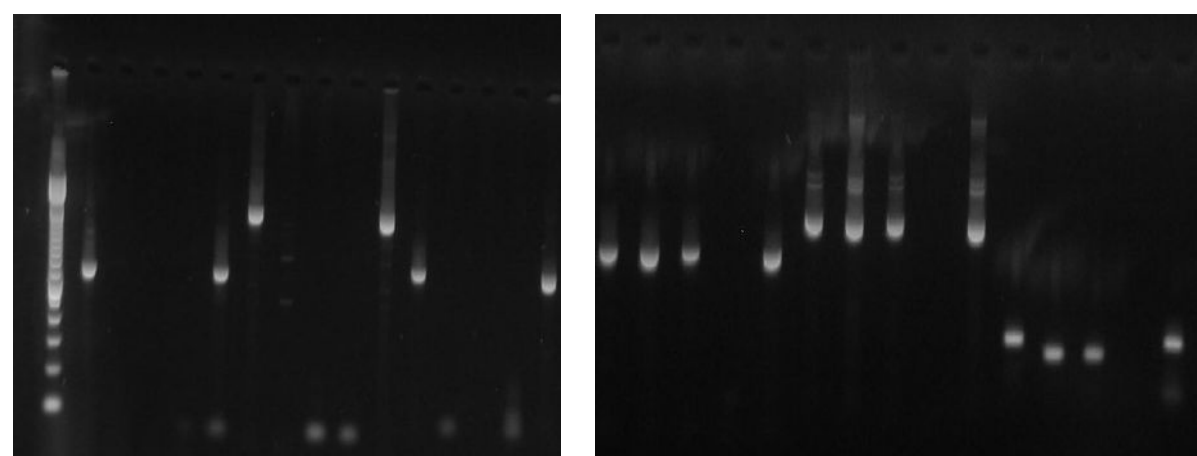
First 2 cases of Vancomycin Variable *Enterococcus faecium* in Belgium

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INTRODUCTION

Vancomycin-resistant *Enterococcus faecium* (VRE), are important nosocomial pathogens with limited treatment options. VRE show low-level resistance to penicillins and aminoglycosides and are intrinsically resistant to cephalosporins. In addition, they can acquire high-level resistance to beta-lactam antibiotics, aminoglycosides and glycopeptides. Nine different types of vancomycin resistance gene clusters (vanA, B, C, D, E, G, L, M, and N) have been characterized that express vancomycin resistance. Vancomycin-susceptible, vanA positive *E. faecium* (VVE: Vancomycin Variable *E. faecium*) was described for the first time by Gagnon et al in 2011. The isolates were susceptible to vancomycin on phenotypic testing, although the presence of vanHAXYZ was demonstrated. Here, we report the identification of the first 2 VVE-strains in Belgium.



1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
5 5 5 5 5 5 5 5
orf1 orf2 vanR vanX vanYZ IS1251
Z 1
Lane 1: vanA positive clinical isolate; lane 2: 20150189;
lane 3: 20150190, lane 4: negative control; lane 5: vanA
positive control strain LMG16165

Fig 1. PCR results orf1, orf2, vanR, vanX, vanYZ, IS1251

MATERIALS & METHODS

Species identification was performed using MaldiToF spectrometry (Bruker). MICs for ampicillin, linezolid, teicoplanin and vancomycin were determined according to EUCAST. High-level streptomycin and gentamycin resistance were determined by Etest according to the manufacturer's instructions (BioMérieux, France).

DNA was extracted using the NucliSens EasyMAG (BioMérieux). The presence of vanA, vanB, vanD, vanE, vanG was examined by PCR (Depardieu 2004). The same DNA extract was used for the qualitative detection each of the Tn1546 genes (Gagnon et al. 2011) to confirm the presence of the vanA operon. PCRs amplifying the seven loci used for MLST were done according to the reference (<http://efaecium.mlst.net/>).

Case 1 (local lab):

- Isolate from outpatient with urinary tract infection
- MIC VITEK2 vancomycin 8 mg/L, MIC VITEK2 teicoplanin 1.0 mg/L).
- MIC e-test vancomycin 2 mg/L, MIC e-test teicoplanin 3 mg/L.

Case 2 (local lab):

- Isolate from patient admitted to a sterile Hematology unit.
- Due to septic shock with *Staphylococcus epidermidis* treated with vancomycin. This *E. faecium* strain was isolated from blood.

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RESULTS

- The two strains (20150189 and 20150190) were isolated in two different hospitals in Belgium during the spring of 2015.
- Both were identified as *E. faecium*.
- Both isolates were susceptible to vancomycin (MIC 2.0 and 4.0 mg/L), teicoplanin (MIC 1.0 and 2.0 mg/L), tigecycline (MIC 0.032mg/L) and linezolid (MIC 2.0 mg/L).
- Both strains were found to be PCR positive for vanA, but negative for the vanB, vanD, vanE and vanG genes.
- A vanA confirmatory PCR confirmed the presence of vanA.
- Both isolates contained the vanH, vanX, vanY and vanZ genes, whereas the orf1, orf2, vanR and vanS genes were absent. (Fig. 1)
- The strains represented 2 ST-types: 117 and 80.

CONCLUSIONS

We here report the first two Vancomycin Variable *E. faecium* (VVE) isolates in Belgium. The spread of these strains should be monitored.

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References:

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