



# Risk factors for development of antibiotic resistance of *Enterococcus faecium* to Vancomycin. A subgroup discovery approach\*

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**Abstract**—Health-care associated infections (HAI) are infections that are not present or incubated at the time of admission to hospital. HAI are one of the major causes of morbidity and mortality among immunocompromised patients and have an important economic impact. The bacteria isolated in microbiology cultures can be treated with a limited combination of antibiotics owing to their resistance to many groups of antibiotics, which represents a major challenge. This paper focuses on the problem of vancomycin resistant *Enterococcus faecium* (VREfm) due to its high prevalence in HAI, multidrug resistance and ability to survive under intense selective pressure. We use the subgroup discovery technique to identify target populations with high risk clinical factors for VREfm infections that we shall be able to incorporate into a clinical decision support system for antimicrobial stewardship program. The dataset used contained 201 susceptibility tests with *Enterococcus faecium* from a University Hospital in years 2014 and 2015. The clinician evaluated and discussed the knowledge reported by the most interesting subgroups based on their positive predictive value and sensitivity.

**Index Terms**—