

## PRIMARY RISK ASSESSMENT

Increasing number of nosocomial outbreaks with vancomycin resistant *Enterococci* (VRE) in Belgium

Date of the signal	Date of the RA	Signal provider	Experts consultation	Method
20/05/2015	23/07/2015	WIV and NCR for enterococci	<b>Permanent members :</b> D. Reynders, C. Schirvel, J.-M. Trémérie, V. Laisnez, P. Demol, S. Quoilin  <b>Specific experts:</b> Prof. Dr. Herman Goossens / Dr. Katherine Loens (NRC) Dr. Hilde Jansens (BICS) Dr Baudouin Byl (FPZHH) Dr. Bart Gordts (HGR) Dr. Pia Cox (Agentschap Zorg & Gezondheid)	Email consultation
Date of update	Closing date			

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## PRIMARY RISK ASSESSMENT OF POTENTIAL PUBLIC HEALTH EVENT

<b>Signal</b>		<p>Since 2014, several outbreaks with vancomycin resistant Enterococci were reported in Belgian hospitals. Wards mostly involved were intensive care units (ICU), geriatric wards, hemato-oncology, haemodialysis, ...</p> <p>During the first three months of 2015, the National Reference Centre (NRC) received an increasing number of VRE isolates for PFGE from several hospitals including some in epidemic situation.</p>	
<b>Description</b>		<b>Score</b>	<b>Description / arguments</b>
1	Cause known?		<p>Enterococci belong to the normal <b>intestinal</b> flora of humans. Only a small part of species causes infections in humans, which usually occur in immunocompromised or severely ill patients. Urinary tract infections, surgical wound infections, intra-abdominal infections, bloodstream infections and endocarditis are described. The vast majority of the <i>Enterococcus</i> infections in hospitals are caused by <i>E. faecium</i> and <i>E. faecalis</i>.</p> <p><b>Vancomycin</b> resistant Enterococci (VRE) are enterococci that are resistant to the antibiotics belonging to the group of the glycopeptides (vancomycin, teicoplanin). These antibiotics are mainly used in the treatment of severe enterococcal infections. In veterinary medicine, an analogue glycopeptide, avoparcine, conferring cross-resistance, has been banned since 2006 as antimicrobial growth promotor for livestock.</p>
2	Unexpected/unusual	Unusual	<p>The first VRE was reported in the UK in 1986; with consequently a rising incidence of nosocomial VRE infections. The situation regarding VRE in <b>Europe</b> is diverse; the VRE positive isolates among the isolates from healthcare associated infections (HAI) ranged from 0 up to <math>\geq 25\%</math> (PPS 2011-2012; ECDC(1)) and the % of vancomycine resistant enterococci in bloodcultures ranged from 0 tot <math>&gt;40\%</math> (EARS-net 2013; ECDC(2)). In Belgium, this percentages were around 2% and 1-5% respectively and a limited number of VRE outbreaks have been reported until 2013.</p> <p>Our neighbouring countries (France, the Netherlands,..) had already to deal with several VRE-outbreaks in acute hospitals.</p> <p>In <b>Belgium</b> however, a limited number of VRE cases and VRE outbreaks have been reported until 2013.</p>
3	Severity	Moderate	<p>This resistance leads to an increased <b>incidence of nosocomial infections with VRE and to outbreaks in healthcare facilities</b>.</p> <p>As the therapy is hampered, <b>morbidity</b> and <b>mortality</b> increase; which in turn results in prolonged <b>hospitalization</b> and higher <b>costs (3;4)</b>.</p>
4	Dissemination (Low/Medium/High)	Medium	<p>This is primarily a healthcare-associated dissemination. Transmission is possible through contaminated hands of the nursing staff and the infected patient and through contact with contaminated equipment or environmental surfaces.</p>

			VRE intestinal carriage is often long (several months) and undetected.
5	Risk of (inter)national spread	High	There is an increased risk for the emergence of <b>hospital outbreaks</b> and for intra- and inter facility transmission with development of growing <b>reservoirs in nursing homes</b> and in the community.
<b>Preparedness and response</b>			
6	Preparedness		<p><b>An infection control team</b> and an antibiotic policy team (ABTBG, antibiotica beleidsgroepen) are present in most hospitals in Belgium.</p> <p>Nursing homes, are not prepared to deal with these MDROs (knowledge about VRE and CPE is generally poor in NHs).</p> <p><b>National recommendations/guidelines</b> for the management of multi-drug resistant organisms (MDRO) in healthcare facilities including long term care facilities and nursing homes are in preparation by the SHC (superior health council – HGR/CSS).</p>
7	Specific control measures (surveillance, control, communication)		<p>Surveillance: Since 2014 a <b>national surveillance programme</b> for resistant enterococci in acute care hospitals has been established by the WIV-ISP. The annual incidence of VRE will be measured in hospitals. A <b>point prevalence study</b> in nursing homes is running to measure the prevalence of MDRO such as VRE (in the national prevalence study in 2011, no VRE carriage was observed among residents).</p> <p>Control: The contaminated patients are rather colonised than infected with VRE. <b>So it is important to be informed of the occurrence of VRE</b> so that one is able to limit triggering the resistance, to prevent transmission between patients, and to effectively treat the patient.</p>
<b>Public health impact</b>			
A	Public health impact in Belgium (Low/Medium/high)	Medium	<p>These elements indicate high potential for increasing incidence of VRE in the population:</p> <ul style="list-style-type: none"> <li>- VRE intestinal carriage is often long</li> <li>- Survival in the environment is also long</li> <li>- The persons at risk – elderly with complex pathology and resident in a close community (hospital or home)- comprises a relevant risk group in the population</li> </ul> <p>Transfer of resistance genes between strains of the same species and to other bacteria such as <i>S. aureus</i> (VRSA), is described.</p>
B	Recommendations (surveillance, control, communication)		<p><b>Surveillance:</b> Participating in the national surveillance for resistant enterococci and the point prevalence study will contribute to a better knowledge of the current dissemination of VRE in the Belgian healthcare facilities.</p>

			<p><b>Control measures:</b></p> <ul style="list-style-type: none"> <li>- Moderate and appropriate use of antibiotics</li> <li>- Monitoring the correct application of hygiene measures; standard precautions, contact precautions, and isolation of suspected and known VRE patients</li> <li>- Attention to disinfection of invasive medical devices and environment</li> <li>- Limiting transfers; and upon transfer informing the department or institution</li> <li>- Surveillance of the prevalence in the hospital by screening patients at risk, suspected and known VRE patients and by sending suspicious strains to the NRC for enterococci</li> </ul>
C	Actions		<p>Pending the publication of "<b>national recommendations for the management of MDROs</b>" by the SHC, a <b>mailing should be addressed to the healthcare facilities</b> in order to:</p> <ul style="list-style-type: none"> <li>- make them aware of the potential risk for VRE-outbreaks in our country.</li> <li>- <b>alert for the increasing trend</b> of VRE prevalence</li> <li>- <b>emphasise the need for control</b> measures in healthcare facilities.</li> </ul> <p>Cfr proposition in annex.</p>
D	For decision by the RMG	Communities together with the Unit NSIH of the WIV-ISP send a mailing to hospital (see annex)?	

## REFERENCES

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- (1) ECDC. MICROORGANISMS AND ANTIMICROBIAL RESISTANCE IN HAIs. 2013.
  - (2) ECDC. ANTIMICROBIAL RESISTANCE INTERACTIVE DATABASE (EARS-NET). 2014.
  - (3) BUTLER AM, OLSEN MA, MERZ LR, ET AL. ATTRIBUTABLE COSTS OF ENTEROCOCCAL BLOODSTREAM INFECTIONS IN A NONSURGICAL HOSPITAL COHORT. *INFECT CONTROL HOSP EPIDEMIOL* 2010 JAN;31(1):28-35.
  - (4) SONG X, SRINIVASAN A, PLAUT D, PERL TM. EFFECT OF NOSOCOMIAL VANCOMYCIN-RESISTANT ENTEROCOCCAL BACTEREMIA ON MORTALITY, LENGTH OF STAY, AND COSTS. *INFECT CONTROL HOSP EPIDEMIOL* 2003 APR;24(4):251-6.
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