Conclusion: Antimicrobial resistance is an emerging problem. Continuous monitoring of antimicrobial susceptibility and strict adherence to infection prevention guidelines are essential to eliminate major outbreaks in the future.

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Occurrence of vancomycin-resistant Enterococcus faecium in patient isolates and aquatic environment during a period between 2004 and 2010

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Background: The increase of antibiotic resistant bacteria and the resulting difficulties in the therapy of infections is a growing problem. As our findings of recent studies on the occurrence of vancomycin-resistant Enterococcus faecium (VREF) in the aquatic environment of a German hospital during an outbreak caused by two different genotypes of VREF in a hematology oncology department showed, hospitals are serving as a source of enrichment and contamination of the environment by VREF along the aquatic pathway of waste water to surface water.

Methods: To analyze the distribution of VREF in the aquatic environment during a non-outbreak situation we examined the occurrence, antibiotic resistance pattern and molecular diversity of VREF in patients, wastewater of the hospital and residential areas as well as water in sewage plants and in surface waters of the receiving rivers. During a time period between 2004 until 2010 samples were collected, VREF were isolated and tested against several antibiotics.

Results: Although the rates of enterococci and VREF were reduced in the sewage plant, VREF were recovered from 75-100% of the untreated wastewater samples, from 87.5% of the treated wastewater samples and from 31.8-63.6% of the surface water samples indicating a high VREF prevalence in the aquatic environment. Regarding the resistance against the antibiotics tested, no difference between isolates from patients and from the environment was noticed.

The molecular-biological analysis of VREF isolates was performed by pulsed-field gel electrophoresis (PFGE). For genotyping, a dendrogram with 286 different PFGE-patterns from VREF (comprises 106 PFGE-patterns from patients and 181 from environmental water samples) was created with GelCompar II. PFGE-analysis resulted in a high diversity of different VREF genotypes. At a similarity level of > 80%, isolates were regarded as clonally related resulting in 51 genotype-groups with two or more PFGE-patterns.

Conclusion: The main result of our study is that the group with the numerically highest number of PFGE-patterns, which also includes the outbreak strains from 2005, is still predominant up to now in patients and in the aquatic environment. In contrast, other genotype-groups have disappeared in patients and in the environment over time.

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Frequency and anti-biogram pattern of enterococci species isolated from various clinical samples in Shahid Mohammadi Hospital, Bandar-Abbas, Iran

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Background: Enterococci are Gram-positive cocci, usually inhabit the alimentary tract of humans in addition to being isolated from environmental and animal sources. Enterococci have emerged as an increasingly important cause of nosocomial infections with high morbidity and mortality rate in the last decade. Since they are intrinsically resistant to most commonly used anti-biotics, it is necessary to determine their anti-biogram pattern to inform the effective antibiotics, as well as decrease the cost and duration of hospitalization. This study was done to determine the frequency
and anti-biogram pattern of enterococci species collected in Shahid Mohammadi hospital.

**Methods:** In this descriptive cross sectional study, performed between March 2010 and March 2011, about 4487 various clinical specimens of hospitalized patients were investigated for enterococci species. The specimens were cultured on Blood agar, EMB and Chocolate agar. Suspicious colonies were identified by Gram staining, growth in bile salt and NaCl 6.5% media. Antibiogram patterns were determined by Kirby-Bauer method on Mueller-Hinton medium. Clinical and microbiological data was analyzed by SPSS16 software.

**Results:** A total of 55 (4.47%) species of enterococci was isolated from 1229 positive cultures. Enterococci was mostly (34.5%) obtained from old age (>65y) patients and internal (>50%) wards especially internal 1 (23.6%), Urinary tract (67.3%) and wounds (10.9%) were the two major sites of infection. Nitrofurantoin (80.6%) and vancomycin (75%) were most effective antibiotics, respectively. A high rate of resistance was observed to cephalosporines (78.6%) and Aminoglycosides (67.4%). Mortality rate was 16.3% with enterococcal infections.

**Conclusion:** In our study the most susceptible antibiotics were nitrofurantoin and vancomycin, which aligns with some other studies. Because of high frequency and multi- drug resistance of enterococci species, continuous monitoring of antimicrobial susceptibility and strict adherent to infection guidelines are essential to prevent and eliminate enterococci infections.

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**Antibiotic resistance of Pseudomonas aeruginosa clinical isolates from Greece and Romania during the year 2009**

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7 Saint George general hospital, Chania, Greece
8 Saint George general hospital, Chania Greece, Chania, Greece
9 Saint George General Hospital Chania, Chania Greece

**Background:** One of the most difficult problems in hospitals is the appearance of an increased number of Pseudomonas antibiotic resistant strains. It is characterised by intrinsic and acquired resistance to many antibiotic classes causing the treatment of these infections difficult.

**Methods:** In this study we examined antibiotic resistance rates of clinical isolates of P. aeruginosa recovered in Saint George General Hospital of Chania and Regional Institute of Gastroenterology – Hepatology of Cluj Napoca. From Greece we investigated a total of 246 strains of P. aeruginosa isolated from all cultures (urine, blood, trauma, etc) during 2009, from all clinics including the ICU and 24 strains isolated in Cluj Napoca from different samples. Strains from Romania were collected from nosocomial infections, in a national surveillance program and all strains were collected from ICU. The identification to the species level was achieved by standard procedures and by the automated system Vitek2 Biomerieux. The susceptibility tests of isolates were performed by disk diffusion method according to the CLSI criteria and by the Vitek2 system Biomerieux, using a panel of 29 antibiotics.

**Results:** The results are presented in the table that follows.

<table>
<thead>
<tr>
<th>Antibiotics</th>
<th>% Resistance of P. aeruginosa In Greece</th>
<th>% Resistance of P. aeruginosa In Romania</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCC</td>
<td>36.7%</td>
<td>87.5%</td>
</tr>
<tr>
<td>TAZ</td>
<td>16.7%</td>
<td>87.5%</td>
</tr>
<tr>
<td>CAZ</td>
<td>17.9%</td>
<td>91.7%</td>
</tr>
<tr>
<td>FEP</td>
<td>20.7%</td>
<td>91.7%</td>
</tr>
<tr>
<td>IPM</td>
<td>25.7%</td>
<td>79.1%</td>
</tr>
<tr>
<td>MEM</td>
<td>23.5%</td>
<td>79.1%</td>
</tr>
<tr>
<td>COL</td>
<td>2.5%</td>
<td>8.33%</td>
</tr>
<tr>
<td>CIP</td>
<td>36.1%</td>
<td>79.2%</td>
</tr>
<tr>
<td>AMK</td>
<td>18%</td>
<td>80%</td>
</tr>
</tbody>
</table>

In Greece, 23 of the isolates from ICU, were susceptible to colistin only (9.3%) and resistant to all antibiotics. In Romania, 15 of the isolates were susceptible to colistin only (62.5%) and 2 isolates were resistant to all antibiotics (8.3%).

**Conclusion:** In Greece, amikacin and ceftazidime have remained active against the majority of Pseudomonas clinical isolates. Results from Romania could reflect the implication of some hospital multi resistant Pseudomonas strains in nosocomial infections. Carbapenems should be used with caution due to elevated percentage of resistance against this class of antibiotics. Colistin is effective against multidrug resistant strains. Antibiotic policy in combination with infection-control measures are needed to prevent the spread of multidrug resistant and panresistant strains in the hospital.

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**Current status of Glycopeptide intermediate and heterogenous Glycopeptide intermediate Staphylococcus aureus and their prevening susceptibility pattern at two tertiary care hospitals of Pakistan**

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**Background:** Glycopeptides have been used widely to treat methicillin resistant Staphylococcus aureus (MRSA) infections. Until recently vancomycin resistance among gram-positive bacteria had been thought to be uncommon but Glycopeptide intermediate S. aureus (GISA) and heterogenous GISA (hGISA) have been reported from various parts of world. Strains of hGISA have MICs considered to be in the susceptible range (≤2.0 µg/ml) but contain a subset of the bacterial population that expresses the resistance phenotype. This study has been done to evaluate the current status of glycopeptides intermediate and heterogeneously