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Round Table: Microbial resistance in hospital and other environments

Opening lecture entitled: **Concerns on antibiotic resistance: Cross-talk between different environments**

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Abstract:

The arisal of antibiotic resistance is a major public health problem, at national and at international level. It has serious consequences in the control of infections, in hospital and in the community, as some classes of antibiotics are often the last resort to treat bacterial infections. Among others, in last years, it has been seen an explosion of extended-spectrum beta-lactamases, namely those from CTX-M lineage, which have become particularly widespread, as well as beta-lactamases from non-ESBL families, such as carbapemenases (KPC and metallo-beta-lactamases). We also emphasize the problem of methicillin-resistant *Staphylococcus aureus* isolates in different environments, and the appearance of vancomycin-resistantce in *Staphylococcus aureus*, a resistance mechanism recently identified in Portugal. The factors involved in the emergence of antibiotic resistance are numerous, and the constant adaptation of microorganisms to the selective pressure exerted by antibiotics is impressive. However, the success of spread of certain resistant clones remains sometimes difficult to determine. Thus, it is manifest that action must be taken, and research in this area should be enlarged, not only to better understand the dynamics of spread of resistance between different bacteria and different ecosystems, but also to enlarge the pharmaceutical pipeline of antibacterials against multidrug resistant pathogens.