

**00990 Outbreak of oxazolidinone-resistant staphylococci due to the concomitant dissemination of a *cfr*-positive subpopulation belonging to the MDR worldwide-disseminated “Australian” ST2 *Staphylococcus epidermidis* clone and of its *cfr*-positive plasmid in various *S. aureus* lineages**

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**Background:** The emergence of plasmidic linezolid resistances is a global concern because of the risk of intra- and inter-species horizontal transfer of the resistance genes. The aim of the present study was to characterize at the molecular level a series of staphylococci isolated in the same French hospital and harboring the *cfr* gene.

**Materials/methods:** Seven isolates of methicillin-resistant *Staphylococcus epidermidis* (MRSE) and 3 isolates of *Staphylococcus aureus* (SA; MRSA, n=1 and MSSA, n=2) resistant to linezolid were isolated from 10 different patients in the Nantes University Hospital between 2015 and 2017. Linezolid resistance was confirmed using MIC determination (Etest®), PCR screening for *cfr/optrA/poxA* genes and PCR-sequencing of the genes encoding the 23S rRNA and the ribosomal proteins. The 10 strains were sequenced (Illumina) and the sequences analyzed i) to perform an *in silico* MLST typing, ii) to characterize the *cfr*-positive plasmids, and iii) to construct a core-genome SNP-based phylogenetic tree including all ST2 *S. epidermidis* (SE) genomes publically available to assess the potential clonality of MRSE collected in Nantes.

**Results:** The 10 strains were phenotypically resistant to linezolid. The WGS analysis showed that all 7 MRSE isolates belonged to the same lineage (ST2) whereas SA strains belonged to 3 different lineages (ST8, ST72 and ST2416). SNP-based phylogeny of ST2 lineage revealed that 9/10 MRSE isolates were clonal. Of note, these 9 MRSE isolates clustered with the MDR worldwide-disseminated “Australian” ST2 MRSE clone and harboured the two specific *rhoB* mutations conferring rifampicin resistance described in this clone (Lee, Nature Microbiology 2018). Finally, all SA and MRSE strains harboured the same *cfr*+ plasmid (pSA737), which evidenced an horizontal transfer of this plasmid between different SA/SE genetic backgrounds.

**Conclusions:** We report the first outbreak of oxazolidinone resistance in staphylococci due to both i) the dissemination of one of the MDR worldwide-disseminated “Australian” MRSE recently described which acquired a supplemental resistance due to a *cfr*+ plasmid, and ii) the horizontal genetic transfer of this same plasmid to several SA/SE lineages.