

Title: DISSEMINATION OF OXA-72-PRODUCING *A. baumannii* FROM FOUR BRAZILIAN STATES

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Abstract:

Carbapenem resistance has been continuously reported among *A. baumannii* isolates, causing major therapeutic problems. Oxacillinases (OXAs) are the main beta-lactamases produced by these strains. Dissemination of OXA-23-producing *A. baumannii* has been previously detected worldwide, including in Brazil, but there are few reports of dissemination related to other oxacillinases. Spread of *A. baumannii* has been investigated by different typing methods. For investigation of population structure and global bacterial epidemiology, MLST has been the gold standard allowing the comparison of results at interlaboratorial level. The objective of this study was to report the dissemination of the OXA-72-producing *A. baumannii* in four Brazilian states. As part of a surveillance performed by our research group (Laboratório de Pesquisa em Resistência Bacteriana – LABRESIS) we evaluated a total of 94 *A. baumannii-calcoaceticus* isolates from four Brazilian states (São Paulo, Rio de Janeiro, Rio Grande do Sul and Paraná) from April to October 2013. Ten of these isolates presented *bla*_{OXA-72} gene previously characterized by PCR and sequencing. All isolates presented resistance to meropenem and imipenem by disk-diffusion technique and susceptibility to polymyxin by microdilution. The isolates were typed using the MLST scheme from Pasteur Institute in order to determinate clonal relation and dissemination among different states. MLST showed three different sequence types (STs): ST79 in two isolates from São Paulo, ST180 in six isolates from Paraná, and a novel ST in two isolates from Porto Alegre. The first case report in Brazil of *Acinetobacter baumannii* harbouring *bla*_{OXA-72} gene was in 2011. Two years later, another group, highlighted the possibility of spread of this gene in Recife. This is the first report describing the dissemination of OXA-72-producing *Acinetobacter baumannii* in different Brazilian states. Moreover, we demonstrate for the first time the STs of OXA-72-producing *A. baumannii* isolates. The data presented in this study suggests that the dissemination of *bla*_{OXA-72} gene in Brazil is not related to specific STs. Therefore, more attention should be paid to monitoring the molecular epidemiology of OXA-72-producing isolates in order to prevent further distribution as was observed with *bla*_{OXA-23}.

Keywords: OXA-72, *Acinetobacter baumannii*, MLST

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