

**Risk factors of *S. aureus* intramammary infection in pre-calved dairy heifers under grazing conditions and molecular characterization of isolates from heifers and cows**

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Short title: ***S. aureus* intramammary infection in pre-calved dairy heifers**

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## ABSTRACT

The aims of this research paper were to identify potential risk factors associated with the presence of *Staphylococcus aureus* IMI in pre-calving dairy heifers in 17 dairy farms from the three provinces of Argentina and to characterize at molecular level isolates from pre-calving heifers and lactating cows from two selected herds. A total of 1,474 dairy heifers and 4,878 lactating cows were included in the study. *Staphylococcus aureus* IMI prevalence in milking cows, pre-calved heifers and heifer mammary quarter was 14.65, 14.41 and 4.82%, respectively. According to univariate analysis, variables associated with *S. aureus* IMI presence in pre-calved heifers were: *S. aureus* IMI prevalence in cows of the lactating herd, time calves stayed with their dam after birth, calf rearing system, place of rearing (own farm or other dairy farm) and fly control on the farm. None of variables included in the multivariable analysis was associated with the presence of *S. aureus* IMI at pre-partum in heifers. At molecular level, *S. aureus* isolates from each dairy herd were grouped in few main clusters unique to the herds and several genotypes within each cluster. Isolates from heifer mammary pre-partum secretion and lactating cows were grouped in different PFGE clusters in both herds, although few exceptions occurred. Regarding to the presence of virulence factors, lack of gene *FnBPB* was significantly more frequent in pre-partum heifer secretion isolates than in isolates from lactating cows' milk among herds.