

Poster 14

## Nasal colonization by *Staphylococcus aureus* in Health Sciences students and analysis of risk factors under a One Health perspective

**L. M. Gomes-Sampaio**<sup>1,\*</sup>, **A. Cláudia-Ferreira**<sup>1</sup>, **J. C. Prata**<sup>1,2</sup>, **R. M. S. Azevedo**<sup>1</sup>, **P. Pacheco**<sup>1</sup>, **C. Campos**<sup>3,4</sup>, **C. Novais**<sup>5,6</sup>, **L. Peixe**<sup>5,6</sup>, **R. J. Dinis-Oliveira**<sup>1,7,8</sup>, **C. Coelho**<sup>9</sup>, **C. Miranda**<sup>1,10</sup>, **S. Quinteira**<sup>1,11,12</sup> and **A. R. Freitas**<sup>1,5,6</sup>

<sup>1</sup> TOXRUN, Toxicology Research Unit, University Institute of Health Sciences, CESPU, CRL, 4585-116 Gandra, Portugal.

<sup>2</sup> Food Microbiology and Technology Laboratory, Department of Aquatic Production, Instituto de Ciências Biomédicas Abel Salazar (ICBAS), University of Porto, R. Jorge de Viterbo Ferreira 228, 4050-313 Porto, Portugal

<sup>3</sup> Instituto Português de Oncologia do Porto Francisco Gentil, 4200-072, Porto, Portugal

<sup>4</sup> Escola Superior de Saúde, Instituto Politécnico do Porto, 4200-072, Porto, Portugal

<sup>5</sup> UCIBIO/REQUIMTE, Applied Molecular Biosciences Unit, Department of Biological Sciences, Laboratory of Microbiology, Faculty of Pharmacy, University of Porto, R. Jorge de Viterbo Ferreira 228, 4050-313 Porto, Portugal

<sup>6</sup> Associate Laboratory i4HB, Institute for Health and Bioeconomy, Faculty of Pharmacy, University of Porto, Portugal

<sup>7</sup> UCIBIO/REQUIMTE, Laboratory of Toxicology, Department of Biological Sciences, Faculty of Pharmacy, University of Porto, R. Jorge de Viterbo Ferreira 228, 4050-313 Porto, Portugal

<sup>8</sup> Department of Public Health and Forensic Sciences, and Medical Education, Faculty of Medicine, University of Porto, Porto, Portugal

<sup>9</sup> UNIPRO, Oral Pathology and Rehabilitation Research Unit, University Institute of Health Sciences, CESPU, CRL, 4585-116 Gandra, Portugal.

<sup>10</sup> Associated Laboratory for Green Chemistry (LAQV-REQUIMTE), University NOVA of Lisbon, Caparica, Portugal

<sup>11</sup> BIOPOLIS/CIBIO-InBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos, Universidade do Porto, Rua Padre Armando Quintas, nº 7, 4485-661, Vairão, Portugal

<sup>12</sup> Departamento de Biologia, Faculdade de Ciências, Universidade do Porto, Rua do Campo Alegre, Porto, Portugal

\* Correspondence: a29747@iucs.cespu.pt

### Abstract

**Background:** *Staphylococcus aureus* is the leading bacterial cause of death globally [1]. Nasal carriage of *S. aureus* increases the risk of invasive infections, including by methicillin-resistant *S. aureus* (MRSA) strains, but studies including Portuguese university students (PUS) are scarce. **Objective:** To analyse the prevalence of methicillin-susceptible *S. aureus* (MSSA) and MRSA among PUS enrolled in different courses/years (1<sup>st</sup>-4<sup>th</sup>) at IUCS-CESPU, characterize their antibiotic resistance profiles, and assess the potential risk factors. **Methods:** Swabs collected during March-December 2022 from anterior nares of 156 volunteers (median 22-years) were processed in mannitol-salt agar and, in parallel, enriched in brain-heart broth with NaCl 6.5% further plated onto ChromID® MRSA SMART. Typical colonies were stored for species identification (MALDITOF-MS) and antibiotic susceptibility testing (disk diffusion; EUCAST/CLSI guidelines). Each student completed a questionnaire comprising demographic/clinical/social parameters. Statistical analysis was conducted in IBM-SPSS Statistics 26 using binary logistic regression applying a backward stepwise (likelihood ratio) method, with  $\alpha=0.05$ , selecting variables using Chi-square tests and Mann-Whitney U tests for which  $p \leq 0.20$ , >10 occurrences, not biologically correlated [2]. **Results:** Prevalence of MSSA and MRSA (cefoxitin screening) were 28.8% and 1.9%, respectively. From the 45 positive samples, 9% were multidrug-resistant, 38% were resistant to penicillin, 40% to erythromycin, 40% to clindamycin (inducible), 7% to cefoxitin, 2% to tetracycline, and 2% to rifampicin. Self-reported frequent contact with animals (OR=3.44, CI 95%: 1.10–10.66) were positively associated with *S. aureus*, while regular sports participation presented a negative association (OR=0.36, CI 95%: 0.17–0.77). Sports participation was not correlated with self-reported excellent health ( $\chi^2=0.680$ ,  $p=0.409$ ). **Conclusions:** This is one of the first studies assessing MSSA/MRSA rates in PUS after the COVID-19 pandemics imposing higher self-protection/hygienization. While PUS-MSSA rates are similar to that previously observed, PUS-MRSA rates are slightly higher. Additional samples are being processed to explore future trends and other potential One Health factors influencing MSSA/MRSA colonization.

**Keywords:** *Staphylococcus aureus*; MRSA; university students; One Health

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