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Variability in antibiotic resistance of persistent and intermittent *Staphylococcus aureus* strains.

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Introduction

Approximately 30% of the population is colonized with *Staphylococcus aureus* on the skin, mucous membranes, and in the anterior part of the nose. Two types of carriers have been described, intermittent carriers and persistent carriers, in addition to non-carriers. In persistent carriers, the same strain of *S. aureus* can and often does persist for months or even years, indicating that the species has developed special mechanisms to persist in this environment, in addition to being a multifactorial process involving genetic aspects of the host, virulence factors of the pathogen and the possible interactions between the microbiota, the host and *S. aureus*. The objective of this work was to investigate changes in the pattern of resistance to antibiotics in persistent and intermittent *S. aureus* strains.

Methods

Pharyngeal and nasal exudates were performed on 98 university students once a month for three months. The exudates were incubated in Trypticasein Soy Broth at 37 °C for 24 h, followed by seeding in Salt and Mannitol Agar Petri dishes and re-seeding to obtain isolated colonies. All strains that were coagulase-positive mannitol fermenters were identified as *S. aureus*. If a person presented three isolates of *S. aureus*, they were considered persistent carriers, if they presented one or two isolates in a row, they were considered intermittent carriers, and if the bacteria were never isolated, they were considered non-carriers. All strains of *S. aureus* underwent antibiogram against: ciprofloxacin, fosfomycin, trimethoprim-sulfamethoxazole, penicillin, vancomycin, tetracycline, erythromycin, oxacillin, clindamycin, gentamicin and cephalothin by the Kirby-Bauer method and minimum inhibitory concentration for oxacillin, following the indications of the CLSI.

References 1. Mistretta N, Brossaud M, Telles F, Sanchez V, Talaga P, Rokbi B. Glycosylation of Staphylococcus aureus cell wall teichoic acid is influenced by environmental conditions. 2. 4. Mertz D, Frei R, Jaussi B, Tietz A, Stebler C, Flückiger U, et al. Throat swabs are necessary to reliably detect carriers of Staphylococcus aureus. 5. Hamdan-Partida A, Sainz-Espuñes T, Bustos-Martínez J. Characterization and persistence of Staphylococcus aureus strains isolated from the anterior nares and throats of healthy carriers in a Mexican community.

Results

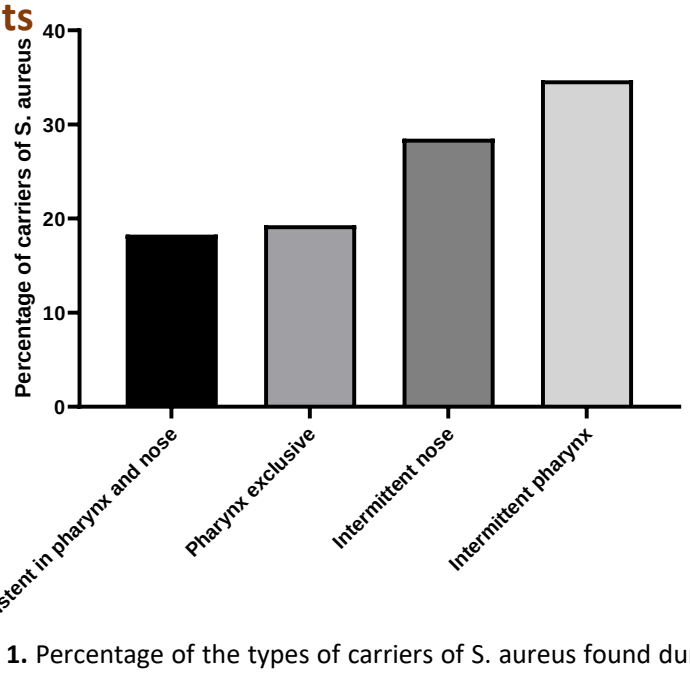

Figure 1. Percentage of the types of carriers of S. aureus found during the three samplings carried out..

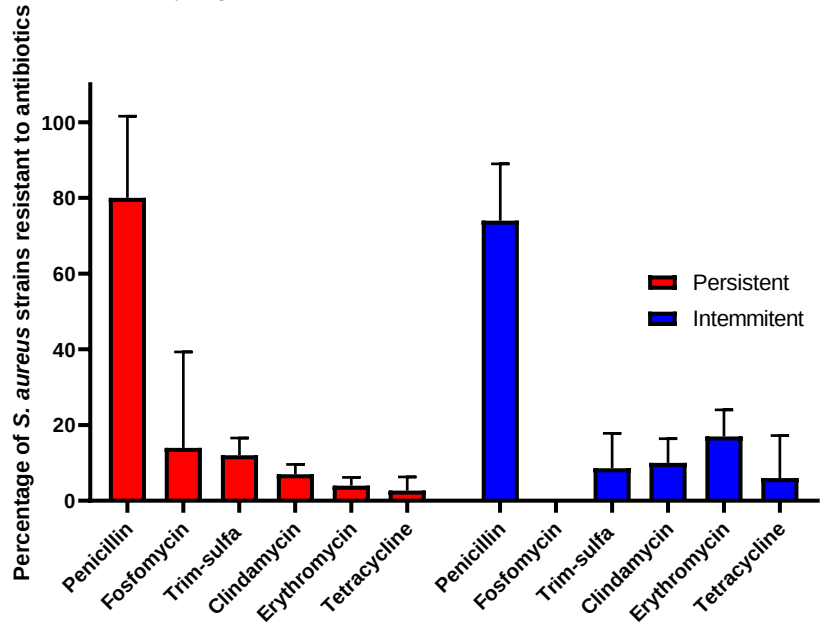

Figure 2. Antibiotic resistance of the *S. aureus* strains isolated from persistent and inttermitant carriers The average is plotted, and the error bars consider the SD. Only antibiotics to which *S. aureus* had resistance are shown.

Conclusions.

More persistent carriers of *S. aureus* were found in the pharynx and nose than intermittent carriers in one or both sites. There was no difference in resistance variability between persistent and intermittent strains for penicillin, trimethoprim-sulfamethoxazole, clindamycin, and tetracycline. On the other hand, only the persistent strains did show resistance to fosfomycin and the percentage of erythromycin resistant strains was higher in the intermittent strains than in the persistent ones.