

# Prevalence of nasopharyngeal colonization by *Staphylococcus aureus* in adults with chronic diseases in Colombia.

Julian Lozada BSc, Mig. 1, Elsa D. Ibañez-Prada, MD, 1, Cristian C. Serrano-Mayorga, MD, 1,2, Yuli V. Fuentes MD, Mg.1,2, Ingrid G Bustos, BSc, Esp. 1, Lina Mendez, BSc, Esp. 2, Ana M Crispin, 1,2, **Luis F. Reyes**, MD, PhD.1,2,3

1. Universidad de la Sabana, Chia, Colombia; 2. Clínica Universidad de La Sabana, Chia, Colombia; 3. University of Oxford, Oxford, United Kingdom.

## BACKGROUND:

*Staphylococcus aureus* is a significant cause of morbidity and mortality worldwide. It is responsible for several infections, especially soft tissues and bacteremia. *S. aureus* is also a commensal microorganism in humans, usually found in the nasopharynx. Colonized subjects, especially adults with comorbidities, have a higher risk of developing clinical infections such as community-acquired pneumonia (CAP). Some researchers have hypothesized that nasopharyngeal colonization is the etiology that could predict the etiology of CAP. This study tried to bring novel data in this regard.

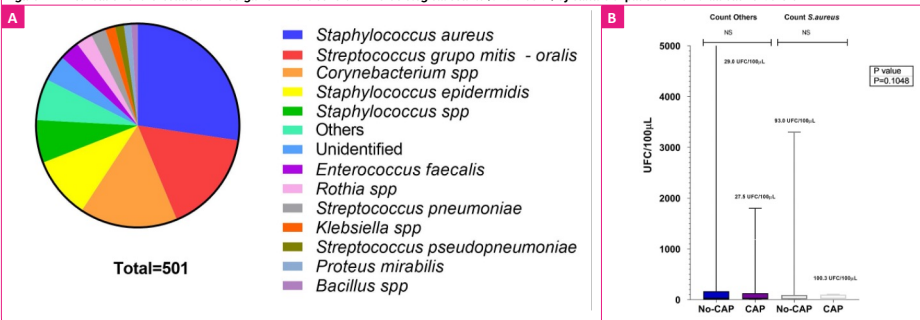
## OBJECTIVE:

The objective of this study was to establish the prevalence of nasopharyngeal colonization by *S. aureus* and its relation with the development of CAP in adults with comorbidities in a Colombian cohort.

## METHODS:

This was a multicenter prospective cohort study in 3 centers in Colombia, conducted between December 2020 and March 2021. Patients older than 18 years with a diagnosis of chronic disease were included. Subjects with evidence or diagnosis of CAP before 90 days and subjects admitted to hospitalization during the last seven days were excluded. Nasopharyngeal aspirate (NPA) sampling in each participant according to WHO guidelines. A seeding of 100 µL of NPA by counting method on blood agar. The colonies in these cultures were identified by MALDI-TOF.

Figure 1. A. Distribution of the isolated microorganism in the cohort. B. Microbiological counts (UFC/100µL) by culture of patients with *S. aureus* vs. Others



## RESULTS:

NPAs were obtained in 810 subjects. *S. aureus* was isolated in 16.9% [137/810] of participants, with an average concentration of 148 CFU/100 µL [IQR 1 – 5500] (Figure 1). All the obtained colonies were confirmed by MALDI-TOFF. Patients had a mean age of 61.4 years [IQR 26 – 98], and 48.7% [67/137] were women.

All of the subjects presented at least one comorbidity (51.1% [70/137] arterial hypertension, 21.9% [30/137] chronic kidney disease, 16.8% [23/137] diabetes, and heart failure). Notably, only 5.8% [8/137] developed pneumonia during the first six months of follow-up, and the bacterial load was not associated with the development of CAP (Figure 1B).

## CONCLUSION:

Our results confirm that *S. aureus* is a prevalent microorganism that colonizes the nasopharynx in adults with comorbidities. Bacterial load was not higher in patients that develop CAP. We will continue the follow-up for two years to determine if the nasopharyngeal colonization with *S. aureus* is a risk factor for developing CAP.