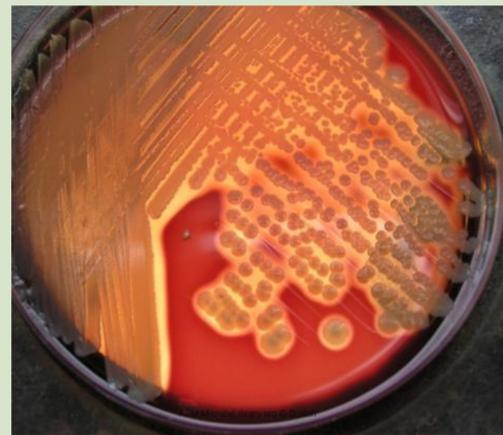


# PREVALENCE OF STAPHYLOCOCCUS AUREUS METHICILLIN SENSITIVE AND METHICILLIN RESISTANT NASAL AND PHARYNGEAL COLONIZATION IN OUTPATIENTS IN LEBANON

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## Background:

- *Staphylococcus aureus* (SA) remains a major pathogen in skin and soft tissue infections as well as in surgical site infections.
- There is an increasing concern about methicillin-resistant *staphylococcus aureus* (MRSA) infections, especially with the wide use of antibiotics , injected medications and abuse substances in the community.
- The aim of our study is to evaluate the rate of *Staphylococcus aureus* nasopharyngeal colonization in outpatients as primary endpoint, and to study the impact of several possible risk factors including recent hospitalization, recent surgical procedures and antibiotic intake.

## Methods:

- 1526 consecutive outpatients underwent surveillance cultures after filling a questionnaire.
- Isolated SA strains were tested for antibiotic susceptibilities.
- The Pearson Chi-square test was used for statistical analysis. The differences were considered to be statistically significant when  $p$ -value was <5%. If the significance was found, a subsequent logistic regression was followed in order to adjust for confusion factors.

## Results:

Table 1: Demographic and clinical characteristics of enrolled patients

Characteristics	Value (%)
<b>Total number of patients</b>	1526
<b>Age in years (mean +/-SD)</b>	50.73 +/- 19.7
<b>Gender</b>	
Male	718 (47.1)
Female	808 (52.9)
<b>Staphylococcus aureus carriage</b>	132 (8.6)
Methicillin sensitive MSSA	130 (8.5)
MRSA (all detected in the nose)	2 (0.1)
<b>Site of staphylococcus aureus carriage</b>	
Nose alone	119 (7.8)
Throat alone	27 (1.8)
Nose and throat	13 (0.9)

## Results:

Table 2: Correlation between risk factors and *staphylococcus aureus* carriage.

Risk Factors	SA positive, n (% out of 132 patients)	SA negative, n (% out of 1394 patients)	Pearson X2 test (p value)
<b>Age</b>			
0-12 years	13(9.84%)	52(3.73%)	
13-25 years	13(9.84%)	98(7.03%)	
26-45 years	39(29.55%)	387 (27.76%)	
46-65 years	39(29.55%)	475 (34.07%)	
>65 years	28(21.21%)	382 (27.40%)	28.74(0.00) *
<b>Gender</b>			
Male	87(65.91%)	631 (45.27%)	
Female	45(34.09%)	763 (54.73%)	21.10 (0.00) *
<b>Recent hospitalization</b>	15(11.28%)	129(9.26%)	4.2 (0.38)
<b>Health care related</b>	3(2.26%)	13(0.93%)	15.46 (0.02) *
Outpatient medical admission	0(0%)	21(1.50%)	2.01 (0.36)
Recent nursing home admission	0(0%)	1(0.07%)	0.09 (0.95)
Skin or soft tissue infections	1(0.75%)	18(1.29%)	0.38 (0.98)
Other skin diseases	16(12.03%)	100(7.18%)	4.63 (0.09)
Chronic medical illness (DM, HTN, HIV, Chronic kidney disease)	26(19.55%)	232 (16.65%)	1.45 (0.83)
Intravascular device or prosthesis	15(11.28%)	82(5.82%)	11.18 (0.00) *
Antimicrobial use	22( 16.54%)	305(21.9%)	2.34 (0.67)
Recent dental surgery	43(32.33%)	342 (24.55%)	15.55 (0.04) *
Inhaled aerosols	5(3.76%)	83(5.96%)	1.09 (0.58)
Nasal sprays use	9(6.77%)	82(5.89%)	0.54 (0.97)
Needle use	14(10.55%)	210 (15.08%)	2.09 (0.35)
Oral contraception	1(0.75%)	33(2.37%)	1.65 (0.99)
Corticosteroids use	8(6.02%)	87(6.25%)	0.32 (0.99)
Use of health club	5(3.76%)	51(3.66%)	12.27 (0.00) *
Tattoo	14(10.53%)	116(8.32%)	1.28 (0.86)
Sharing of shaving material	1(0.75%)	4(0.29%)	0.47 (0.79)
Smoking	38(28.57%)	517 (37.11%)	6.69 (0.57)
Alcohol intake	19(4.29%)	169 (12.13%)	0.96 (0.62)
Recreational drug use	7(5.26%)	109(7.82%)	1.17 (0.56)

## Results:

- 132 out of 1526 (8.6% ) were carriers of SA in their nose and/or throat. Only 2 of those were MRSA and both were isolated from the nose. 130 had MSSA with 13 of them present simultaneously in the nose and throat, while the rest (119 out of 130) had MSSA recovered from the nose only (table 1).
- A multivariate analysis was conducted, and the presence of an intravascular device or prosthesis was retained in the model: (chi-square of 8.59 and  $p$ -value = 0.01) in males . However, for females, none of the variables was retained.
- Among the risk factors, presence of healthcare-related, intravascular device or prosthesis placement, recent dental procedure and use of health clubs were significantly associated with an increased risk of SA colonization with a calculated  $p$  value of 0.004, 0.017, 0.04 and 0.002 respectively by khi-2 test ( table 2).

## Conclusion:

- The prevalence of MRSA is still low in the population we sampled within the Lebanese community.
- The only identified significant risk factors playing a role in increasing the carriage of SA were associated related to healthcare exposure.
- Therefore, control measures to prevent the spread of MRSA should encourage reinforcement of hygienic precautions and development of policies to restrict the use of antibiotics.

## Acknowledgments:

- Sanofi-Aventis
- University Medical Center-Rizk Hospital microbiology laboratory staff: Mrs Maha Saliby, Ms Yollande Obeid and Mr Chady Eid.
- Anna Farra M.D.
- Hussein Farhat M.D.