Prevalence of *Staphylococcus aureus* nasal colonisation in health care personnel from a Hospital in the North of Portugal

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Objective

The main objective of the present work was to determine the prevalence of *Staphylococcus aureus* on the nasal carriage of health care personnel in a central Hospital located in the north of Portugal.

Introduction

S. aureus is a common cause of infection and is one of the leading causes of nosocomial infections. It can colonise the skin and the anterior nares of healthy individuals. Three patterns of carriage can be distinguished namely persistent-, intermittent- and non-carriers. Endogeneous nasal colonisation is believed to be a common source of infection and a strong risk factor for subsequent colonization. However most carriers do not develop clinical disease.

Previous studies showed that the overall prevalence of human nasal colonisation with *S. aureus* has been decreasing, whereas the prevalence of colonisation with Methicillin-Resistant *S. aureus* (MRSA) has been increasing (1).

Carriers among health care workers have been frequently identified as the source of nosocomial outbreaks.

Materials and methods

Nasal swab samples were collected from anterior nares of 168 volunteers including doctors, nurses and auxiliaries. Swabs were spread onto Baird-Parker Egg Yolk Tellurite Medium and incubated at 48h for 37 ºC.

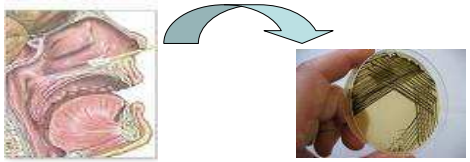

Figure 1: Isolation of *S. aureus* n BPA egg-yolk tellurite from anterior nares with sterile cotton swabs.

The characteristic colonies were isolated on Trypsin Soy Agar (TSA) and then frozen at -80 ºC on BHI + 30% glycerol for future use. Isolates were tested by Gram staining, presence of catalase and coagulase. Additional tests such as growth on Mannitol Salt Agar (MSA) with formation of yellow coloration after 48h at 37 ºC and DNAse were also performed.

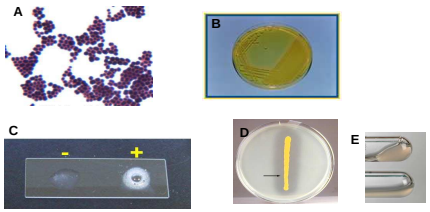

Figure 2: Results obtained for the performed phenotypic confirmation tests of characteristic colonies of *S. aureus*; Gram test (A); catalase (B), coagulase (C), DNAse (D) and manitol fermentation (E).

Results and discussion

Of the 115 characteristic colonies obtained on BPA, 70 were confirmed as *S. aureus* (Gram-positive, presence of catalase, fermentation of MSA, presence of coagulase and DNAse).

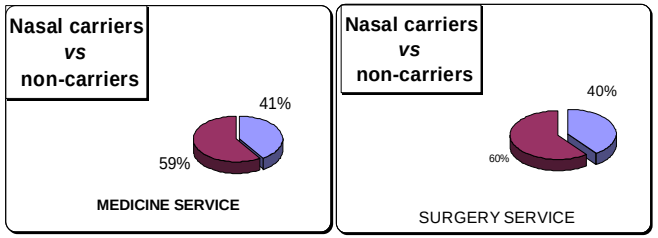

Figure 3: Prevalence of *S. aureus* nasal colonisation in the hospital staff.

Table I: Prevalence of *S. aureus* nasal colonisation concerning hospital staff.

Hospital Services	Prevalence of *S. aureus*		
	DOCTORS	NURSES	AUXILIARIES
MEDICINE	37.0%	41.8%	38.8%
SURGERY	33.3%	43.4%	44.4%

The prevalence of *S. aureus* nasal colonisation was higher than previously reported by Kluytmans et al. (1997). According to these researchers a mean carriage rate of 26.6%, on health care workers, was found. Our results are in agreement with the work performed by Gorwittz et al (2008) in the United States (prevalence of 28.6% in 2003-2004). According to the hospital services and concerning the hospital staff the nasal prevalence was very similar and no signifficant differences were observed between the different classes of health professionals.

References

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2.Jan Kluytmans, Alex van Belkun, and Henri Verbrugh (1997). Clinical Microbiology Reviews, 10 (3) 505-520.

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