

# Staphylococcus aureus carriage at admission predicts early-onset pneumonia after burn trauma

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## Introduction

Early-onset pneumonia (EOP) is frequent after burn trauma, increasing morbidity in the critical resuscitation phase which may preclude early aggressive management of burn wounds. Currently, however, preemptive treatment is not recommended.

## Objectives

The aim of this study was to identify predictive factors for EOP that may justify early empirical antibiotic treatment.

## Conclusion

We identified *S. aureus* carriage as an independent and strong predictor of EOP. As rapid point-of-care testing for *S. aureus* is readily available, we recommend testing of all patients at admission for burn trauma and the consideration of early preemptive treatment in all positive patients. Further studies are needed to evaluate this new strategy.

## Methods

Data for all burn patients requiring  $\geq 4$  h mechanical ventilation (MV) who were admitted between January 2001 and October 2012 were extracted from the hospital's computerized information system. We reviewed EOP episodes (occurring within 7 days from admission) among patients who underwent endotracheal aspiration (ETA) within 5 days after admission. Univariate and multivariate analyses were performed to identify independent factors associated with EOP. Logistic regression was used to identify factors predicting EOP development.

## Results

**1** During the study period, 396 burn patients were admitted. 108 patients developed an EOP; 47 cases were caused by *Staphylococcus aureus*, 37 by *Haemophilus influenzae* and 23 by *Streptococcus pneumoniae* (**Figure 1**).

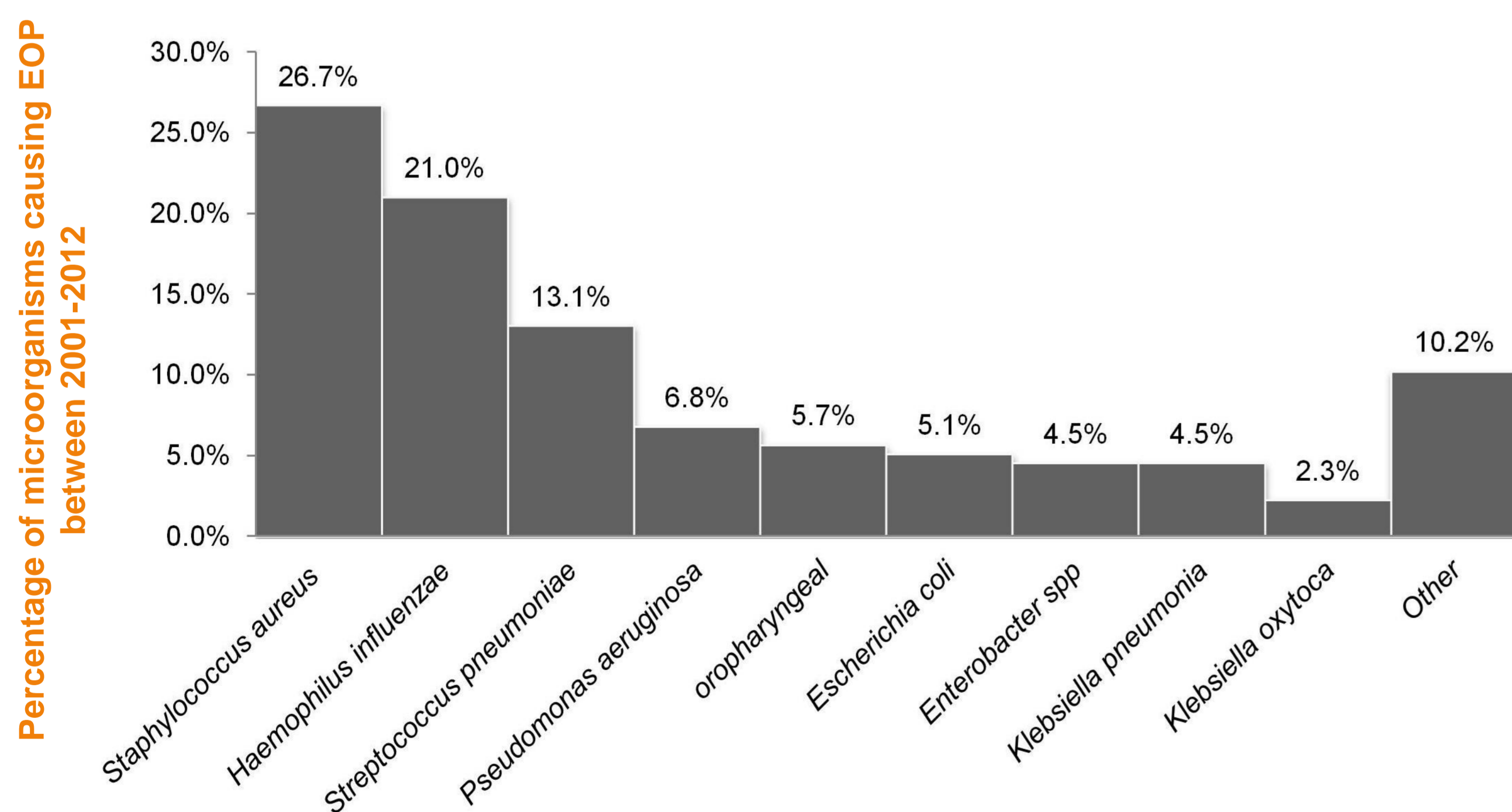


Figure 1: Microorganisms causing EOP

**2** ETA was performed within 5 days in 204/290 patients receiving  $\geq 4$  h MV. Among the 33 patients showing *S. aureus* positivity on ETA samples, 16 (48.5%) developed *S. aureus* EOP. Among the 156 *S. aureus* non-carriers, only 16 (10.2%) developed EOP (**Figure 2**).

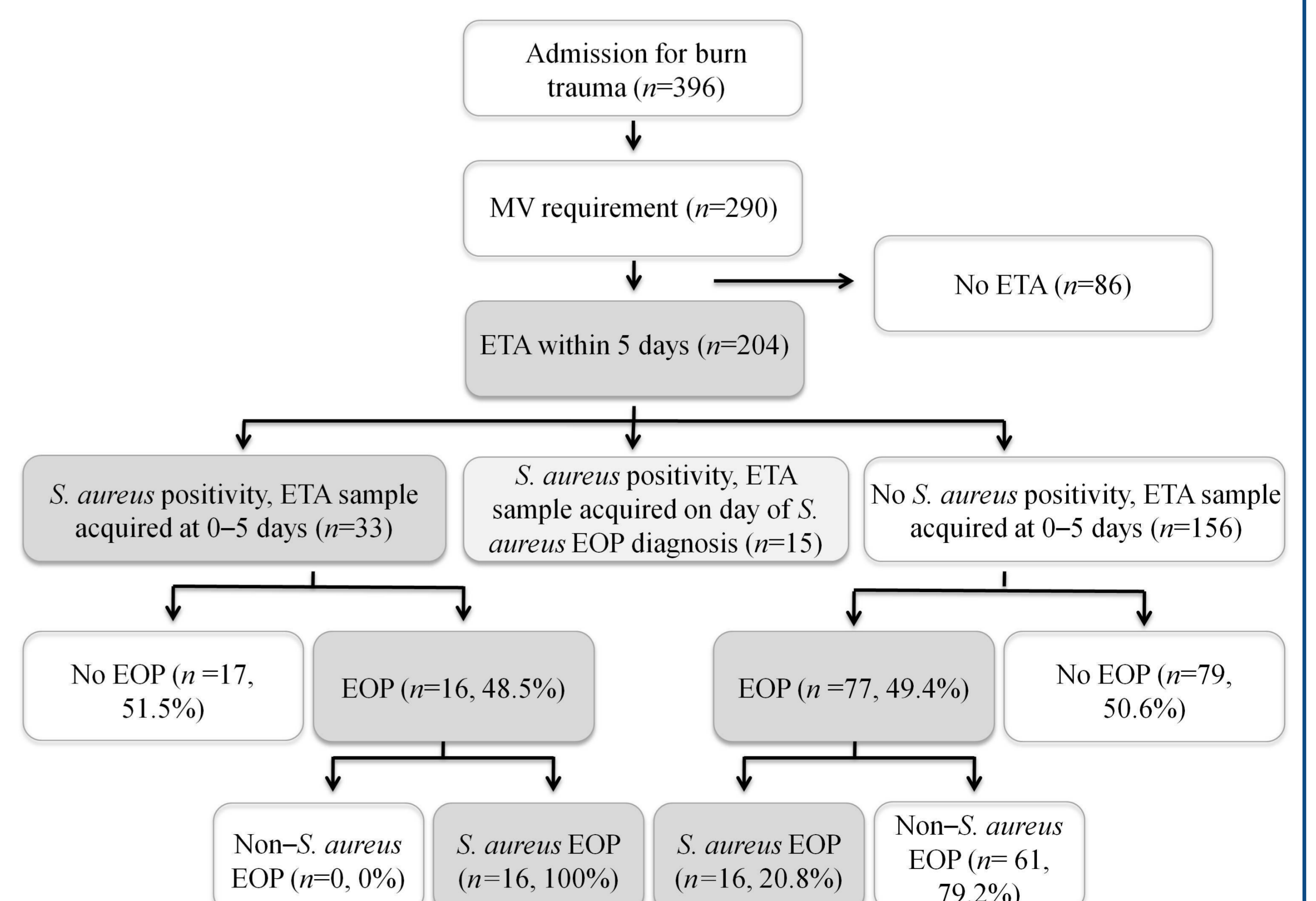


Figure 2: Study flow chart

**3** Multivariate analysis showed that *S. aureus* carriage was the only factor that independently predicted *S. aureus* EOP ( $p < 0.0001$ ).