Bacteria and resistance to antibiotics associated with hospital mortality, Marseille, France

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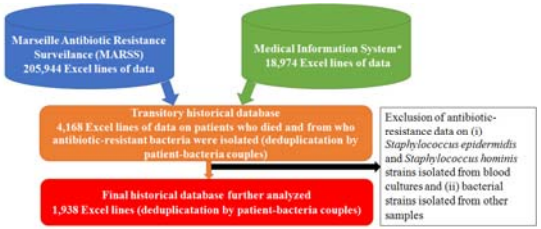
INTRODUCTION

Over the last decades, antibiotic resistance has become the new worldwide public health fear, with multi-drug resistant (MDR) bacteria that have been assumed to be responsible for thousands of deaths around the world every year (**1-7**). In this context, we herein analyze the antibiotic resistant percentage of bacterial strains isolated from blood cultures to key antibiotics in patients who died in the four University Hospitals of Marseille, France, from February 2014 to February 2018.

MATERIALS AND METHODS



*Ethical agreement 2015-111111-88-46.

Fig1. Flowchart of data analysis

• Statistical analysis performed using Chi-square test and Fisher's test (p-value<0.05 considered as statistically significant).

CONCLUSION

Our analyses reveal that the percentage of death due to the 10 bacterial species isolated from blood cultures and resistant to key antibiotics is globally low in our hospitals. Because of confounding factors especially comorbidities in patients, a real link to death and attributability of the death to antibiotic resistance should be done in the future to estimate the true impact of resistance to death. Our data also underlined the need to survey antibiotic resistance levels locally to adapt the first empirical antibiotic treatment to the local antibiotic resistance epidemiology.

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RESULTS

Number of deaths= 1,429 deaths; mean monthly number of deaths=30 deaths; mean annual number of deaths=357 deaths

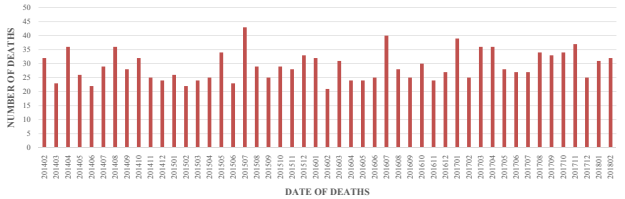

Fig 2. Monthly evolution of the number of patients who died with bacterial strains with antibiotic-resistance data isolated from blood cultures, February 2014-February 2018.

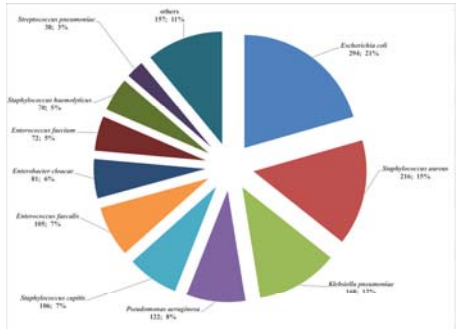

Fig 3. Top 10 of the bacterial species isolated from blood cultures in dead patients, February 2014-February 2018. Top 10 bacterial species were isolated from 89.01% of all the dead patients with positive blood cultures (N=1,272 dead patients).

Fig 4. Antibiotic resistance to key antibiotics of the 10 most common bacterial species isolated from blood cultures.