

Team 18 Canuts-lard

How to prescribe antibiotics in the ICU in the era of multidrug resistance ?

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**Massachusetts
Institute of
Technology**



**UNIVERSITÉ
PARIS
DESCARTES**

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Description

Describe MDR
epidemiology

Identify risk factors
for MDR

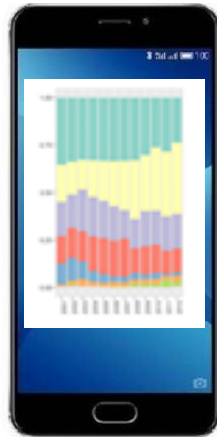
Bedside tool

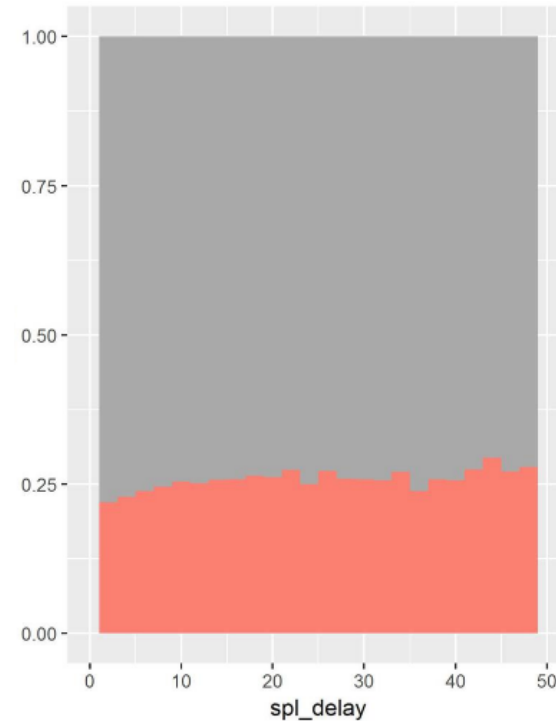
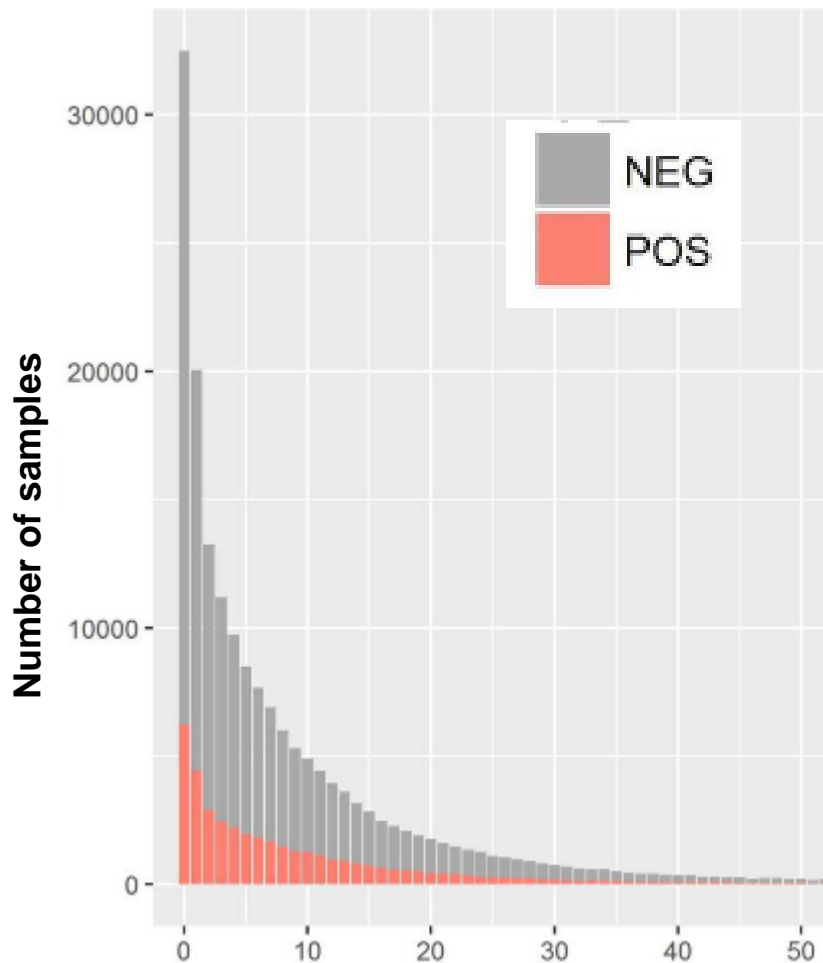
Provide guidance for
bedside antibiotic
prescription,
given patients
severity and risk of
MDR

Predictive model

Predict risk of MDR
Survival model

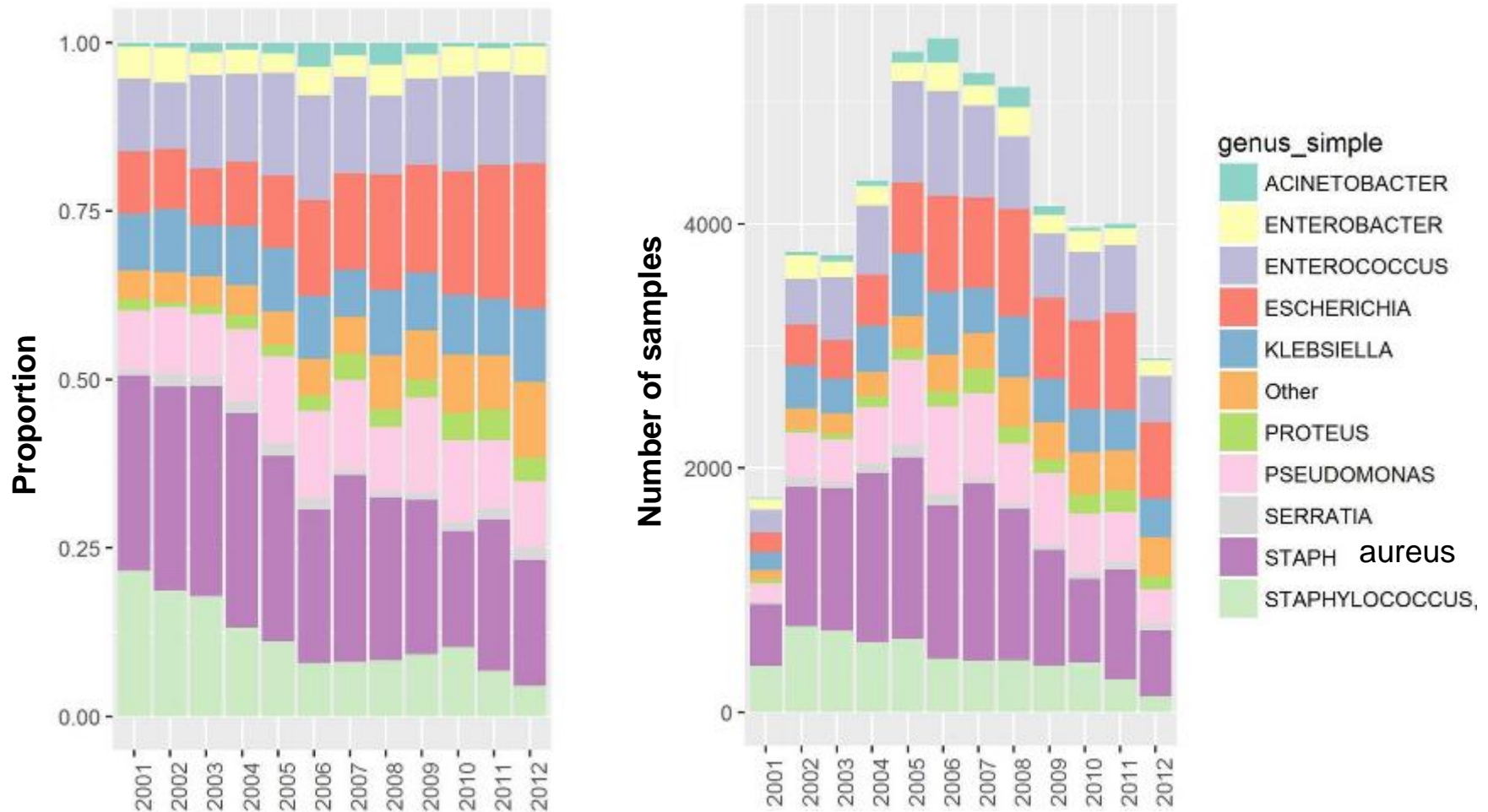
Change practice





41137 positive samples

Number of positive and negative microbiological samples per day over delay from admission



Bacteria identified from microbiological samples year by year

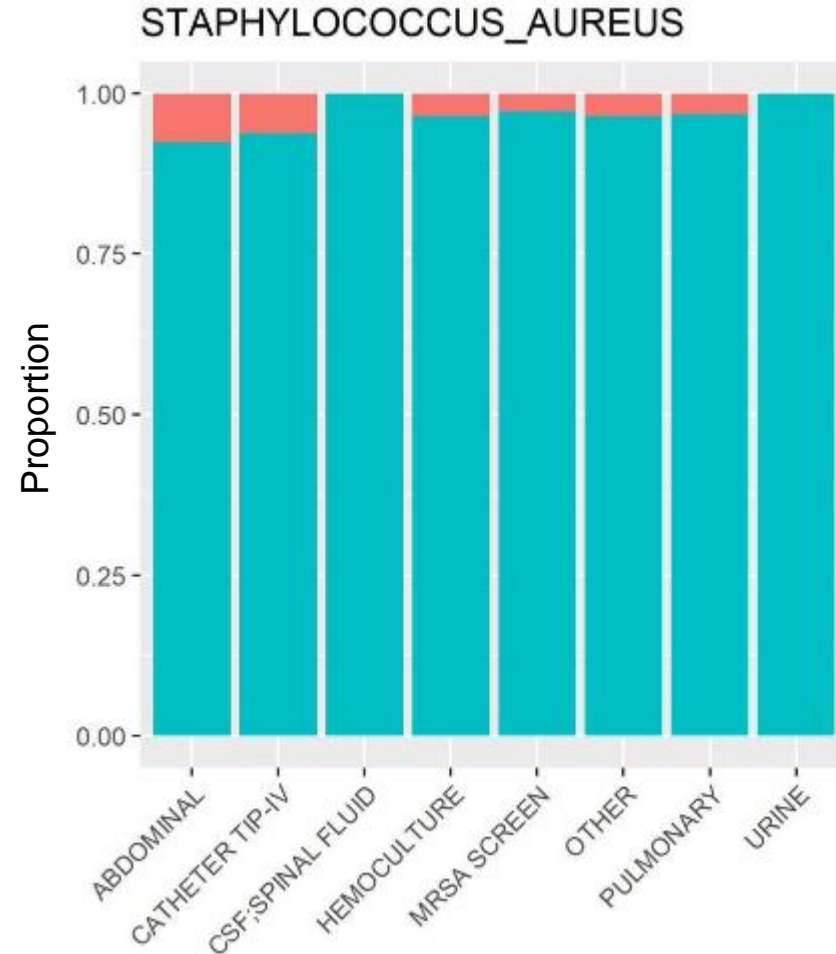
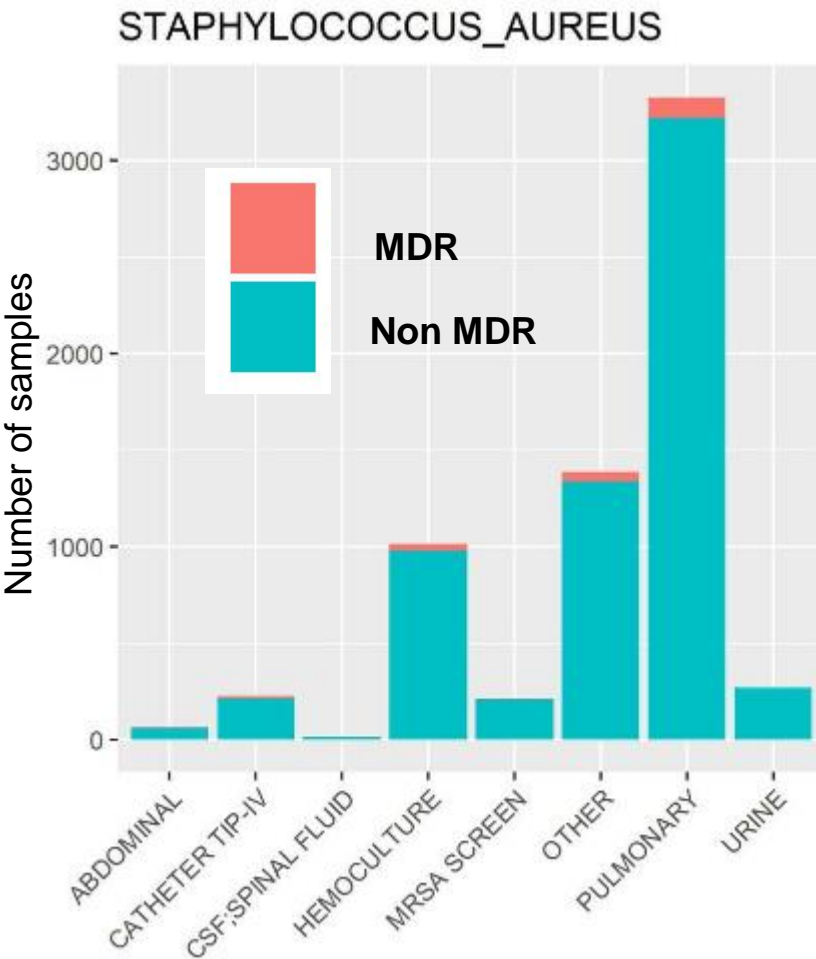


Definition of multidrug resistance ESCMID

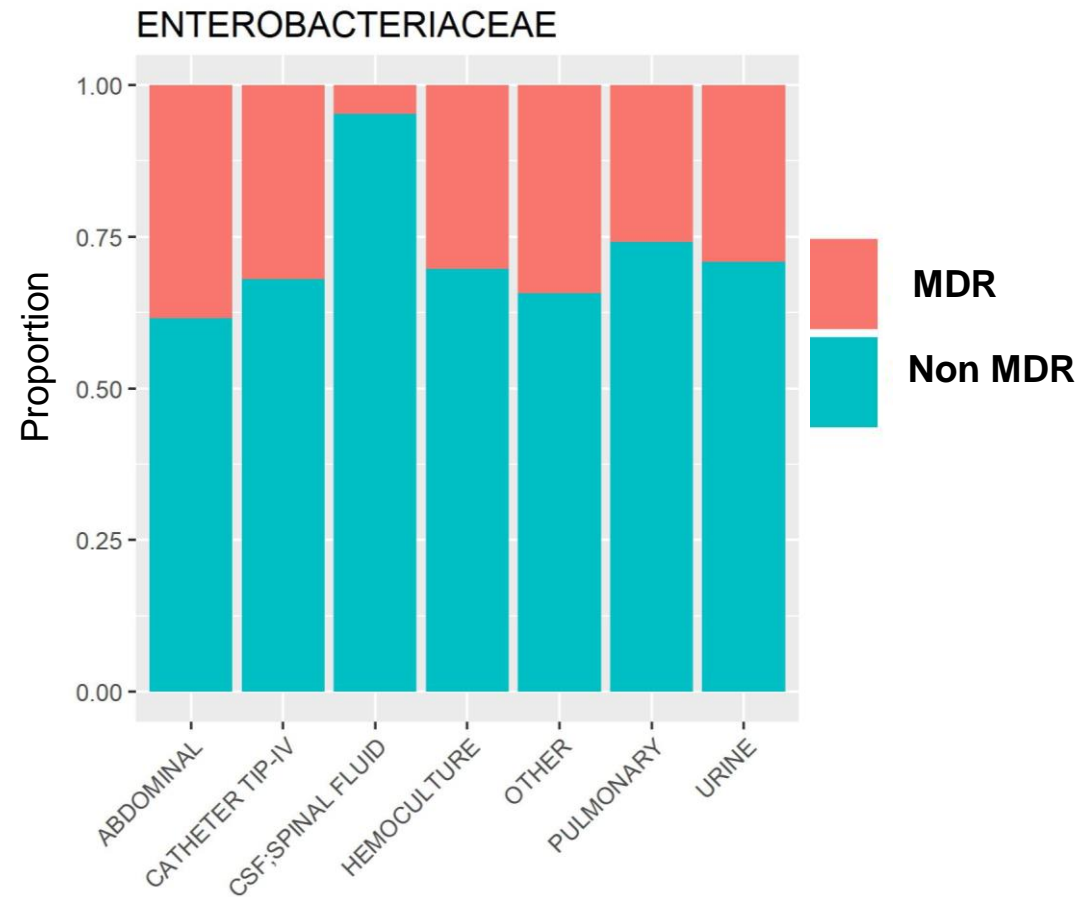
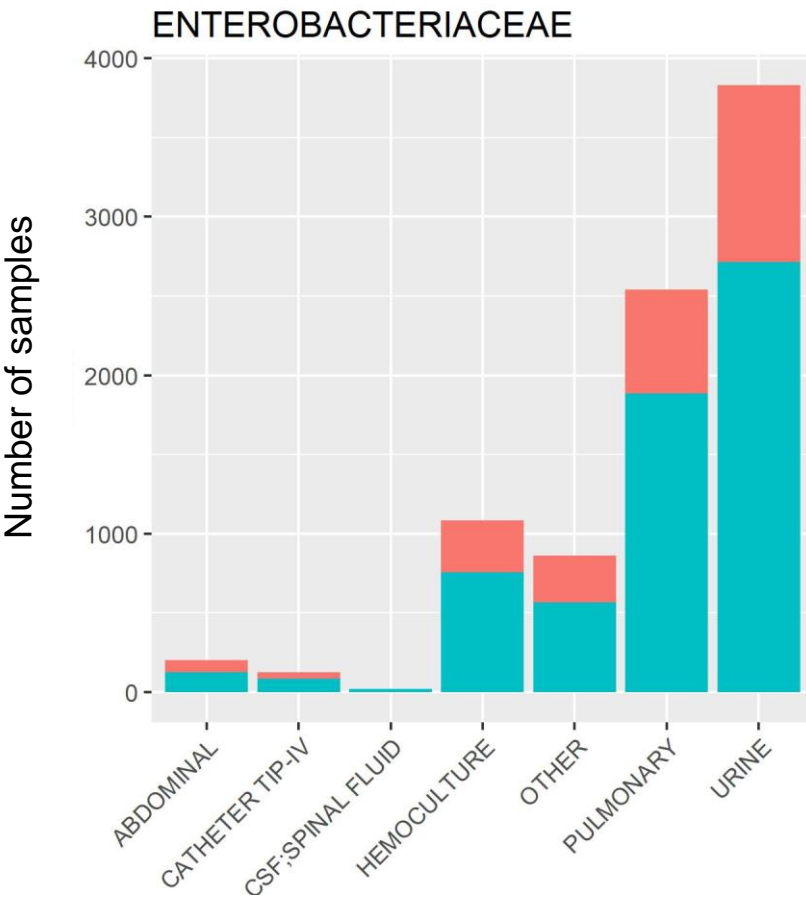
Resistance to at least 1 antibiotic
from at least **3 different classes**

Multidrug-resistant, extensively drug-resistant and pandrug-resistant bacteria: an international expert proposal for interim standard definitions for acquired resistance

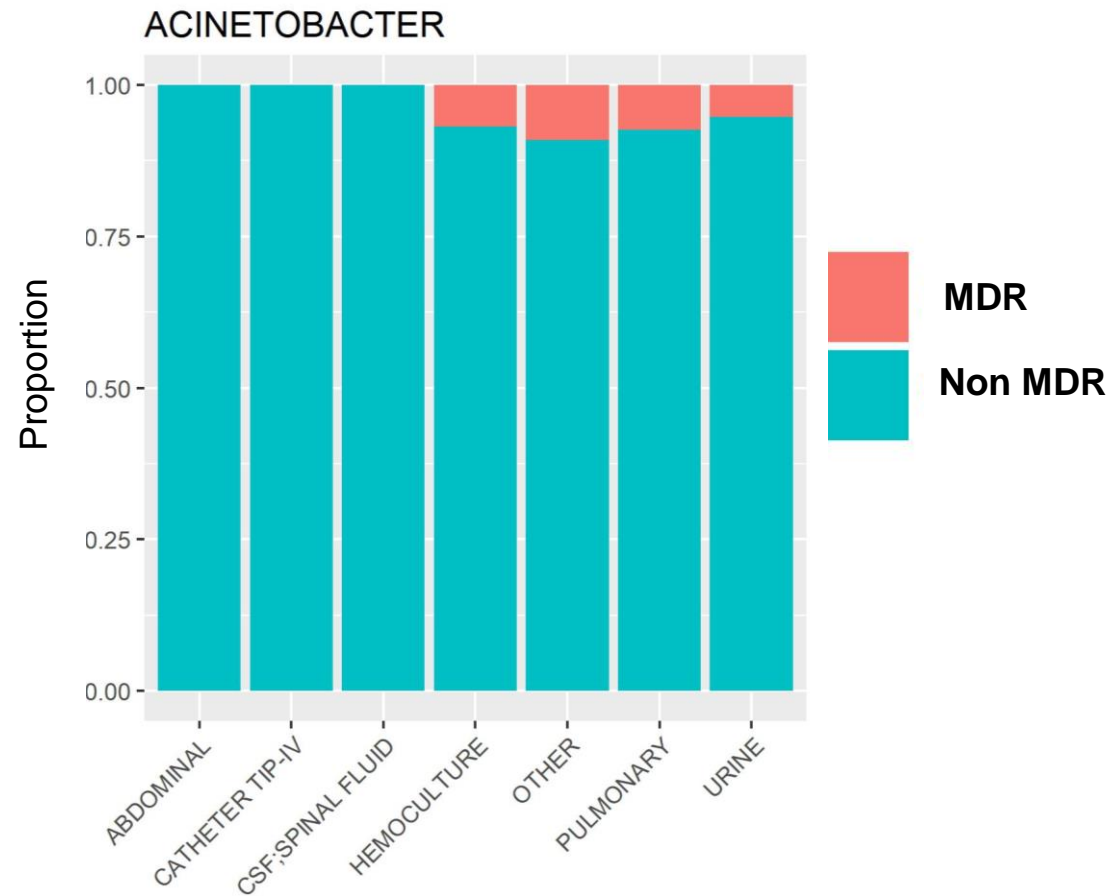
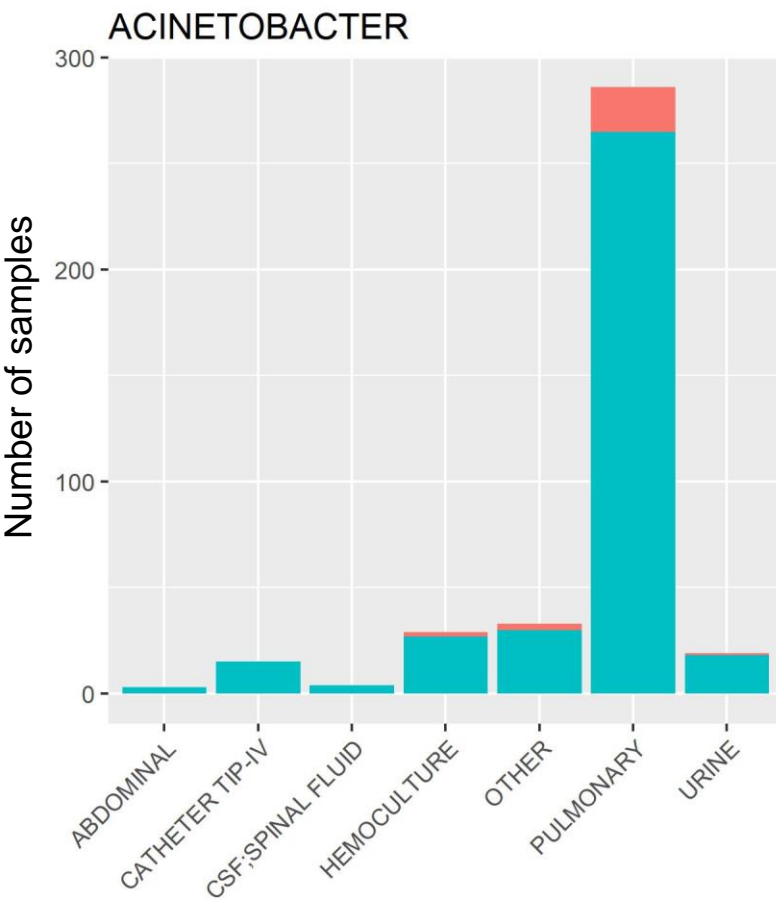
Magiorakos, A.-P. et al. , Clinical Microbiology and Infection, 2012



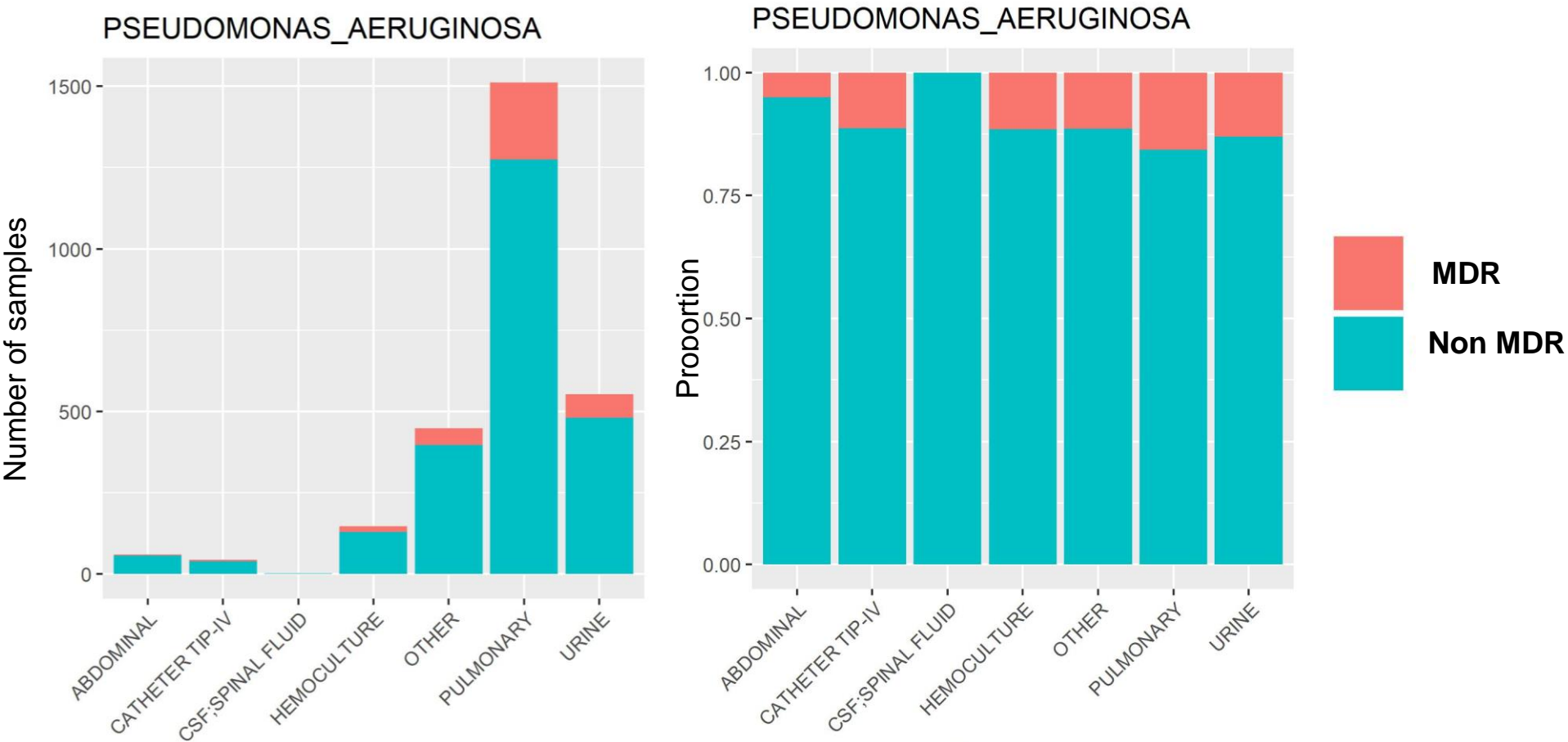
Absolute number and proportion of multidrug resistant *Staphylococcus aureus*, by sample type



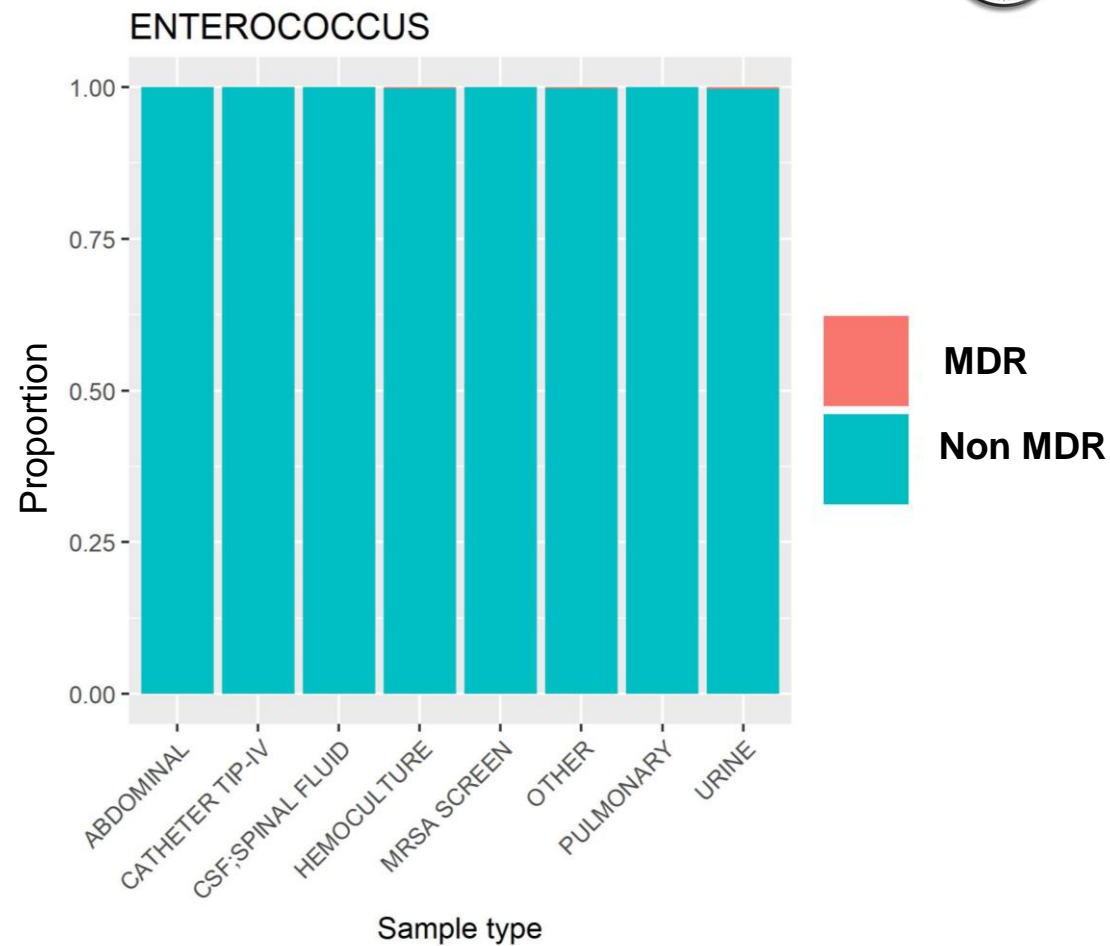
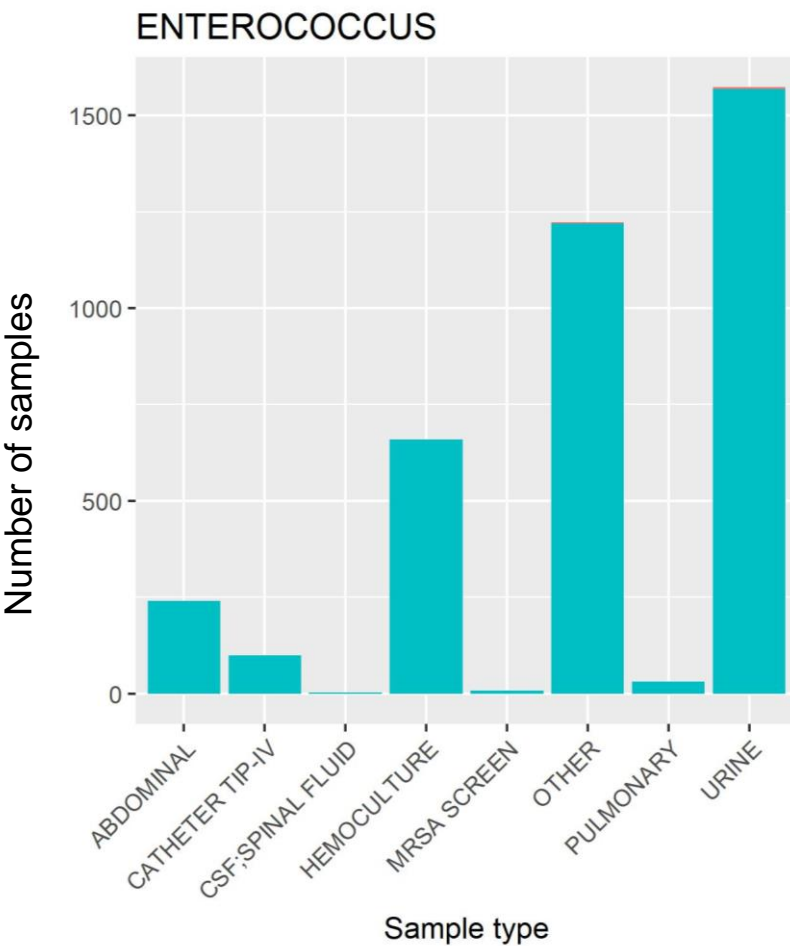
Absolute number and proportion of multidrug resistant enterobacteriaceae, by sample type



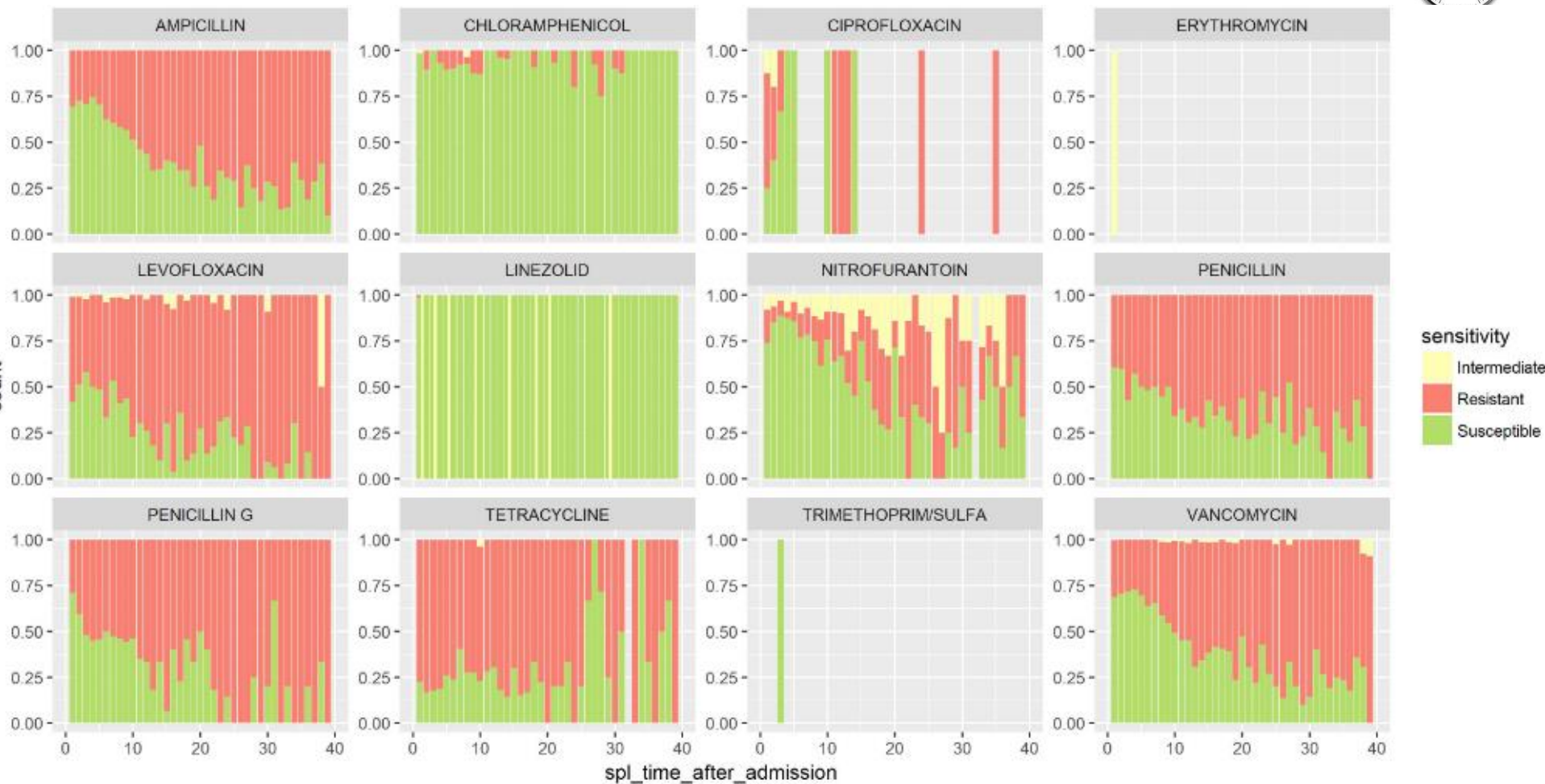
Absolute number and proportion of multidrug resistant *Acinetobacter*, by sample type



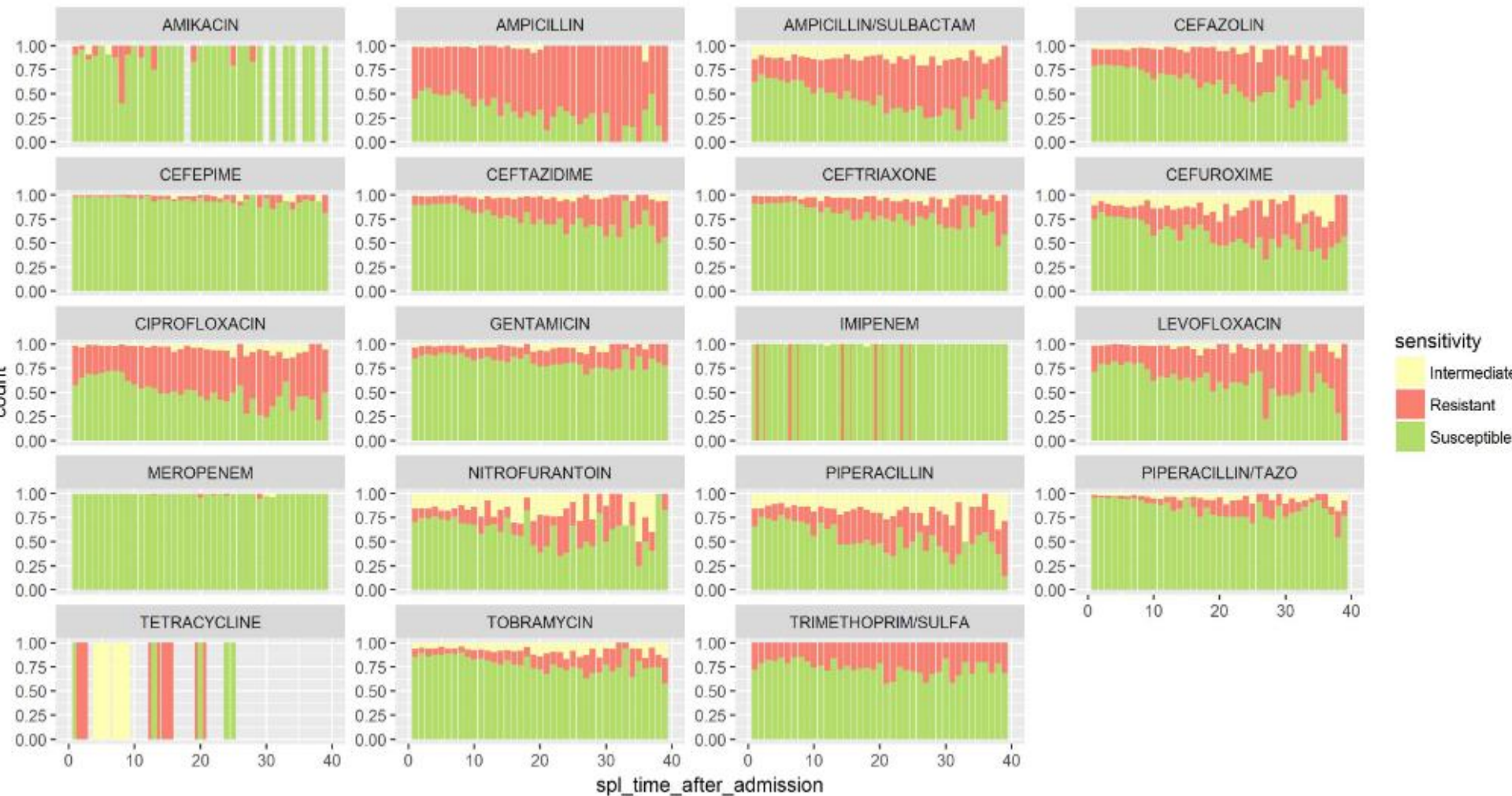
Absolute number and proportion of multidrug resistant *Pseudomonas aeruginosa*, by sample type



Absolute number and proportion of multidrug resistant Enterococcus, by sample type



Antibiotic sensitivity of *Enterococcus*, over time from admission



Antibiotic sensitivity of Enterobacteriaceae, over time from admission



Description of antibiotic resistance by :

- sample type
- bacteria
- delay from admission

Creation of an MDR label

Classification of antibiotic drugs by family

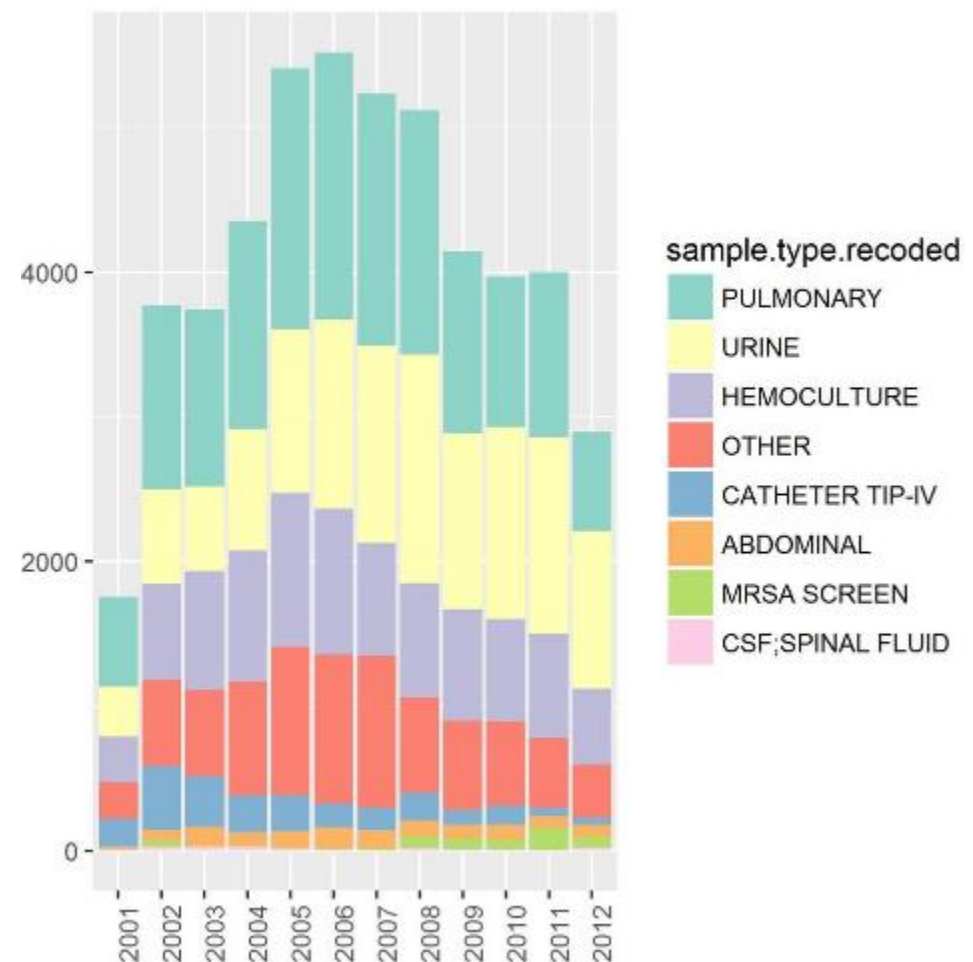
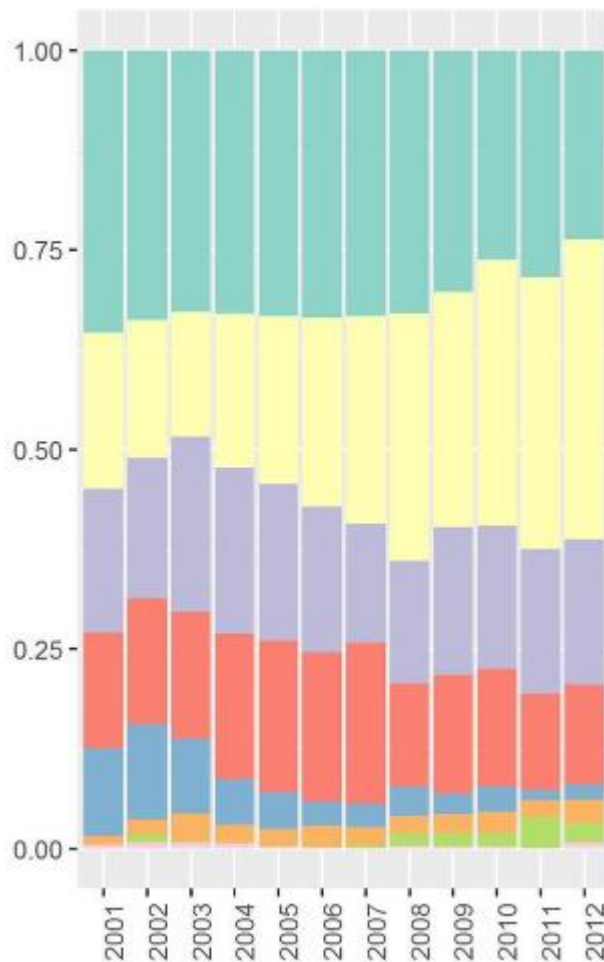
TODO :

Model to predict risk of MDR

Bedside tool to guide antibiotic prescription



Thanks to the organizing committee !



Positive microbiological samples by organs, year by year