USE OF PIPERACILLIN-TAZOBACTAM IN A UNIVERSITARY HOSPITAL
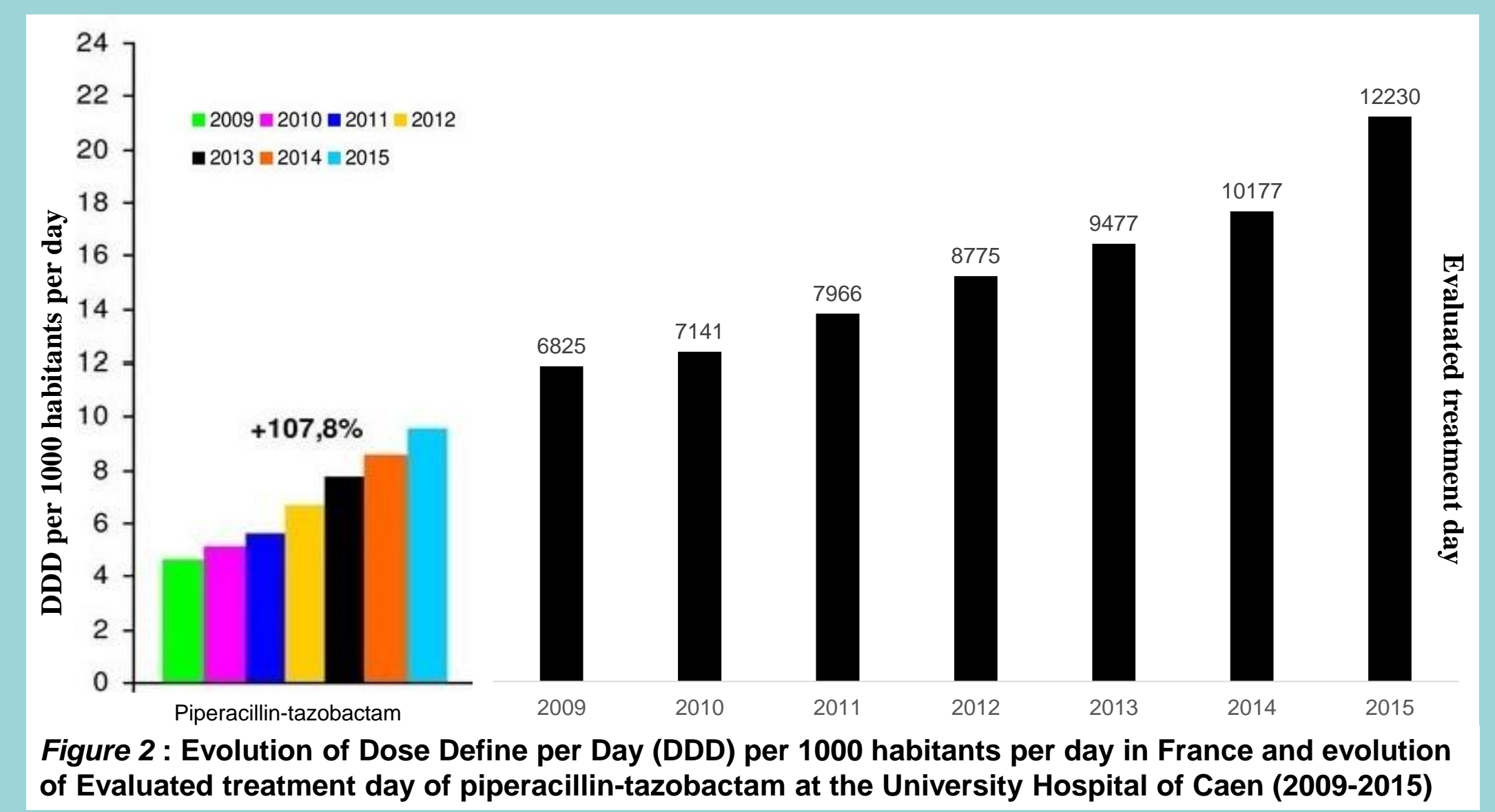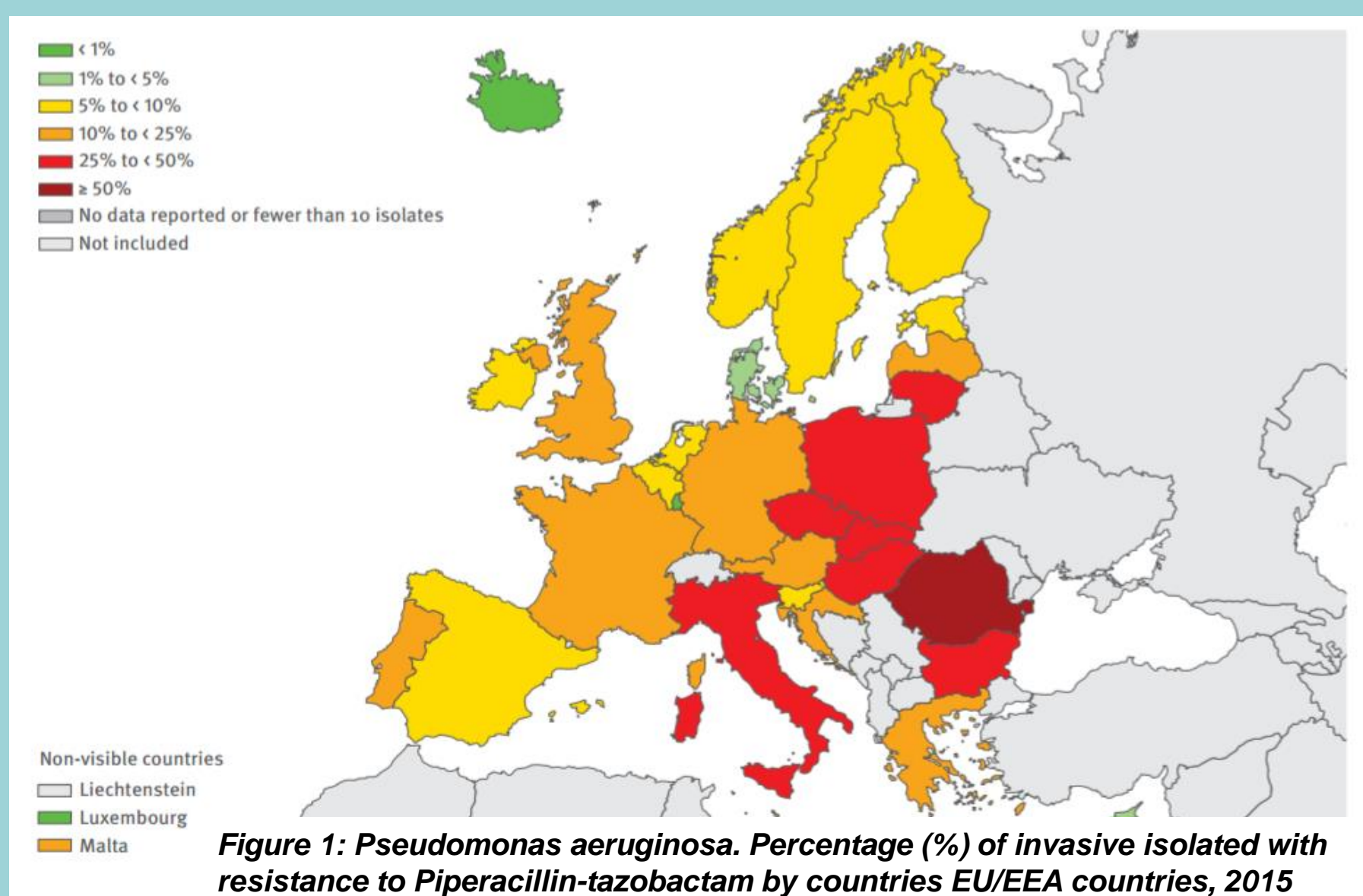
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Background:

➤ Risk of the development of antibiotic resistance in Europe, with a particular rise in antibiotic resistance to piperacillin-tazobactam. Countries such as Italy or different countries of East of Europe already suffer from this increase in resistance to antibiotics (*Figure 1*).

➤ As elsewhere in France, overuse of piperacillin-tazobactam in our University Hospital has represented a warning signal for the Anti-Infective Committee (*Figure 2*).

Figure 1: Pseudomonas aeruginosa. Percentage (%) of invasive isolated with resistance to Piperacillin-tazobactam by countries EU/EEA countries, 2015

Figure 2 : Evolution of Dose Define per Day (DDD) per 1000 habitants per day in France and evolution of Evaluated treatment day of piperacillin-tazobactam at the University Hospital of Caen (2009-2015)

Purpose:

✓ The aim of this study was to evaluate the use of piperacillin-tazobactam within a French University Hospital.

Material & Method:

✎ Duration of the study: 2 months (from July 2017 to August 2017)

✎ Place of the study: All units of Caen University Hospital.

✎ Method: All electronic piperacillin-tazobactam and manual prescriptions for units which do not benefit from electronic prescriptions were analysed in order to evaluate their compliance and their relevance with clinical and biological registered in patient records .

Results:

➤ 91 prescriptions were studied, the majority from the clinical haematology department 17.6% (N=16), digestive surgery unit 13.2% (N=12), and pneumology unit 10.98% (N=10) *(Figure 3).*

➤ Medication was, in most cases, prescribed by medical residents 94.5% (N=86) *(Table 1).*

➤ Indications included nosocomial pneumonia 39.5% (N=36), febrile neutropoenia 22% (N=20%) and digestive infections 17.6% (N=16) and isolated germs were mainly staphylococci (*aureus, epidermidis*) 25.3% (N=23), *Escherichia coli* 11% (N= 10) and *Pseudomonas aeruginosa* 11% (N=10).

➤ Microbiological documentation was not available 75.8% (N=69), nor information on the performance of an antibiogram 60.2% (N=56). The mean dose was 12.7 g/day [8; 16 g/day] and the mean duration of piperacillin-tazobactam treatment was 12 days [2 days; 55 days].
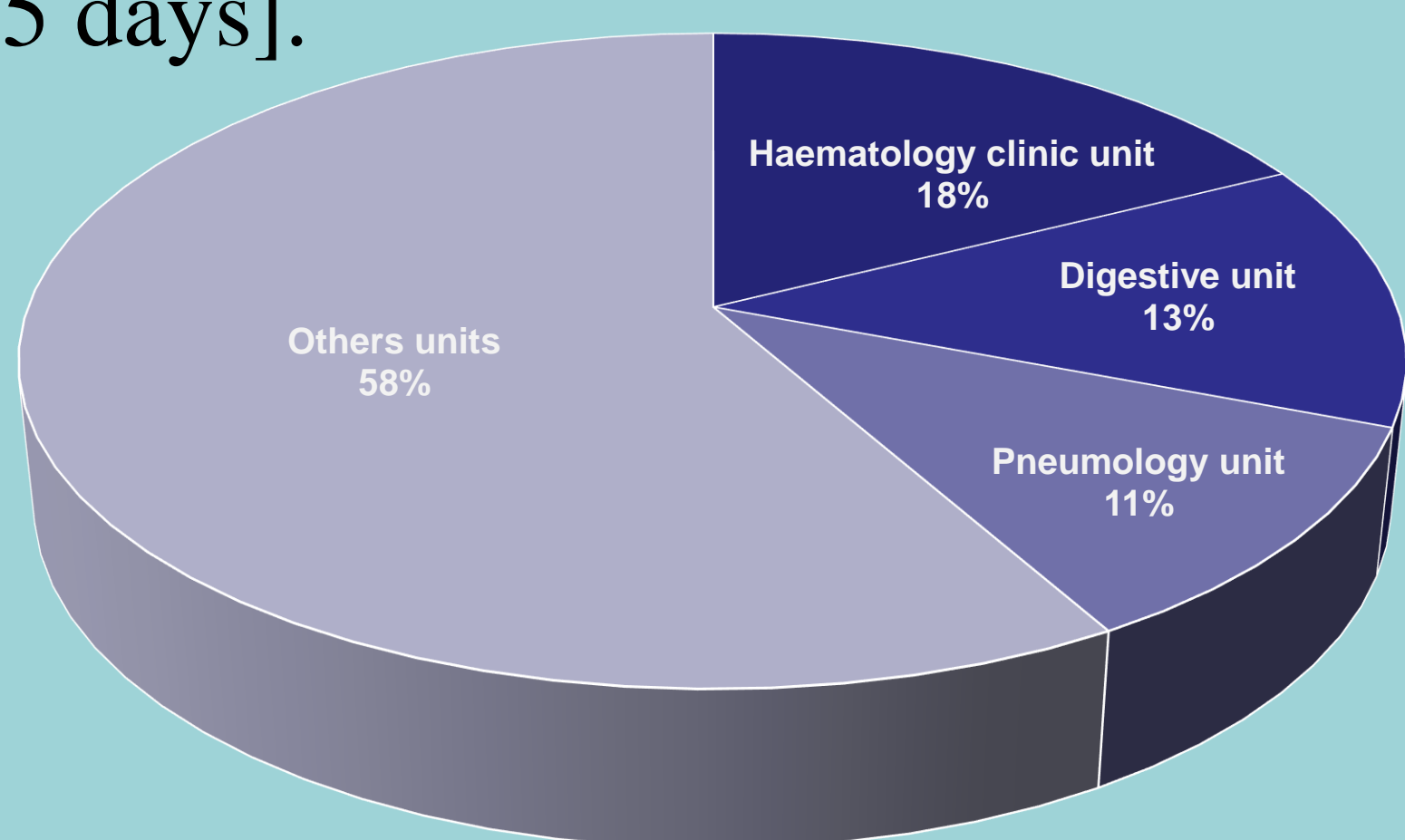
Figure 3: The majors prescribers units of piperacillin-tazobactam at the University Hospital of Caen (France)

Caracteristics	N (%)
Prescribers	
Medical residents	86 (94.5 %)
Doctors	5 (5.5%)
Indications	
Nosocomial pneumoniae	36 (39.5%)
Febrile neutropoenia	20 (22%)
Digestive infections	16 (17.6%)
Others	19 (20.9%)
Isolated germs	
Staphylococci (aureus, epidermidis)	23 (25.3%)
Escherichia coli	10 (11%)
Pseudomonas aeruginosa	10 (11%)
Others	48 (52.7%)

Caracteristics	N (%)
Dose of piperacillin-tazobactam	
8 g/day	4 (4.4%)
12 g/day	19 (20,8%)
16 g/day	68 (74.7%)
Duration of treatment	
7 days	28 (30.8%)
10 days	12 (13.2%)
14 days	8 (8.8%)
Others	43 (47.2%)
Microbiological documentation	
Yes	69 (75.8%)
No	22 (24.2%)
Performance of an antibiogram	
Yes	56 (60,2%)
No	37 (39.8%)

Table 1 : Caracteristics and differents results

Conclusion:

☞This work highlights abidance by dose, treatment duration and indications.

☞This study reaveals insufficient microbiological documentation, few antibiograms and a lack of antibiotic therapy reassessment.

☞Presentation of results to the anti-infective committee and hospital prescribers in order to improve the proper use of this antibiotic.