

# Antifungal use in France: first multicentre survey in haematology, intensive care units and at hospital level in 2012

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## Background

- Emergence of resistance in fungi and changes in *Candida* species distribution in recent years
- Little information on overall antifungal use in wards such as intensive care units (ICUs) or haematology whereas the use of some very expensive agents is generally monitored for financial reasons
- Yearly nationwide surveys on antibiotic use since 2008 through ATB-RAISIN hospital network, managed by the five regional centres for healthcare associated infections control (CCLIN) and the French institute for public health surveillance (InVS)

## Objectives

- To monitor antifungal use in hospitals
- To describe pattern of use in haematology and ICUs
- To identify areas for further research

## Methods

- Retrospective surveys in voluntarily participating hospitals
- National surveillance network ATB-RAISIN methodology: auto-questionnaire regarding 2012 data for the whole hospital and for ICUs and haematology wards
  - Administrative data : hospital type, number of patients-days (PD)
  - Antimycotic consumption (J02) collected from pharmacy dispensing data for inpatients
    - use of WHO Anatomical Therapeutic Chemical classification, ATC-DDD system, 2012
    - expression: number of defined daily doses (DDD) per 1000 PD

## Results

### Participation of hospitals

- 20% of hospitals participating to ATB-RAISIN provided antifungal use
- 30% of university hospitals, public non-teaching hospitals and cancer centres
- Consumption at ward level for 97 ICUs and 26 haematology wards

Table 1: Participation and antifungal use in number of DDD/1000 PD, 2012

	Number of participants	Pooled mean J02	Median J02
Clinical ward			
Hematology	26	340	201
Intensive care units	97	163	139
Whole HCF	239	18	7

### Antifungal use at hospital level

- Variation in overall antifungal use according to hospital type (figure 1)
- Most used agent = fluconazole (figure 2)

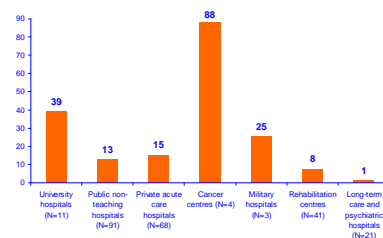


Figure 1: Antifungal use according to hospital type, in number of DDD/1000PD, 2012, N = 239

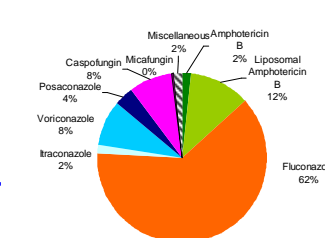


Figure 2: Antifungal use at hospital level, 2012, N=239

### Antifungal use in haematology wards

- High consumption of antifungals and variety of agents used (table 2 and figure 3)

Table 2: Five most used antifungals, 2012, N=26

Antifungal agent	DDD/ 1000 PD
Fluconazole	107
Amphotericin B*	102
Voriconazole	45
Posaconazole	40
Caspofungin	36

\*84% liposomal

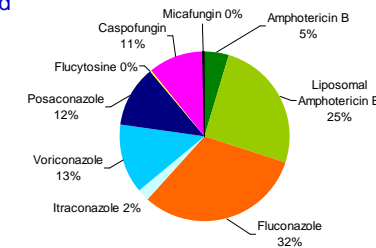


Figure 3: Antifungal use in haematology, 2012, N=26

### Antifungal use in ICUs

- Only four antifungals used in more than 1 out of 3 ICUs, accounting for 98.6% of total use (figure 4)
  - Fluconazole used in 96/97 ICUs accounting for 120 DDD/1000 PD
  - Caspofungin (in 74/97), Amphotericin B- of which 91% liposomal - (in 37/97) and Voriconazole (in 70/97) accounting for 20, 13 and 8 DDD/1000 PD respectively
- Pattern of use varied according to hospital type (figure 5)

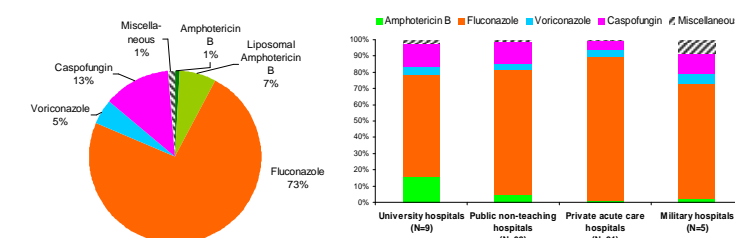


Figure 5: Antifungal use in ICUs according to hospital type, 2012, N=97

Figure 4: Antifungal use in ICUs, 2012, N=97

## Conclusions

- Relevance of this first nationwide survey
- Comparison with other countries
- Perspectives
- Analysis of antifungal usage in most consuming wards such as ICUs and haematology: more relevant than analysis at the hospital level
  - to allow for comparisons between wards caring for similar patients and to improve understanding of different patterns of use
  - for assessment of stewardship programmes impact
- Difference in pattern of use: anidulafungin hardly used in France whereas this agent accounted for 18% of echinocandin hospital use in Sweden in 2012 [Swedres 2012]
- Total antifungal use (J02) was higher in Dutch University hospitals (83 DDD/1000 PD) in 2011 [Nethmap 2013] than in the 11 French University hospitals in 2012 (39 DDD/1000 PD)
- Exploring relationships between antifungal hospital use and changes in fungal epidemiology to assess the ecological impact of increasing use of antifungal agents [Arendrup, Clin Microbiol Infec, 2013]