

BACKGROUND & OBJECTIVES

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- ✓ Publication of [the WHO fungal priority pathogens list](#) to guide research, development and public health action (October 2022) (1).
- ✓ Belgium is one of the biggest antifungal consumers in the outpatient setting in Europe (2,3).
- ✓ Emerging human health threat of antifungal resistance and increased need for research on risk mitigation strategies (4).

Aim : Describe prescribing patterns of antimycotic and antifungal systemic use in Belgian hospitals.

METHODS

- ✓ Analysis of validated 2015-2022 [global-PPS](#) and 2017 [ECDC-PPS](#) data from 402 surveys of 140 acute care hospitals.
- ✓ Analysis performed on use of antimycotics (ATC J02; 10 different substances) and antifungals (ATC D01BA; 1 substance) for systemic use.
- ✓ Prevalence is calculated as N patients prescribed antimycotics/N patients treated with at least one antimicrobial.
- ✓ Focus on adult wards.

RESULTS

Table 1. Prevalence (%) of antimycotic/antifungal use hospital wide (adult, paediatric and neonatal wards)

N admitted patients	N patients treated with at least one antimicrobial	Patients treated with antimycotics or antifungals*	N antimicrobial substances	N antimycotic substances° (J02)	N antifungal substances° (Terbinafine)
100,354	27,728 (27.63%)	1,257 (1.25%)	33,694	1,263 (3.75%)	17 (0.05%)

*Denominator=N admitted patients; °Denominator=N antimicrobial substances.

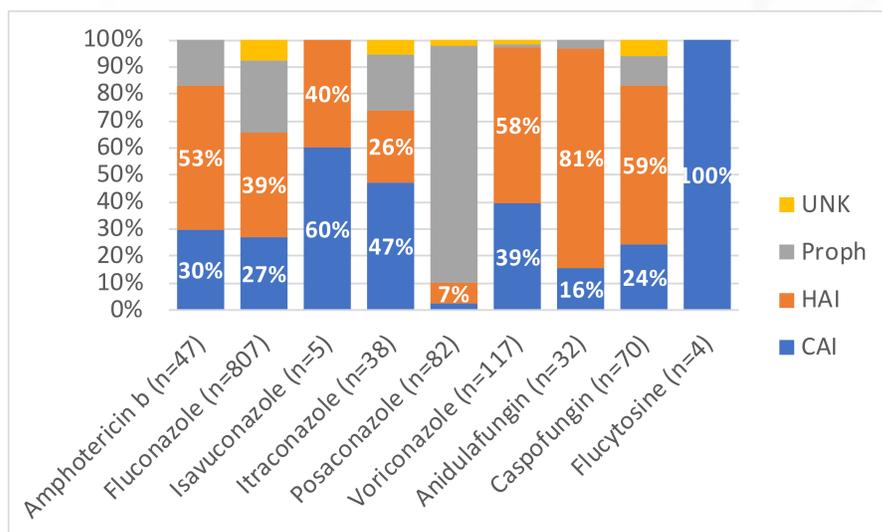


Figure 1. Proportional use (%) of antimycotics among adult wards (n=1202) by indication

CAI=Community-Acquired Infection; HAI=Healthcare-Associated Infection; Proph=Prophylaxis; UNK=Unknown indication (includes 5 for other reasons)

Table 3. Guideline compliance - therapeutic prescribing for pneumonia; adult wards

Pneumonia	Total prescriptions	CAI (N;%)	HAI (N;%)	Guideline compliant (%)
Amphotericin b	21	4 (19.0)	17 (81.0)	61.9
Caspofungin	13	6 (46.2)	7 (53.8)	69.2
Fluconazole	64	27 (42.2)	37 (57.8)	43.8
Isavuconazole	2	0 (0.0)	2 (100)	100
Itraconazole	5	4 (80.0)	1 (20.0)	80
Posaconazole	4	2 (50.0)	2 (50.0)	75
Voriconazole	59	19 (32.2)	40 (67.8)	76.3
Total	168	62 (36.9)	106 (63.1)	61.9

CAI=Community-Acquired Infection; HAI=Healthcare-Associated Infection

Table 2. Prevalence (%) of antimycotic (J02) use among adult wards

	N patients on antimicrobials	N patients on antimycotics* (J02)
AICU	2417	190 (7.9%)
AMW	13435	407 (3.0%)
ASW	7314	134 (1.8%)
HO-AMW	1418	341 (24.0%)
P-AMW	1473	52 (3.5%)
T-AMW	78	57 (73.1%)
Total	26135	1181

*Denominator=N patients on antimicrobials.

AICU=adult intensive care unit; AMW=adult medical ward;

ASW=adult surgical ward; HO=haematology-oncology;

P=pneumology; T=transplant.

Antimycotics for therapeutic use on adult wards were mainly prescribed for :

- ✓ **Pneumonia** (n=168, 20.5%; mainly fluconazole (n=64; 38.5%) and voriconazole (n=59; 34.9%)),
- ✓ **Gastro-intestinal and intra-abdominal infections** (n=156; 18.9%, mainly fluconazole (n=130; 83.3%), anidulafungin (n=11; 7.1%) and caspofungin (n=11; 7.1%));
- ✓ **Ear/nose/throat infections** (n=100; 12.2%), mainly fluconazole (n=93; 93.1%).

Table 4. Quality indicators - antimycotic prescribing (n=1202), adult wards

	Total N antimycotics	Overall guideline compliance (%)	Documentation reason in notes (%)	Documentation stop/review date (%)	Targeted (%)
Antibiotics					
Amphotericin b	47	68.1	80.9	25.5	48.9
Triazole derivatives	1049	62.7	70.2	32.3	34.4
Fluconazole	807	59.4	68.2	33.8	30.7
Isavuconazole	5	100	100.0	40.0	100.0
Itraconazole	38	50.0	73.0	31.6	42.1
Posaconazole	82	76.8	53.7	24.4	9.8
Voriconazole	117	78.6	93.2	27.4	71.8
Other antimycotics systemic use	106	72.6	90.6	42.5	62.3
Anidulafungin	32	75.0	100.0	59.4	87.5
Caspofungin	70	72.9	85.7	32.9	50.0
Flucytosine	4	50.0	100.0	75.0	75.0
Total	1202	63.8	72.4	32.9	37.4

- Parenteral use : 41.1%
- Targeted prescribing : 37.4%
- Unknown diagnoses : 9.3%
- Missing guidelines : 10.0%

CONCLUSION

- ✓ Predominantly fluconazole was prescribed.
- ✓ High prophylactic use warrants broadening and strengthening of stewardship interventions for antimycotic treatment, given its cost, toxicity and emerging antifungal resistance.
- ✓ Recommendations for antimicrobial stewardship interventions include development or review of existing guidelines; monitoring of the implementation of guidelines; improving documentation of the reason and a stop/review date for the prescription.

REFERENCES

- (1) <https://www.who.int/publications/i/item/9789240060241>
- (2) Goemaere B. et al. Systemic antifungal drug use in Belgium- One of the biggest antifungal consumers in Europe. Mycoses (2019) 62(6):542-550
- (3) <https://www.ecdc.europa.eu/en/antimicrobial-consumption/surveillance-and-disease-data/database>
- (4) Fisher MC et al. Tackling the emerging threat of antifungal resistance to human health. Nature (2022)