

TRENDS OF ANTIMICROBIAL CONSUMPTION IN BELGIAN HOSPITALS USING DIFFERENT METRICS : A 2012-2021 LONGITUDINAL STUDY INCLUDING THE COVID-19 ERA

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INTRODUCTION

Excessive antimicrobial consumption (AMC) is one of the most important drivers of antimicrobial resistance.

Main objectives:

Analysing different metrics to

- track trends
- assess the impact of the COVID-19 pandemic

on AMC in Belgian acute care hospitals

METHODS

- Reimbursement data on AMC from the National Institute for Health and Disability Insurance (RIZIV – INAMI)
- Numerator data : consumed units per drug
 - ✓ Anatomical Therapeutic Chemical (ATC) classification system from WHO : A07A, D01BA, J01, J02, P01AB, J04A, J05
 - ✓ Translated in Defined Daily Dose (DDDs)
- Denominator data:
 - ✓ Number of patient days and admissions (RIZIV-INAMI)
 - ✓ Number of inhabitants (Eurostat)
- Indicators :
 - ✓ DDDs/1000 patient days and DDDs/1000 admissions (RIZIV-INAMI)
 - **BeH-SAC : National surveillance of AMC in Belgian hospitals**
 - ✓ DDDs/1000 inhabitants/day (DID) (Eurostat)
 - **ESAC-Net: European surveillance of AMC Network (hospital sector)**
- 10-year trends assessed using linear regressions

RESULTS

Figure 1 Trend in total and subgroups consumption of systemic antibacterials (J01) expressed as DID in the Belgian hospital sector and the European average, 2012-2021

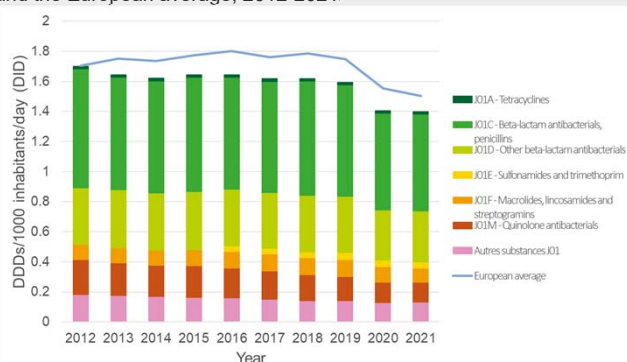
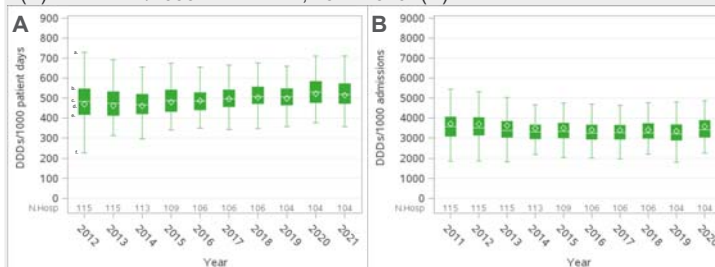


Figure 2 Trends in the consumption of antibiotics for systemic use (J01) in Belgian acute hospitals, expressed as DDDs/1000 patient days, 2012-2021 (A) and DDDs/1000 admissions, 2011-2020* (B)



Included wards: surgery, internal medicine, geriatrics, pediatrics, intensive and non-intensive neonatology, maternity, infectious diseases, burns unit, intensive care unit (ICU) and specialist care (psychiatry and day care excluded). Outliers not shown in the graph. DDDs: Defined Daily Dose; N. Hosp: Number of hospitals. *2021 data not available. Boxplot legend : a. Maximum (1.5x interquartile distance) b. 75th percentile (P75) c. Median (P50) d. Mean e. 25th percentile (P25) f. Minimum (1.5x interquartile distance)

Trends in the consumption of antibacterials for systemic use (ATC group J01) in Belgian hospitals when expressed in

DDDs/1000 inhabitants/day

→ Statistically significant **decrease** (17.6%) between 2012 and 2021

→ Sharp decline of 11.9% between 2019 and 2020 stabilizing between 2020 and 2021

DDDs/1000 patient days

→ Relative **increase** of 7.5% for the median J01 consumption between 2012 and 2021

→ 4.8% rise between 2019 and 2020 followed by a 2.2% decrease between 2020 and 2021

DDDs/1000 admissions

→ Statistically significant **decrease** (4.4%) between 2011 and 2020

→ Increase of 6.5% noticed between 2019 and 2020

CONCLUSIONS

- Increasing trend in hospital AMC during the pandemic in Belgian acute care hospitals when expressed in DDDs/1000 patient days, as found in other countries.
- Contrasting results obtained with different denominators highlighting the importance of considering different metrics for AMC evaluation in the hospital sector.
- The denominators should be relevant to the population under surveillance and represent only hospitalized patients. This will allow the proper capture of variations in AMC to tailor stewardship activities.

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