

# ANTIBIOTIC CONSUMPTION AND UTILIZATION PATTERNS IN AN EMERGENCY DEPARTMENT: WHAT CAN WE IMPROVE?

SUBIRANA BATLLE C<sup>1</sup>; TORO BLANCH C<sup>1</sup>; GRATACÓS SANTANACH L<sup>1</sup>; VILA CURRIUS M<sup>1</sup>; GISPert AMETLLER MA<sup>2</sup>; ORTUÑO RUIZ Y<sup>1</sup>; MARTÍNEZ DÍAZ E<sup>1</sup>; QUIÑONES RIBAS, C<sup>1</sup>.  
<sup>1</sup>HOSPITAL PHARMACY DEPARTMENT, HOSPITAL TRUETA DE GIRONA (SPAIN) | <sup>2</sup>EMERGENCY DEPARTMENT, HOSPITAL TRUETA DE GIRONA (SPAIN)

## Background and importance:

The implementation of antimicrobial stewardship programmes (ASPs) is recognised as a priority to optimise antibiotic use and to reduce infections caused by multidrug-resistant bacteria. Emergency departments (EDs) are among the most critical settings for implementing ASPs.

## Aim and objectives:

To assess antibiotic consumption and the appropriateness of antibiotic prescriptions in the ED of a tertiary care hospital.

## Materials and methods:

### Study design

- Retrospective observational study
- Tertiary care hospital
- Emergency Department (ED)

- Study period: 2022–2024
- Selected indicators from the ASP indicator panel for EDs (published in *Farmacia Hospitalaria*<sup>1</sup>)



### Antibiotic Consumption Indicators

- Daily doses per 1000 discharges (DDD/1000) of:
  - Total antibiotics (J01)
  - Carbapenems
  - Fluoroquinolones
  - Macrolides
  - Third-generation cephalosporins (3GC)
  - Anti-MRSA agents (*vancomycin, daptomycin, teicoplanin, linezolid*)
- Amoxicillin-clavulanate / Piperacillin-tazobactam ratio (AC/PTZ)



### Appropriateness Indicators

- Community-Acquired Pneumonia (CAP) treated with (%):
  - Amoxicillin
  - Amoxicillin-clavulanate (AC)
  - Fluoroquinolones
- Urinary Tract Infection (UTI) treated with (%):
  - Fosfomicin trometamol
  - Amoxicillin-clavulanate
  - Fluoroquinolones
- Chronic obstructive pulmonary disease (COPD) Exacerbation treated with (%):
  - Amoxicillin-clavulanate
  - Fluoroquinolones

## Results:

Antibiotic Consumption Indicators		2022	2023	2024
Total consumption (DDD/1000)	Total antibiotics	176.54	179.01	170.26
	Consumption by class (DDD/1000)			
	Carbapenems	9.00	9.46	9.71
	Fluoroquinolones	21.94	19.16	16.93
	Macrolides	13.14	14.22	15.42
	3GC	35.42	34.52	33.63
	Anti-MRSA agents	5.52	6.05	6.55
AC/PTZ ratio		3.83	4.28	4.83

Appropriateness Indicators		2022	2023	2024
CAP treatment (%)	Amoxicillin	18.18	13.19	22.90
	AC	42.42	47.25	41.22
	Fluoroquinolones	28.79	28.57	25.95
UTI treatment (%)	Fosfomicin trometamol	18.65	18.18	25.68
	Fluoroquinolones	16.08	13.42	11.67
	AC	4.82	6.49	3.89
COPD exacerbations (%)	AC	48.15	36.84	36.36
	Fluoroquinolones	42.59	47.37	41.82

## Conclusion and relevance:

Global antibiotic consumption in the hospital ED remained stable during the study period, with no significant variations across antibiotic classes.

Targeted interventions are needed to optimise fluoroquinolone prescribing for respiratory infections.

## References:

<sup>1</sup>Ruiz-Ramos J, Santolaya-Perrín MR, González-Del-Castillo J, Candel FJ, Martín-Quirós A et al. Design of a panel of indicators for antibiotic stewardship programs in the Emergency Department. *Farm Hosp.* 2024 ;48(2):T57-T63.

