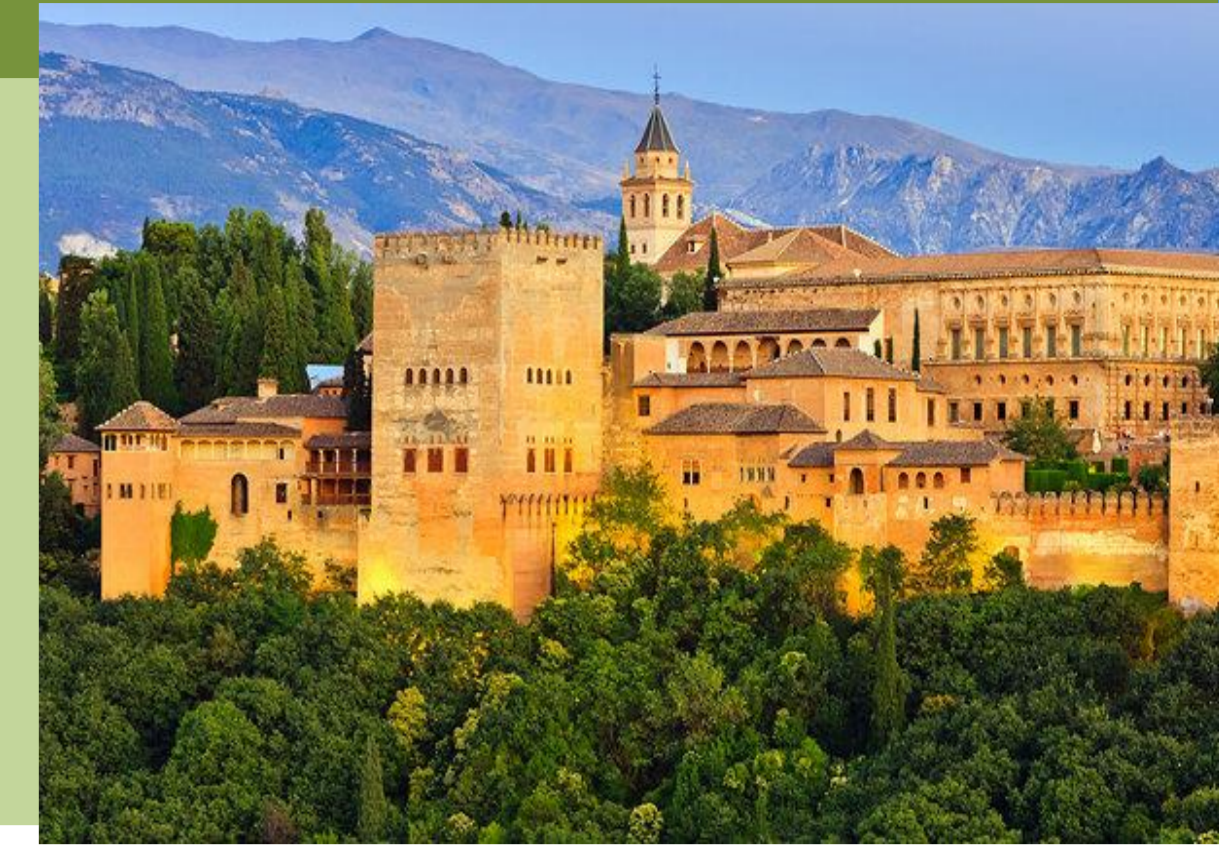


# Analysis of piperacillin/tazobactam use during its worldwide shortage

R. García-Fumero<sup>1</sup>, I. Casas-Hidalgo<sup>2</sup>, M. Núñez-Núñez<sup>2</sup>, L. Martínez-Dueñas<sup>2</sup>,  
S. Guijarro-Herrera<sup>1</sup>, A. Jiménez-Morales<sup>1</sup>, J. Cabeza-Barrera<sup>2</sup>

<sup>1</sup>Hospital Universitario Virgen de las Nieves, Hospital Pharmacy, Granada, Spain

<sup>2</sup>Hospital Campus de la Salud-PTS, Hospital Pharmacy, Granada, Spain



## BACKGROUND

Mid-year supply problems of piperacillin/tazobactam (PT) led the Spanish Agency for Medicines and Health Products (AEMPS) to define a proposal to manage the situation that was approaching. AEMPS proffered a document containing some alternatives to PT depending on the type of infection addressed and the priority of use according to the case.

## PURPOSE

To analyse patients under PT treatment focusing on drug indication and infection features. To evaluate the prescription adequacy and treatment duration.

## MATERIAL AND METHODS

Retrospective observational study (June and July 2017), including all patients who received PT, was conducted. The study variables were: demographic, clinical service, severity at onset (no sepsis, sepsis or septic shock), origin of infection and acquisition (community or healthcare related), therapy type (empiric or targeted), treatment duration, evaluation on day 0 and global evaluation (adequate, not recommended, inadequate or unnecessary). The variables were obtained from the medical records.

## RESULTS

| N = 22 patients   |  |
|---|--|
| Female, n (%)   | 13 (59.1)  |
| Age distribution, n (%)                                 | <60 years old: 4 (18.2)<br>60–80 years old: 11 (50)<br>>80 years old: 7 (31.8)   |
| Acquisition of infection, n (%)                         | Community related: 13 (59.1)<br>Nosocomial infection: 9 (40.9)   |
| Severity at onset, n (%)                                | No sepsis: 9 (40.9)<br>Sepsis: 8 (36.4)<br>Septic shock: 5 (13.6)  |
| Origin of infection distribution, n (%)                 | Skin and soft tissue: 6 (27.3)<br>Intra-abdominal: 4 (18.2)<br>Urinary tract: 3 (13.6)<br>Other/Unknown: 9 (40.9)  |
| Therapy characteristics                                 | Targeted, n (%): 14 (63.6)<br>Median duration, days (IQR): 9 (3.75-12.25)  |
| Day 0 <i>versus</i> global evaluation of therapy, n (%) | Adequate: 19 (86.4) vs 12 (54.5)] Difference = 7/19 (36.8)<br>Not recommended: 2 (9.1) vs 4 (18.2)<br>Inadequate: 0 vs 3 (13.6)<br>Unnecessary: 1 (4.5) vs 2 (9.1) |

## CONCLUSION

In accordance with AEMPS proposal and clinical guidelines<sup>†</sup>, almost every treatment (86.4%) was initially adequate, meaning acceptable antibiotic indication. Global evaluation, in contrast, showed that **36.8%** of that proportion of patients was **not adequate** at the end of treatment, revealing prescribing faults that may be solved by considering treatment duration and de-escalation, especially when there is no other way to address shortage situations.

Day 0 evaluation = appropriate spectrum?

Global evaluation = appropriate: spectrum, duration of therapy, drug dose and route of administration?

<sup>†</sup>2015-2016 Antibiotic Guidelines. Treatment Recommendations for Adult Inpatients. The Johns Hopkins Hospital Antimicrobial Stewardship Program. Johns Hopkins Medicine