

AGAINST THE CLOCK: IMPACT OF ANTIBIOTIC ADMINISTRATION, PRESCRIPTION AND VALIDATION TIMES ON OUTCOMES IN THE SEPSIS CODE

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1. PURPOSE

Sepsis is a life-threatening condition with high morbidity and mortality. Prompt initiation of adequate antibiotic therapy is crucial, as delays beyond the first hour increase mortality.

2. OBJECTIVES

- **Primary:** analyze the % of patients receiving antimicrobial therapy within the first hour of sepsis code activation.
- **Secondary:** analyze the association between antibiotic prescription, validation, and administration times after sepsis code activation, and their impact on mortality, ICU admission/stay, and hospital stay.

3. METHODS

Study characteristics:

Retrospective, single-centre, observational conducted in a tertiary hospital between February and April 2025.

Inclusion criteria

All patients with sepsis code activation

Variables collected:

**Times to administration, prescription and validation were measured from sepsis code activation and defined as early if < 1h had passed

Demographics, clinical outcomes (mortality, ICU admission, length of stay, length of stay in the ICU), and pharmacotherapy (prescription, validation, administration and sepsis code activation times**).

Statistical analysis:

Descriptive statistics: median, interquartile range-IQR.

Association statistics: odds ratios-OR, Wilcoxon test, Spearman test.

4. RESULTS

Demographic and Clinical Characteristics

(n = 261 patients, 270 sepsis code activations)

Sex (%)	Men: 59 %
Age (median, %>65)	69,9 years, 63 %
Length of stay (median)	8 days
ICU admission (%), length of stay (median)	51,5 %, 4 days
Mortality (%)	19,5 %
ICU mortality (%)	35,3 %
Admission through Emergency Room (%)	76 %

Antimicrobials

(n, median - range, most commonly used-%)

557	2 per patient [1-6]	- Piperacillin/Tazobactam - 22% - Meropenem - 19% - Linezolid - 10%
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Key Time Metrics After Sepsis Code Activation

Variable	Median [IQR] (minutes)	% Within ≤1 Hour
Time to administration	61.8 [-25 to +233]	12.36%
Time to prescription	2.1 [-78.8 to +58.2]	19.35%
Time to pharmacist validation	74 [-17 to +222]	11.64%

Combined Events Within the First Hour

Prescription + administration ≤1 hour	5.96%
Prescription + administration + pharmacist validation ≤1 hour	2.10%

Statistical Associations Found When Administration < 1 hour

Mortality	ICU admission	Length of stay	ICU length of stay
p = 0.5949	p = < 0.01 OR = 2.91 [1.51 - 5.87]	p = < 0.01 (rho = 0,243)	p = < 0.01 (rho = 0.247)

No statistical associations were found regarding prescription < 1 hour and pharmacist validation in < 1 hour.

4. CONCLUSIONS

Antibiotic administration within the first hour after sepsis code activation is associated with reduced hospital stay and lower ICU admission/stay. However, adherence to the complete sequence (prescription–pharmacist validation–administration < 1h) remains very low.

