

# Antibiotic Stewardship in an Emergency Department

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## Background

Antimicrobial resistance represents one of the foremost health challenges of our time. The implementation of a regional antibiotic policy and a reduction in the use of broad-spectrum antibiotics are seen as key solutions.

However, recent data from a local emergency department (ED) still indicate inappropriate use of antibiotics.

## Aim

This study aims to investigate the adherence to the regional antibiotic policy in empirical antibiotic choices for intravenous administration.

## Materials and Methods

Records of adult patients admitted in the ED between May and August 2023 were screened.

For patients undergoing antibiotic treatment, the following data was recorded: gender, age, admission diagnosis, choice of antibiotic, dosage, and frequency. The latter three parameters were employed to evaluate the empirical antibiotic choice in accordance with the regional guidelines.

Subsequently, data was categorized into three groups: “Green” (appropriate empirical treatment; “Yellow” (suboptimal empirical treatment); and “Red” (empirical treatment with a broader spectrum than necessary according to indication).

## Results

A total of 53 individual patient records were screened (51% male, n=27), of which approximately 70% of the patients were over the age of 70.

Based on the selected categories, the empirical antibiotic choices were distributed as follows: 60% (n=32) were in “Green”; 19% (n=10) in “Yellow”; and 21% (n=11) in “Red”.

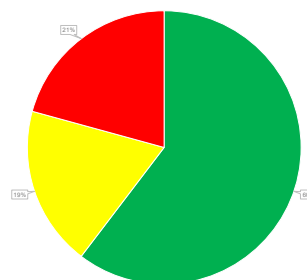


Figure 1. Distribution of empirical choices of antibiotics

The categorization as “Yellow” was attributed to the absence of a macrolide in combination therapy for 50% (n=5), while the remaining 50% were due to insufficient antimicrobial spectrum or dosage, or lack of combination therapy. The “Red” categorization was assigned to 45% (n=5) of cases due to deviation from the first-line recommendation of intravenous ampicillin/gentamicin.

For patients diagnosed with infection without a known focus, 46% (n=6) were classified as “red”. In cases of pneumonia without COPD or asthma, 43% (n=3/7) fell into the “Red” category. These two diagnoses demonstrated the lowest levels of guideline adherence. For sepsis, only one patient (17%) were classified outside of the “Green” category.

## CONCLUSION

This study demonstrates that 40% of empirical antibiotic choices in the ED were not in accordance with the established regional antibiotic policy.