The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS): 2015, 2017 and 2018 results of antimicrobial prescribing for pneumonia in Georgia

Irma Korinteli[1]; Ines Pauwels[2]; Ann Versporten[2]; Herman Goossens [2]; Helen Phagava[1]; Karaman Pagava[1]

[1] Child and Adolescence Medicine, Tbilisi State Medical University, Tbilisi, Georgia;
[2] Laboratory of Medical Microbiology, Vaccine & Infectious Disease Institute (VAXINFECTIO), Faculty of Medicine and Health Science, University of Antwerp, Antwerp, Belgium

INTRODUCTION AND PURPOSE:

Pneumonia is a frequent reason for antibiotic use and a common cause for hospitalization, both in children and adults. We aimed to assess antibiotic prescribing patterns for pneumonia in Georgian hospitals, to identify potential targets for antimicrobial stewardship.

METHODS:

The Global-PPS was conducted in 18 Georgian hospitals in 2015, 2017 and 2018. The survey included all inpatients receiving an antimicrobial on the day of the PPS. Data included details on antimicrobial agents, reasons and indications for treatment and a set of quality indicators.

RESULTS:

In total 79 wards with 895 inpatients were surveyed, of which 77.8% were admitted to hospitals in Tbilisi. Of all patients on antibiotics, 29.8% were treated for pneumonia (*Figure 1*), with the highest rates on pediatric intensive care units (67.8%) and pediatric medical wards (45.3%) (*Figure 2*).

Figure 1. The most common indications for antimicrobial treatment
(% of patients on antimicrobials)
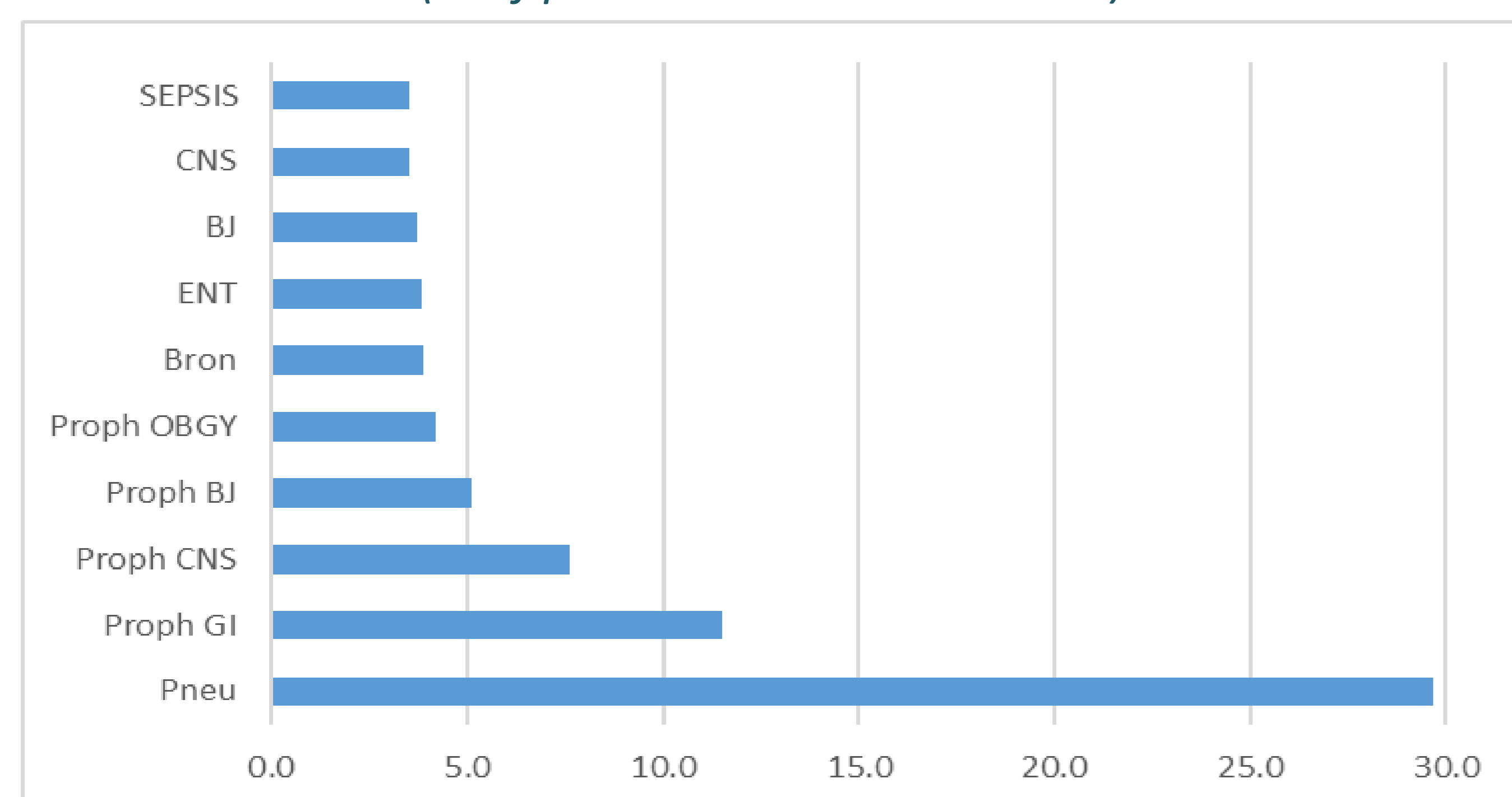
CNS: Central nervous system infections; BJ: Bone & joint infections; ENT: Ear, nose & throat infections; Bron: Bronchitis (acute or chronic); Proph OBGY: Obstetrics & gynaecology prophylaxis; Proph BJ: Skin & soft tissue/ bone & joint prophylaxis; Proph CNS: Central nervous system prophylaxis; Gastro-intestinal prophylaxis; Pneu: pneumonia

Up to 98.6% of pneumonia, cases were community-acquired infections (CAI). Regarding the antimicrobial quality indicators, documentation of the reason of prescription was 100%, yet the stop/review date was missing in 93.1% of cases. Overall compliance to antibiotic guidelines was 91.9% and treatment was mostly empiric (87.0%). Of targeted prescriptions, 75.0% was for treatment of MRSA.

Figure 2. The rate of pneumonia by ward type
(% of patients on systemic antibiotics ATC J01)
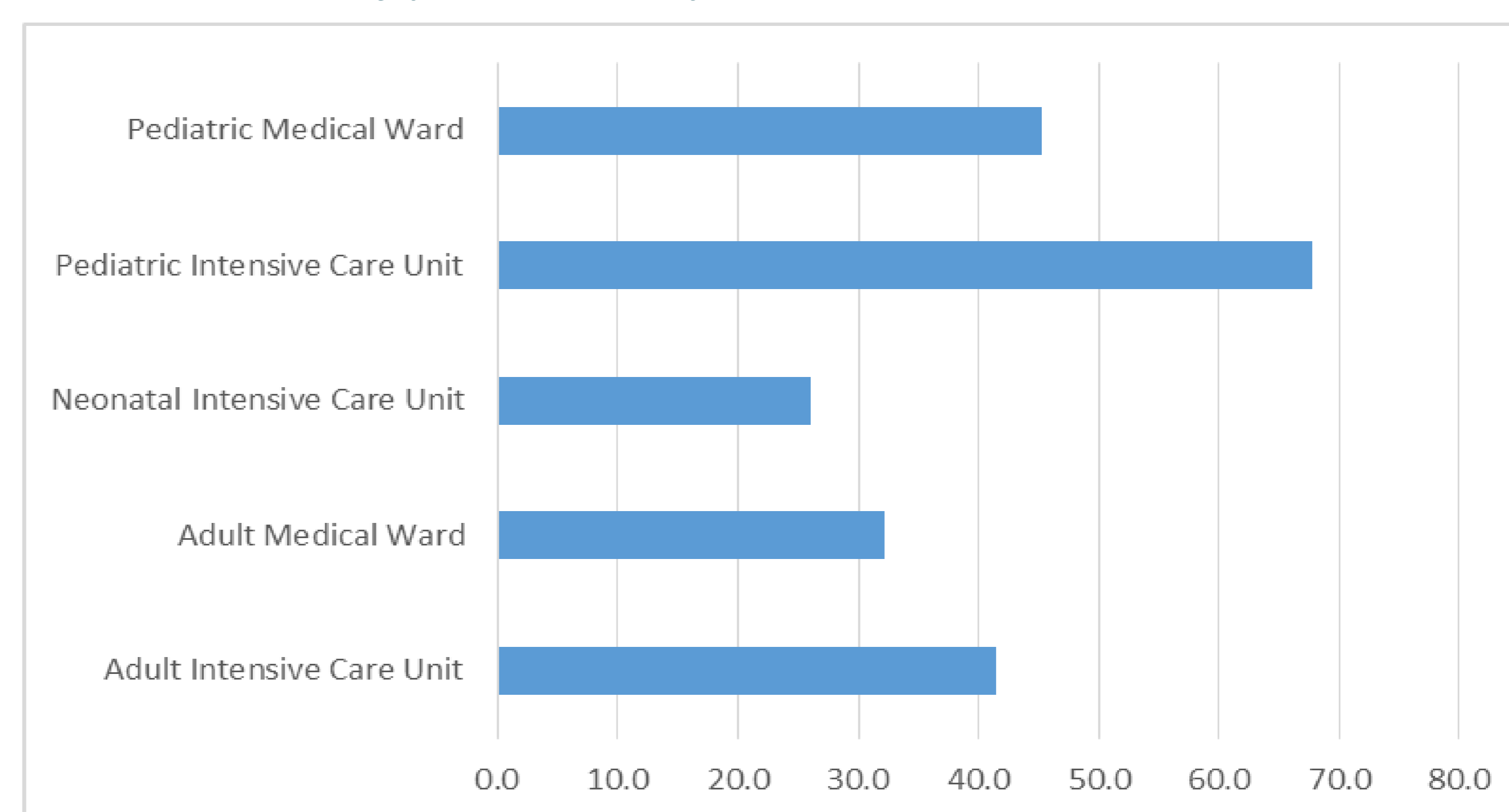
CRP was used in the decision to treat in 98.1% of patients. CRP levels in blood were 123 mg/L on average. For adults, commonly prescribed antibacterial drugs for systemic use (ATC J01) were ceftriaxone (26.4%), followed by cefepime (10.7%) and meropenem (9.1%) (*Figure 3*).
In pediatric and neonatal units, the top 3 consisted of ceftriaxone (31.0%) ampicillin/beta-lactamase inhibitor (25.4%) and meropenem (14.3%) (*Figure 4*).

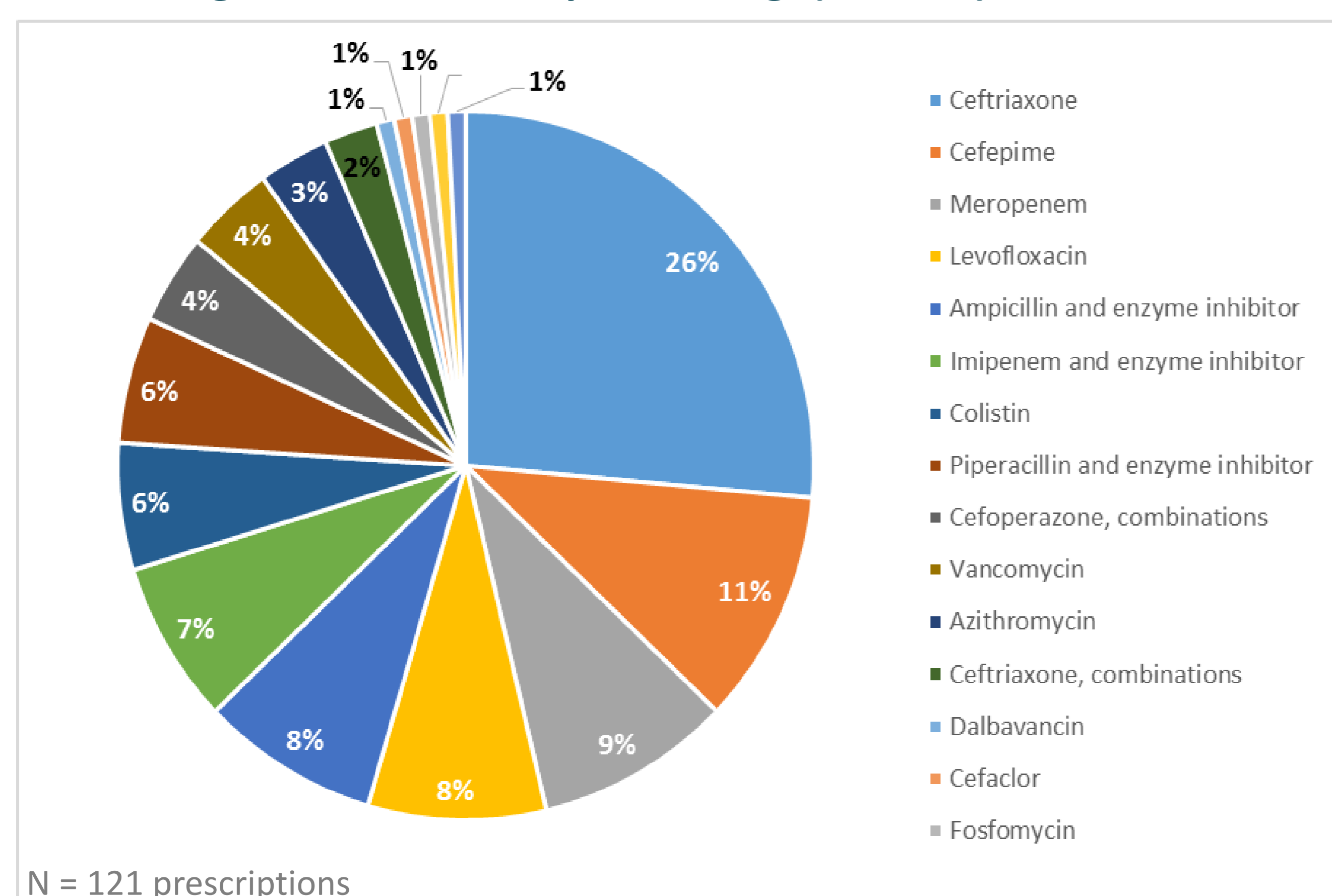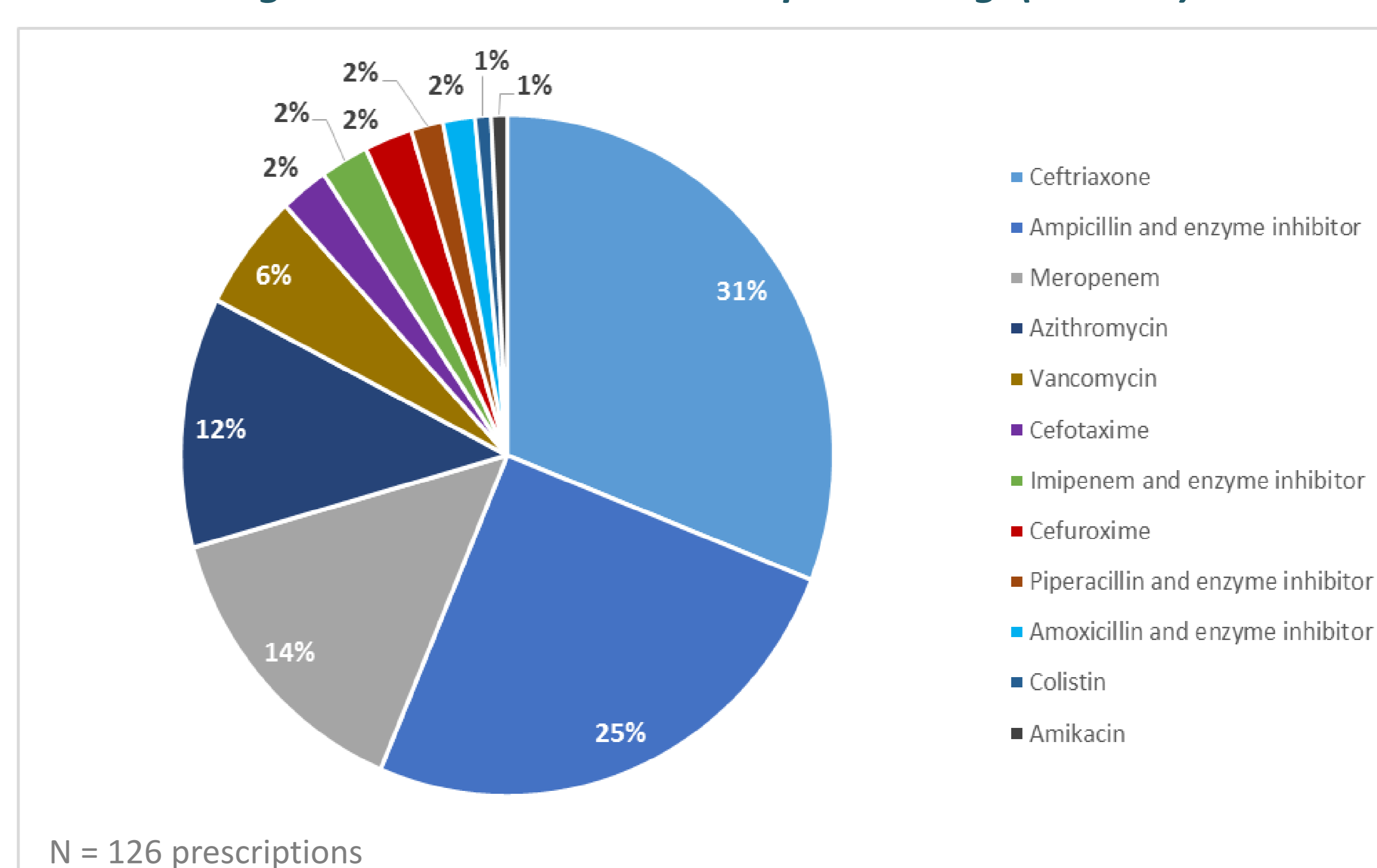**Figure 3. Antibiotic prescribing (ATC J01) in adults**

N = 121 prescriptions

Figure 4. Pediatric antibiotic prescribing (ATC J01)

N = 126 prescriptions

CONCLUSION:

The high proportion of empiric prescribing for community acquired pneumonia, and the use of broad-spectrum antibiotics are worrisome findings. Documentation of the stop/review date is remarkably low, yet the high use of CRP in the decision to treat indicates is an attempt to rationalize antibiotic use. Antibiotic stewardship interventions should include the introduction of a stop/review policy after 72 hours, make available updated guidelines to all clinicians and increase targeted treatment.