Identification of key areas for anti-microbial stewardship strategies in a large university teaching hospital: a point prevalence study

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Background
Prospective audit and feedback interventions are evidence-based antimicrobial stewardship strategies with a high potential for educational opportunities, where areas for improvement can be objectively identified.

Aim
To determine the prevalence of inappropriate antimicrobial prescribing in a 1000-bed university teaching hospital and to identify specific topics to be targeted by antimicrobial stewardship strategies.

Methods
A point prevalence study (PPS) was conducted on an index day in March 2015 by our antimicrobial stewardship team (AMT), using a paper-based audit tool. All in-patients > 18 years prescribed ≥ 1 antimicrobial agent were included. Data regarding patient demographics, antimicrobial prescriptions, indications, and microbiological results were extracted from the medical records. The appropriateness of the antimicrobial use was assessed against the local guidelines. General feedback for the hospital and detailed evaluation for each department were assembled.

Results
Among 779 included in-patients, 208 (26.7 %) received ≥ 1 antimicrobial agent. Antimicrobial therapy was deemed inappropriate in 71 patients (34.1 %), with the wrong choice of antibiotic as the most common reason (n=45, 63.4 %). Dosing errors were under-doses in patients with renal insufficiency (n=16, 22.5 %). Inappropriate prescribing was associated with the use of specific antibiotics: co-amoxiclav (dosing), moxifloxacin (choice) and meropenem (choice and dosing), and specific pathologies: presumed diagnoses of sepsis, urinary tract and respiratory infections. The indication for an antimicrobial agent was not documented in 51 patients (24.5 %). The use of parenteral antimicrobials was high (n=211, 76.2 %). Piperacillin/tazobactam was prescribed in almost 1 in 5 patients (n=38, 18.2 %).
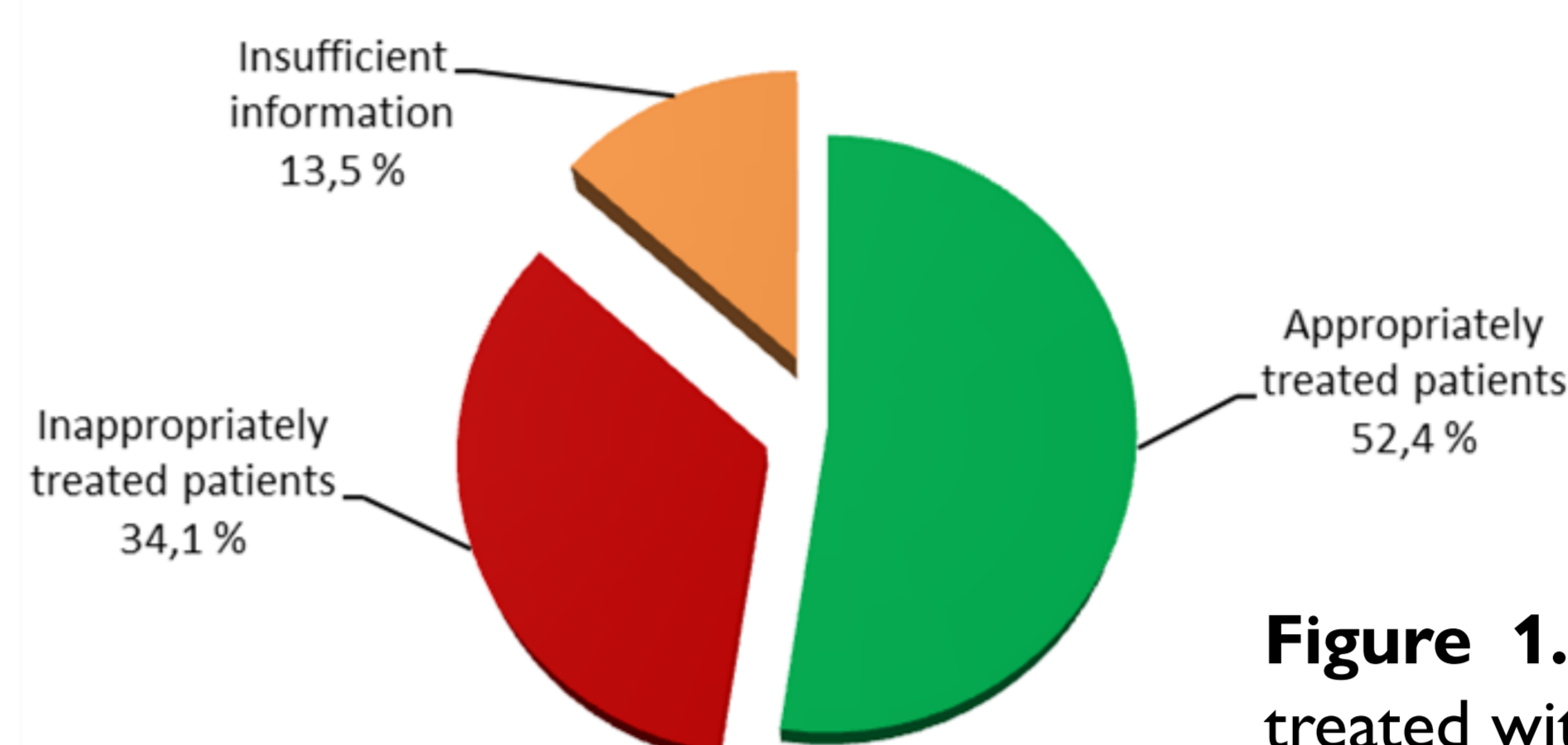

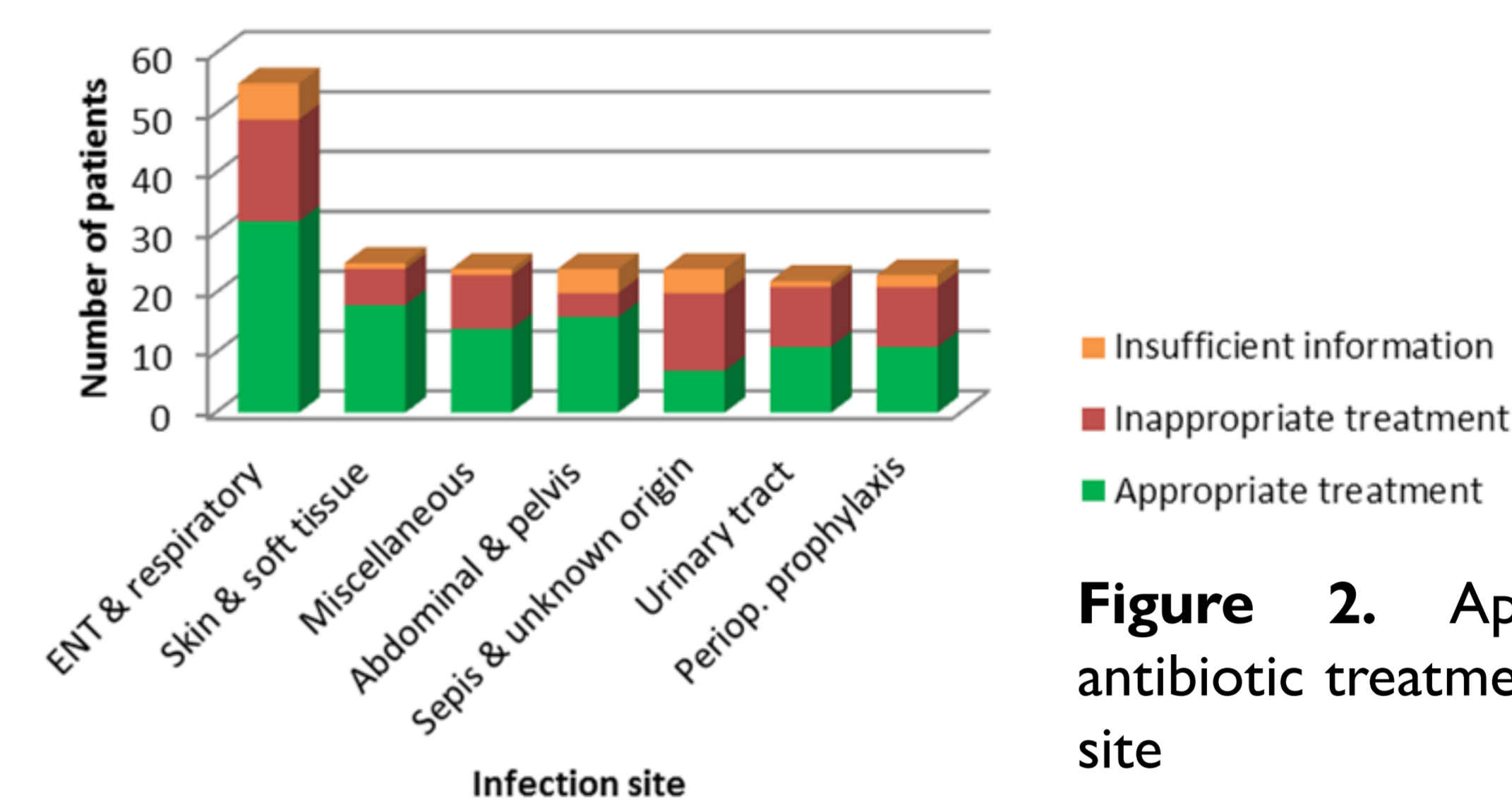Figure 1. Analysis of 208 patient cases treated with antiinfective agents

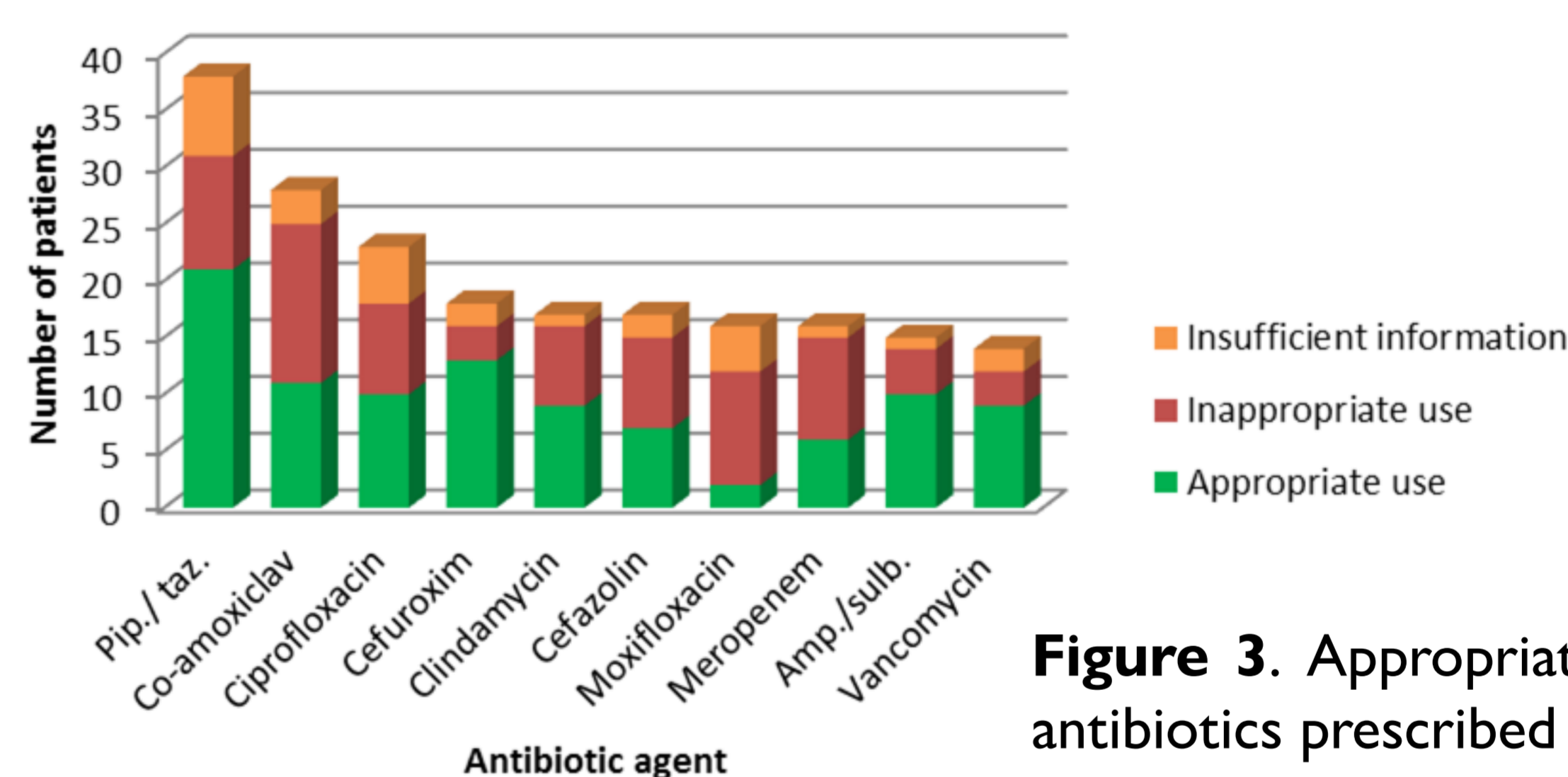Figure 2. Appropriateness of the antibiotic treatment according to infection site

Figure 3. Appropriateness of the top 10 antibiotics prescribed

The antimicrobial stewardship team at the University Hospital of Salzburg, Austria

Conclusion
The PPS on antimicrobial prescribing was an effective approach to identify necessary antimicrobial stewardship strategies in our hospital. We were able to assemble a feasible to-do list for the upcoming year:

TO-DO LIST
o Guidance and restrictive use: piperacillin/tazobactam, meropenem & moxifloxacin
o Guidance on dosing in renal insufficiency
o Updated guidance on sepsis, urinary tract and respiratory infections

PLUS to improve the sustainability of our efforts, use different teaching methods: written material, academic detailing, presentations in morning meetings.

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