

# Drug Use Evaluation: The appropriateness of ceftriaxone prescribing in a regional paediatric population.

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## INTRODUCTION

The aim of Antimicrobial Stewardship (AMS) programs is for improved patient outcomes and reduced adverse consequences that can be associated with antimicrobial use, such as toxicity, unnecessary cost, and antimicrobial resistance. Community-associated methicillin-resistant *Staphylococcus aureus* is several times more prevalent in remote Western Australian communities in comparison to rural and metro areas. To help prevent antimicrobial resistance from developing further, AMS principles must be adhered to prolong the effectiveness of the currently available antimicrobials. Although ceftriaxone is a commonly used antibiotic, a noticeable increase in prescribing on the paediatric ward has been observed. Therefore, the aim for this evaluation is to assess the appropriateness and guideline compliance of prescribing.

## METHODS

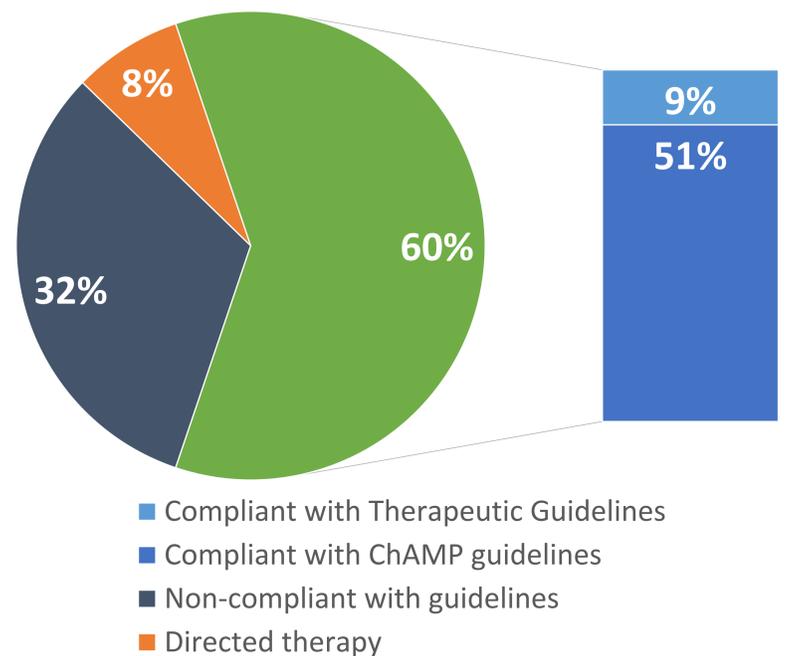
This is a retrospective observational case-control study. Patients who were discharged from the paediatric ward at Kalgoorlie Regional Hospital between the 1st of January 2022 and the 1st of April 2022 were screened using discharge summaries and medical records. Patients who received at least one dose of ceftriaxone were included in the evaluation. *Therapeutic Guidelines* and Children's Antimicrobial Management Plan (ChAMP) guidelines were used to assess compliance, and the National Centre for Antimicrobial Stewardship (NCAS) matrix was used to assess appropriateness.

## RESULTS

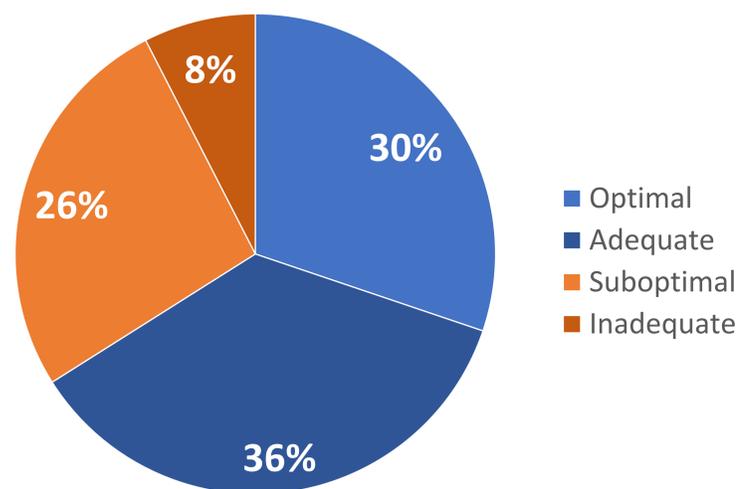
Ceftriaxone was charted in 26% (n=42) of screened patients (n=161), with 11 patients receiving a once-only dose that differed from the regular dose charted in route, dose or frequency. Of the 53 unique chart orders of ceftriaxone prescribed, 60% (n=32) were compliant with guidelines, 32% (n=17) were non-compliant with guidelines, and 8% (n=4) were directed therapy. Using the appropriateness matrix, 66% (n=35) were appropriate, and 34% (n=18) were inappropriate. An infectious disease specialist was involved with the patients care during their admission only 28.6% of the time (n=12), with most cases (71.4%) not receiving any AMS review (n=30).

## CONCLUSIONS

Greater adherence to guidelines by prescribers is required to optimally treat microbial infections and to reduce the incidence of resistance, toxicity and unnecessary costs. Potential areas for intervention include skin and soft tissue infections and other indications where ceftriaxone is not first-line therapy. Additionally, clear documentation in medical records to ensure all health care professionals have access to consistent and current information remains critical.



**Figure 1: Proportion of guideline compliance for 53 ceftriaxone orders in a paediatric population.** *Therapeutic Guidelines* compliance (n=5) and ChAMP guidelines compliance (n=27) made up a total of 60% guideline compliance (n=32). 32% of orders were non-compliant with guidelines (n=17), whereas only 8% were directed therapy (n=4).



**Figure 2: Proportion of ceftriaxone orders appropriateness based on the NCAS matrix.** 30% of orders were optimal (n=16), 36% of orders were adequate (n=19), 26% of orders were suboptimal (n=14), and 8% of orders were inadequate (n=4). In total, 66% of orders were appropriate (n=35) and 34% of orders were inappropriate (n=18).

## REFERENCES

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