

# ASSESSMENT OF THERAPEUTIC DRUG MONITORING IN OUTPATIENT PARENTERAL ANTIMICROBIAL THERAPY IN PAEDIATRIC PATIENTS

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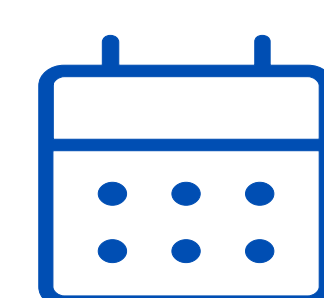
## Background and importance

- Outpatient parenteral antimicrobial treatment (OPAT) allows intravenous antimicrobial administration at home, providing an alternative to inpatient care that benefits paediatric patients and their caregivers.
- Paediatric population has significant intra- and inter-individual variability in drug exposure and underrepresentation in clinical trials, leading to an increased drug-associated toxicity risk.
- Proactive therapeutic drug monitoring (TDM) may optimize dosages, enhancing efficacy while minimizing adverse effects.

## Aim and objectives

- To determine **how many OPAT episodes** in paediatric patients **underwent TDM** out of those that could benefit from it.
- To **evaluate** the alteration of laboratory parameters related to **antimicrobial toxicity**.

## Materials and methods



**Retrospective single-centre** study from January 2019 to December 2023.



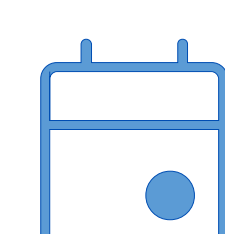
Paediatric patients (<18 years) treated with **aminoglycosides, linezolid, teicoplanin and voriconazole**.

Demographic, clinical, analytical, OPAT episode outcome and TDM variables were collected.

## Results



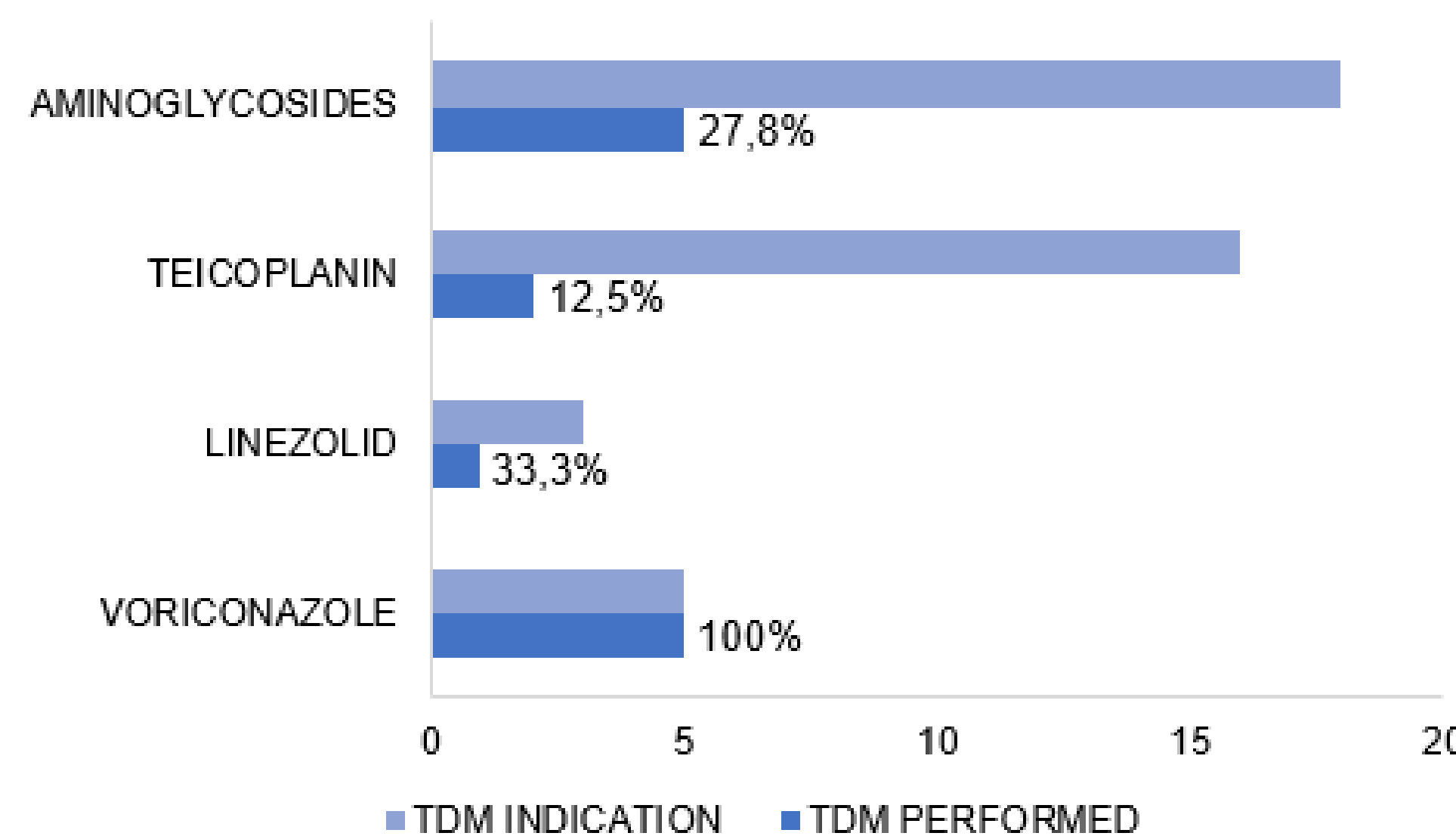
**24 patients**, 8 females (33,3%), mean age 11,8 years ( $\pm 5,5$ ) at the onset of the episode.



Median treatment duration: **15 days**. (IQR 12,5-20,5)

**243 OPAT episodes** analysed, **39 (16,0%)** with **TDM indication**.

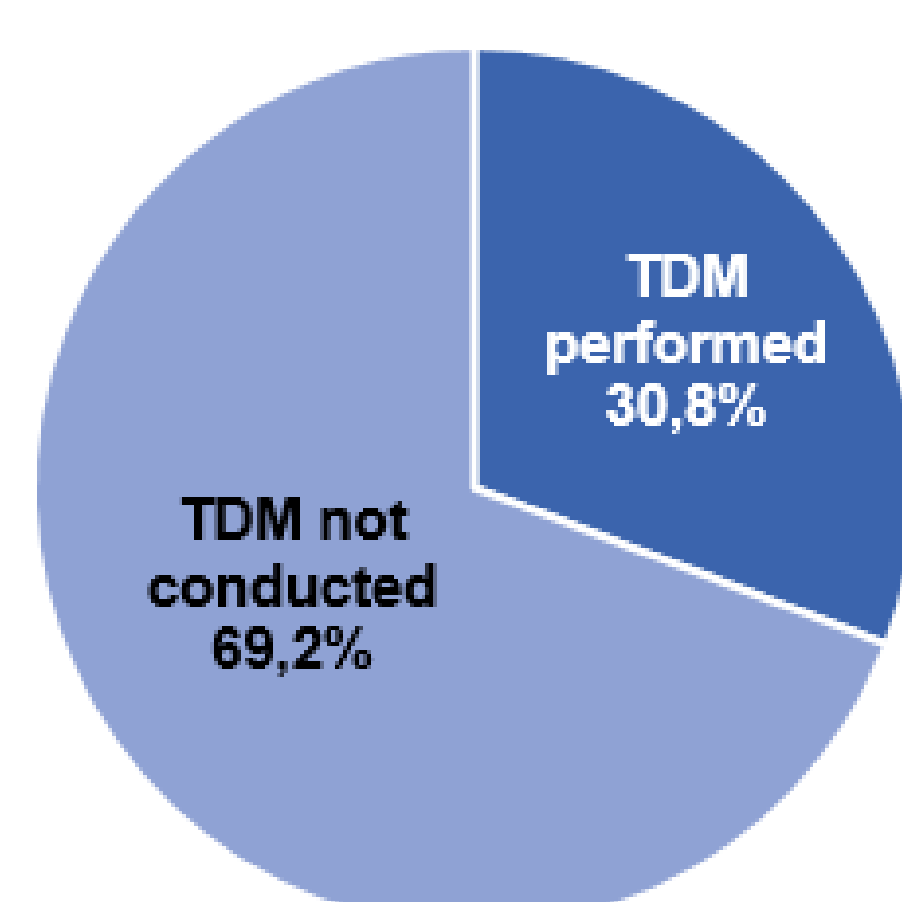
### ANTIMICROBIALS INVOLVED



### DRUG-RELATED TOXICITY

Out of 26 episodes, **18 (69,2%)** showed altered analytical parameters.

- **Hepatic alterations:** 3 episodes (2 treated with voriconazole, 1 with teicoplanin).
- **Renal alterations:** 1 episode treated with aminoglycosides.



Out of 12 episodes with TDM performed, **5 (41,7%)** showed **out-of-range concentration values**.

## Conclusions



TDM is performed in a **limited number of paediatric OPAT episodes**.



TDM often reveals **out-of-range values** and **altered analytical parameters**.



TDM along OPAT treatments is needed to **enhance patient safety** and **optimize treatment efficacy**.

