

VALUE OF THE CLINICAL PHARMACIST IN THE PHARMACOKINETIC MONITORING OF ANTIMICROBIALS

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Background: There has been a marked rise in the prescription of vancomycin and aminoglycosides over recent years due to the increase in infections caused by multi-resistant microorganisms. Measurement of their plasma concentrations (PCs) is necessary to correctly adjust the dosage and minimise the risk of nephrotoxicity.

Purposes: To investigate pharmaceutical interventions (PIs) during the pharmacokinetic monitoring of hospitalised patients receiving vancomycin or gentamicin and to analyse the health outcomes of monitored patients.

Materials and Methods:

Study design:

- Prospective observational study (may - september 2018)
- Clinical Pharmacokinetics Unit of Pharmacy Department.
- 350- bed general hospital

INCLUSION CRITERIA:

- Age \geq 18 yrs
- Treatment with vancomycin or gentamicin

EXCLUSION CRITERIA:

- Hospitalization in ICU
- Pre-surgical antibiotic prophylaxis

Study variables: sex, age and clinical (serum creatinine [Cr], diagnosis), pharmacological (drug, dosage, suspension motive) and on pharmaceutical interventions (PIs):

- PI-1: "Maintain schedule"
- PI-2: "Modify dose and/or interval"
- PI-3: "Temporary suspension to favour renal drug elimination"

Treatment effectiveness: Disappearance of initial symptoms/signs ('clinical recovery') or of the initial microorganism in control culture ('microbiological recovery')

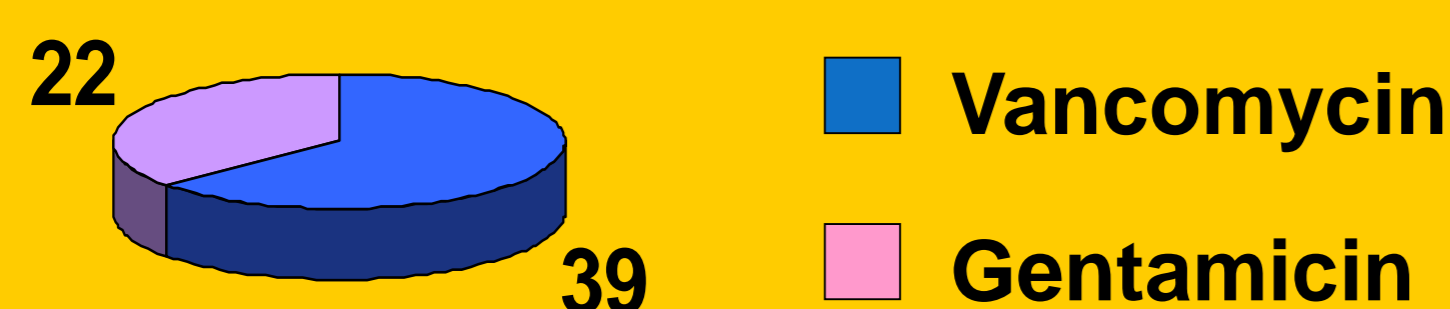
Nephrotoxicity: Cr \geq 1.4 mg/mL OR \geq 50% above baseline value

Bayesian estimation of individual pharmacokinetic parameters (MwPharm++® software) MEDIWARE®

Results:

STUDY POPULATION:

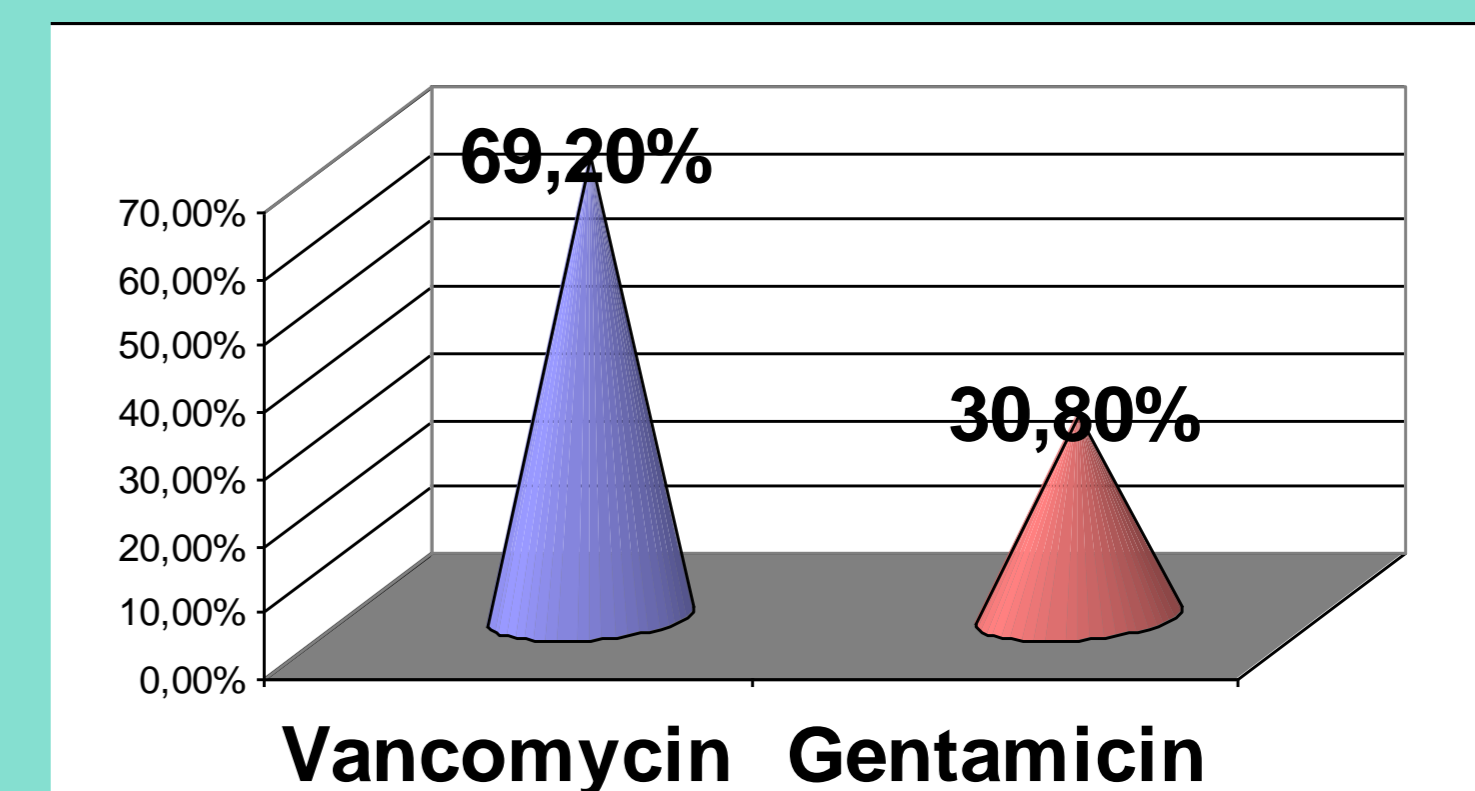
61 patients (55.7% females, mean age: 65.9 \pm 19.5 yrs, mean Cr: 0.7 \pm 0.5 mg/mL)



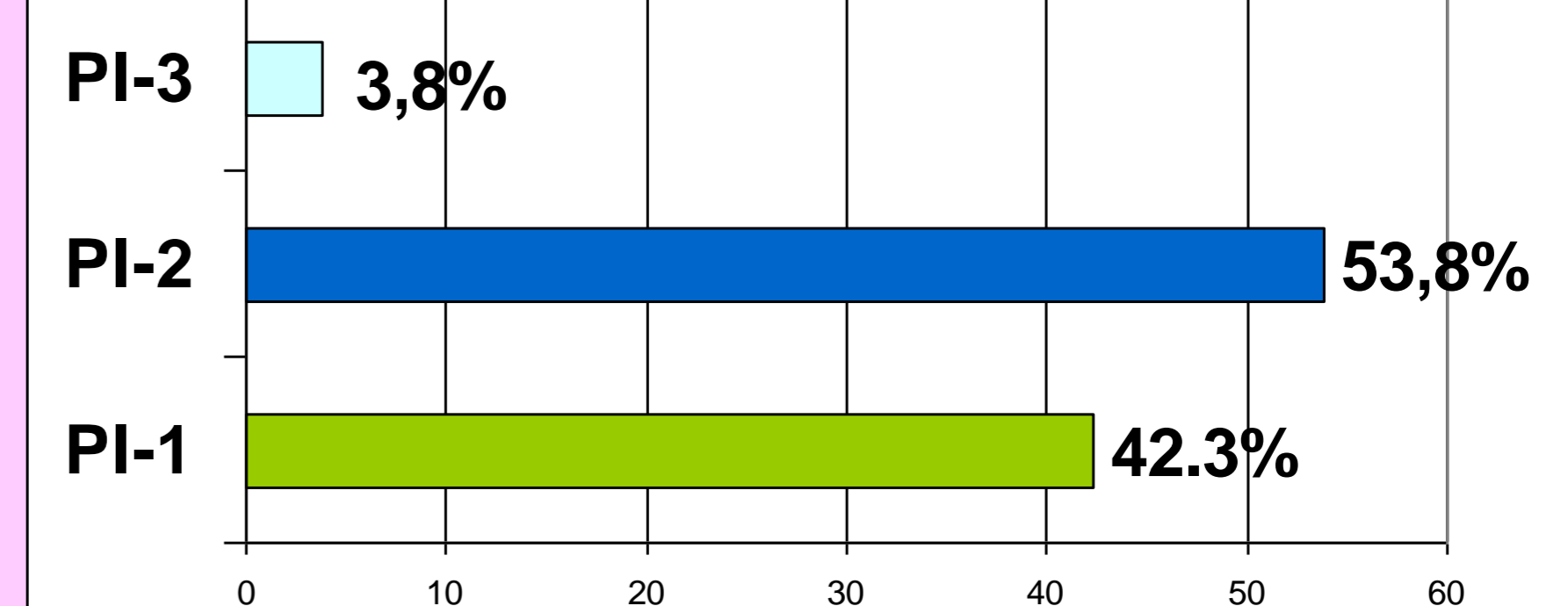
Main diagnosis: urinary tract (18.0%) and osteoarticular (14.8%) infections.

ANALYTICAL DETERMINATIONS (n = 104)

57.6% of PCs were outside the therapeutic range

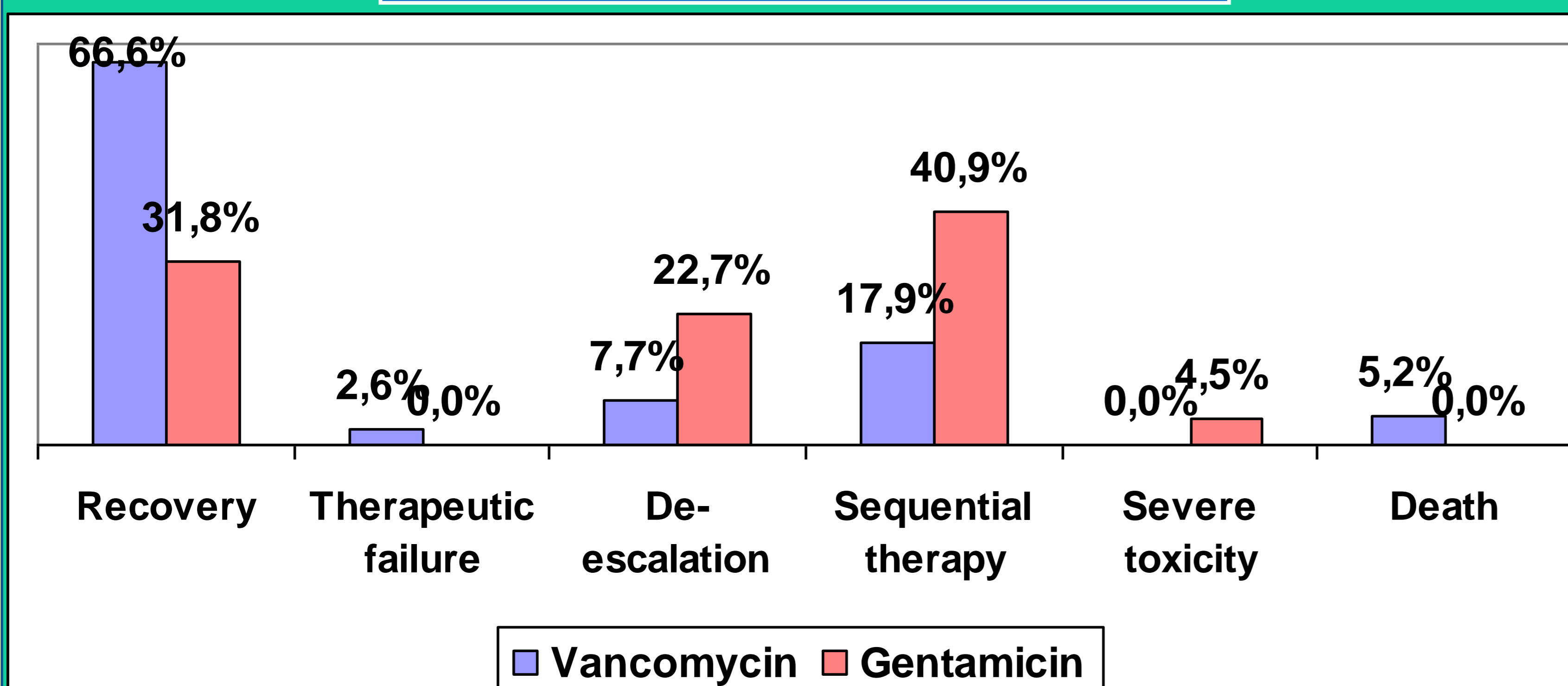


PHARMACEUTICAL INTERVENTIONS (PIs) (n = 60)

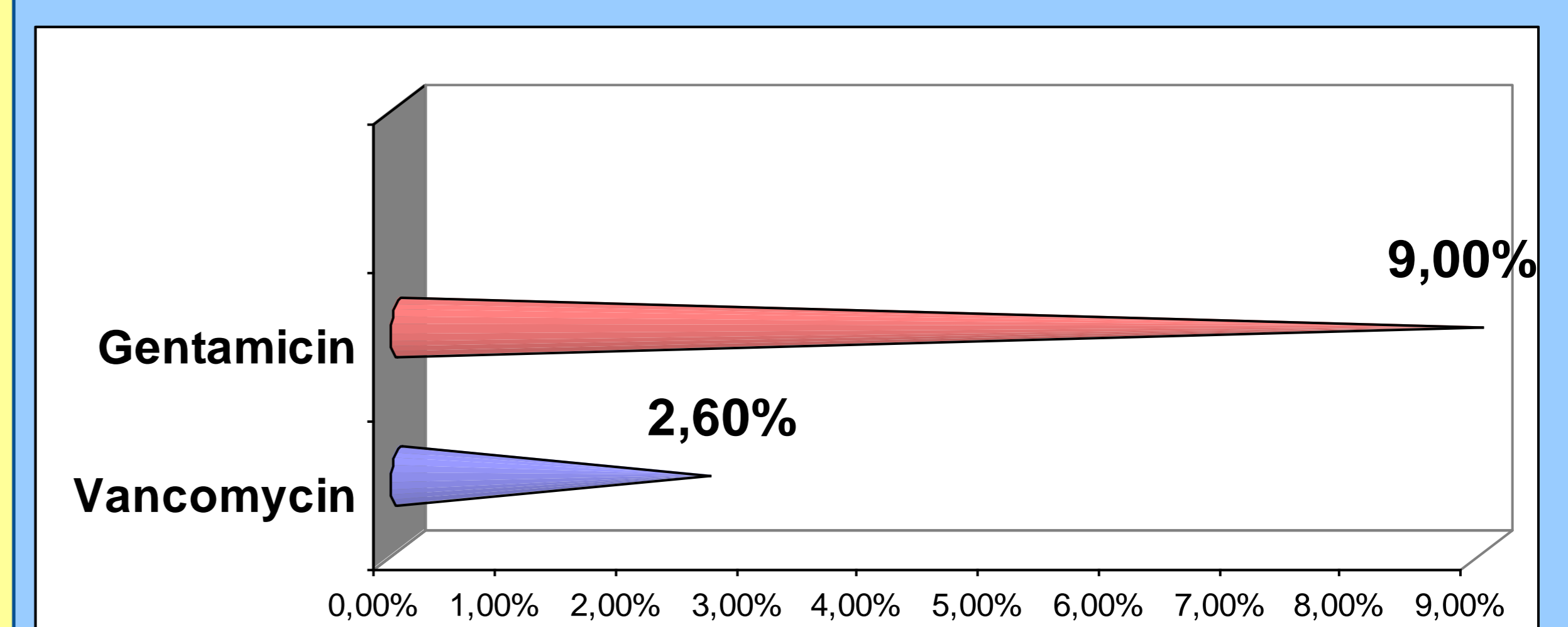


HEALTH OUTCOMES:

Reasons of suspension:



Nephrotoxicity:



Conclusions:

The pharmacist adds value to antimicrobial optimization. Dose or interval modification (PI-2) was the most frequent intervention, increasing treatment effectiveness in a large number of patients and minimizing as far as possible the risk of nephrotoxicity.



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J01- Antibacterials for systematic use



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