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 ≥ 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”

Study population: 61 patients (55.7% females, mean age: 65.9 ± 19.5 yrs, mean Cr: 0.7 ± 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)

Recovery: 66.6%, Therapeutic failure: 31.8%, Desescalation: 2.6%, Sequential therapy: 7.7%, Severe toxicity: 17.9%, Death: 0.0%

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

Reasons of suspension:
- PI-1: 66.6%
- PI-2: 31.8%
- PI-3: 2.6%

Health outcomes:

Nephrotoxicity: 2.60% Gentamicin, 9.00% Vancomycin

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.