

**P2004 Long-term vancomycin use is not associated with negative changes in audiograms**Clayton Humphrey<sup>1</sup>, Michael Veve\*<sup>2</sup>, Russell Smith<sup>1</sup>, Mahmoud Shorman<sup>1</sup><sup>1</sup> University of Tennessee Medical Center, Knoxville, United States, <sup>2</sup> University of Tennessee Health Science Center, Knoxville, United States

**Background:** Vancomycin is a commonly used antibiotic with potent activity against Gram-positive organisms, but prolonged use and high doses can lead to toxicity. While vancomycin-associated nephrotoxicity has been widely studied, few cases of ototoxicity have been described. The objective of this study was to determine the prevalence of negative changes in audiograms in patients receiving long-term intravenous (IV) vancomycin.

**Materials/methods:** This was an IRB approved, cross-sectional study performed at an academic medical center from 1/2012-11/2017. Patients who were prescribed IV vancomycin for  $\geq 14$  days and had baseline and follow-up audiometry were included. All data were extracted from the electronic medical record. The primary endpoint was negative change in audiogram while on vancomycin. Descriptive and bivariate statistics were used to describe the patient population.

**Results:** 324 patients were screened for inclusion; 79 received at least two audiograms while on vancomycin. 51% of patients were men, the median (IQR) patient age was 48 (37-61) years, and 10% of patients had an estimated creatinine clearance  $\leq 30$  mL/min. The median (IQR) time to first follow-up audiogram was 13 (8-17) days. Vancomycin indications were: 58% bone and joint, 18% endocarditis, 6% other bacteremia, 17% other infections. 11% of patients experienced a worsening change in hearing from baseline: 44% mild loss, 22% mild to moderate loss, 33% moderate to severe loss. In bivariate analyses, no variables were found to be associated with a worsening change in audiogram, including age  $\geq 65$  years, elevated serum vancomycin levels, or vancomycin doses  $\geq 4$  grams/day (**Table 1**).

**Conclusions:** The prevalence of negative changes in audiograms in patients receiving long-term intravenous vancomycin was low. The utility of routine audiogram testing in this population remains questionable, however larger studies may be warranted to further explore the risk of ototoxicity.

<b>Table 1. Variables associated with negative audiogram changes</b>	<b>Total Population, N (%)</b>	<b>Crude Odds Ratio (95% CI)</b>
Vancomycin $\geq 4$ grams/day	19 (24%)	0.9 (0.2-4.6)
Age $\geq 65$ years	17 (22%)	1.0 (0.2-5.6)
Vancomycin serum concentration $\geq 20$ mcg/mL	56 (71%)	1.1 (0.2-6.1)
Creatinine clearance $\leq 30$ mL/min	8 (10%)	1.2 (0.1-10.4)

