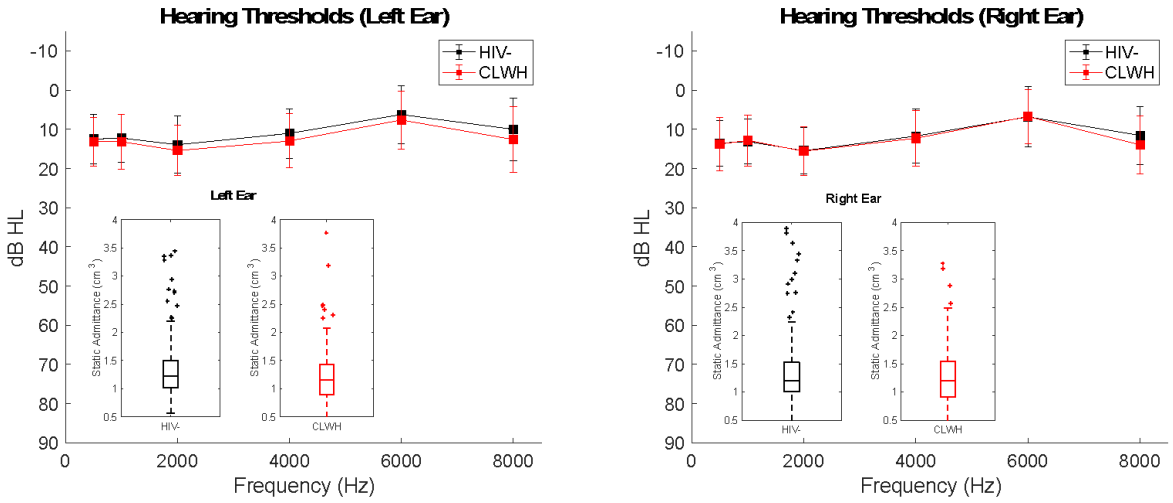
Supplemental Online Content

Niemczak CE, Ealer C, Fellows A, et al. Peripheral auditory function in Tanzanian children living with HIV with clinically normal hearing. *JAMA Netw Open*. 2023;6(3):e233061. doi:10.1001/jamanetworkopen.2023.3061

This supplemental material has been provided by the authors to give readers additional information about their work.

eFigure 1. Hearing Thresholds

Pure-tone thresholds (audiogram format) are displayed from 0.5-8 kHz with inlayed static admittance measures. HIV-negative are plotted in black and CLWH are plotted in red. Error bars show ±1 standard deviation. Observed pure-tone audiometry results are consistent with normal peripheral hearing ability with all mean threshold values less than 20dB HL. Yet, CLWH showed small non-significant reductions in thresholds at 8.0kHz in both ears.



eTable 1. Linear Mixed-Effects Models of Static Admittance and Pure-Tone Audiometry From 0.5-8.0 kHz for the Right and Left Ear

Model estimates reference the HIV-negative group (Model specification (*Measure ~ HIV status + (1|subject)*). No significant difference in static admittance or pure-tone audiometry existed between groups at a corrected *p*-value of 0.005 for the mixed-effects models.

Ear	Measure	Mixed-Effects Model	
		Estimate (95% CI)	***p*-Value**
Right	**Static Admittance**	-0.040 (-0.235, 0.154)	0.684
	500 Hz	0.192 (-1.180, 1.565)	0.783
	1000 Hz	-0.280 (-1.581, 1.021)	0.672
	2000 Hz	0.020 (-1.355, 1.395)	0.977
	4000 Hz	0.478 (-1.083, 2.040)	0.547
	6000 Hz	0.775 (-0.877, 2.428)	0.357
	8000 Hz	2.355 (0.699, 4.011)	0.008
Left	**Static Admittance**	-0.078 (-0.268, 0.111)	0.415
	500 Hz	0.554 (-0.829, 1.936)	0.431
	1000 Hz	0.924 (-0.472, 2.321)	0.194
	2000 Hz	1.367 (-0.197, 2.931)	0.086
	4000 Hz	1.744 (0.246, 3.243)	0.023
	6000 Hz	2.184 (0.544, 3.824)	0.010
	8000 Hz	2.389 (0.514, 4.264)	0.007

eAppendix. Supplementary Antiretroviral Regimen Analysis for CLWH

Linear mixed-effects models of antiretroviral drug regimens in CLWH at initial visit and at final visit were conducted to assess the effect of antiretroviral therapy on DPOAE and ABR variables. Model estimates reference the antiretroviral regimen group at initial visit (Model #1 specification (*Measure ~* ***Initial*** Antiretroviral *Drug Regimen + (1|subject)*) and at the final visit (Model #2 specification (*Measure ~* ***Final*** Antiretroviral *Drug Regimen + (1|subject)*). The antiretroviral regimen at the subjects last (most recent) visit was predominantly one of two regimens: abacavir, lamivudine, lopinavir/ritonavir (38%), or abacavir, lamivudine, dolutegravir (31%). We coded antiretroviral regimens in one of three groups:

1 abacavir, lamivudine, lopinavir/ritonavir

2 abacavir, lamivudine, dolutegravir

3 other

But due to repeated visits, we also looked at the regimen CLWH were on at their initial visit, which indicated: abacavir, lamivudine, lopinavir/ritonavir (32%), or zidovudine, lamivudine, nevirapine (46%). We did a similar coding scheme for their initial visit:

1 abacavir, lamivudine, lopinavir/ritonavir

2 zidovudine, lamivudine, nevirapine

3 other

Since the average number of visits for CLWH was 2.23, we decided to run two sets of mixed-effects models, one on the initial antiretroviral regimen and the other on the current (or final visit) antiretroviral regimen. Results are shown below and in the supplementary analysis:

eTable 2. DPOAE Linear Mixed-Effects Models of Antiretroviral Drug Regimens in CLWH at Initial Visit and at Final Visit

Ear	DPOAE Frequency	Initial Antiretroviral Regimen		Final Antiretroviral Regimen	
		Estimate (95% CI)	*p*-Value	Estimate (95% CI)	*p*-Value
Right	1500 Hz	0.232 (-1.257, 1.721)	0.758	-0.691 (-1.847, 0.465)	0.239
	2000 Hz	-0.024 (-1.680, 1.632)	0.977	-0.856 (-2.129, 0.417)	0.186
	3000 Hz	0.517 (-1.081, 2.116)	0.523	-0.751 (-1.910, 0.408)	0.202
	4000 Hz	-0.116 (-1.725, 1.493)	0.887	-1.000 (-2.197, 0.197)	0.101
	6000 Hz	0.093 (-1.722, -1.909)	0.919	-0.789 (-2.149, 0.570)	0.253
	8000 Hz	0.423 (-2.024, 2.869)	0.733	-0.612 (-2.455, 1.230)	0.512
Left	1500 Hz	-0.290 (-2.019, 1.439)	0.741	-1.546 (-2.777, -0.315)	0.014
	2000 Hz	-0.387 (-1.960, 1.187)	0.628	-1.606 (-2.794, -0.418)	0.010
	3000 Hz	-0.687 (-2.141, 0.767)	0.352	-0.912 (-2.024, 0.201)	0.107
	4000 Hz	-0.627 (-2.345, 1.091)	0.472	-1.081 (-2.303, 0.141)	0.082
	6000 Hz	0.977 (-0.968, 2.922)	0.322	-1.418 (-2.938, 0.102)	0.067
	8000 Hz	0.777 (-1.831, 3.384)	0.557	-1.105 (-3.077, 0.868)	0.270

eTable 3. ABR Linear Mixed-Effects Models of Antiretroviral Drug Regimens in CLWH at Initial Visit and at Final Visit

Click Rate	Measure	Component	Initial Antiretroviral Regimen		Final Antiretroviral Regimen	
			Estimate (95% CI)	*p*-Value	Estimate (95% CI)	*p*-Value
Slow	Amplitude	I	-0.013 (-0.041, 0.015)	0.348	-0.002 (-0.025, 0.021)	0.850
		III	0.007 (-0.014, 0.028)	0.500	0.001 (-0.016, 0.017)	0.951
		V	0.012 (-0.012, 0.035)	0.332	-0.004 (-0.023, 0.015)	0.673
	Latency	I	-0.053 (-0.171, 0.064)	0.373	-0.004 (-0.098, 0.091)	0.936
		III	-0.075 (-0.176, 0.027)	0.148	0.011 (-0.073, 0.094)	0.796
		V	-0.030 (-0.141, 0.080)	0.588	0.033 (-0.058, 0.124)	0.472
Fast	Amplitude	I	-0.014 (-0.035, 0.007)	0.195	0.001 (-0.016, 0.018)	0.891
		III	-0.003 (-0.021, 0.015)	0.740	-0.007 (-0.021, 0.008)	0.353
		V	0.010 (-0.006, 0.025)	0.216	-0.002 (-0.015, 0.010)	0.698
	Latency	I	-0.076 (-0.216, 0.064)	0.283	-0.019 (-0.133, 0.095)	0.738
		III	-0.022 (-0.142, 0.098)	0.713	0.044 (-0.050, 0.138)	0.359
		V	-0.045 (-0.161, 0.070)	0.438	0.075 (-0.017, 0.167)	0.107

These analyses did not show a strong relationship between antiretroviral therapy and the difference in auditory variables between CLWH and HIV-negative children.