**Background:** Ongoing HIV-1 replication despite antiretroviral therapy (ART) use may contribute to higher burden of aging-related non-AIDS comorbidities (NACM) among women living with HIV (WLWH) versus women without HIV. We evaluated effects of cumulative HIV-1 viremia copy-years (VCY) on NACM among WLWH.
**Methods:** We included WLWH in the Women's Interagency HIV Study through 9/13/2019 with ≥2 HIV-1 RNA viral loads (VL) <200 copies/mL within a two-year-period (baseline) following self-reported ART use. Primary outcome was multimorbidity (≥2 NACM accrued of 5 assessed: hypertension, dyslipidemia, diabetes, cardiovascular disease, kidney disease); presence of any NACM at baseline was exclusionary. VCY measures were calculated using the trapezoidal rule as area-under-the-VL-curve. A Cox proportional hazard model with time-dependent covariates was fit to estimate the association of time-updated cumulative VCY and multimorbidity, after adjusting for age, race/ethnicity, body mass index ≥30 kg/m$^2$, income, smoking, alcohol, and cocaine use, CD4 count, CD4 nadir, enrollment site, yearly number of viral copies.
**Results:** 806 WLWH contributed 6,892 women-years, with median 12 (Q1-Q3 7–23) VL measured per participant on a median interval of 182 (Q1-Q3 167–197) days. Baseline characteristics were median age 39 years, 56% Black, 36% reported smoking, and median CD4 count of 534 cells/mm$^3$. Median time-updated cumulative VCY was 5.4 (Q1-Q3 4.7–6.9) $\log_{10}$ copy-years/mL. Of 211 (26%) WLWH who developed multimorbidity, 324 (40%) had hypertension, 193 (24%) dyslipidemia, 69 (9%) diabetes, 66 (8%) cardiovascular and 44 (5%) chronic kidney disease. Compared with WLWH who had time-updated cumulative VCY <5 $\log_{10}$, multimorbidity was associated with an adjusted hazard ratio of 2.03 (95% CI 1.29–3.20) and 3.63 (95% CI 2.04–6.44) for those with VCY 5–6.9 and ≥7 $\log_{10}$ copy-years/mL, respectively (overall $p < 0.0001$) (Figure).
**Conclusions:** Among women on ART, time-updated cumulative VCY was associated with multimorbidity and hence may be a prognostically useful biomarker to assess risk for aging-related NACM in this population.

# PESAC01

## Prevalence and individual and community-level risk factors of advanced HIV disease among people living with HIV from nine African countries

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**Background:** People living with HIV (PLWH) with advanced HIV disease (AHD) (CD4 cell count <200 cells/mm$^3$) are at higher risk of opportunistic infections, non-AIDS defining comorbidities, and death. We used Population-based HIV Impact Assessment (PHIA) survey data from a random sample of the population in Cameroon, Eswatini, Ethiopia, Lesotho, Malawi, Tanzania, Uganda, Zambia, and Zimbabwe to examine prevalence of AHD and identify individual and community-level correlates of AHD among PLWH aware of their status (PLWHA).
**Methods:** Between 2015–2017, data from interviews and home-based HIV testing were collected. Blood samples were analyzed for HIV RNA, detectable antiretrovirals, and CD4+ cell counts. PLWH were considered aware of their status based on self-report or if antiretrovirals were detectable. Community-level variables were created at each enumeration area (EA)-level. Logistic regression using weighted data and clustered analysis to account for cross-country and EA variation was used to determine individual and community-level factors associated with AHD among PLWHA aged 15–59 years.
**Results:** Of 14,329 PLWHA, 11.6% (95% CI: 10.9%-12.4%) had AHD. AHD prevalence ranged from 6.59% (95% CI: 5.59%-7.76%) in Eswatini to 15.3% (95% CI: 13.7%-17.0%) in Zimbabwe. By sex, 17.4% (95% CI: 15.8%-19.0%) of men and 8.63% of women (95% CI: 7.91%–9.41%) had AHD. In multivariable analysis, higher odds of AHD was associated with male PLWHA, those aged 25–54 years, reporting individual-level stigmatizing behavior, not having sexual intercourse in the last year, not being on antiretroviral therapy (ART), and residing in communities where there was denial of health services due to HIV status (Figure 1).
**Conclusions:** AHD among PLWHA remains a common challenge despite increased access to ART. Interventions are needed to enhance early diagnosis and sustained care, particularly among older men. Stigma at the community and health facility-level hinders access and engagement in care, suggesting the need to implement and scale-up community and health-systems focused HIV stigma interventions.

# PESAC02

## High transmitted drug resistance in Brazil: unprecedented levels of INSTI resistance

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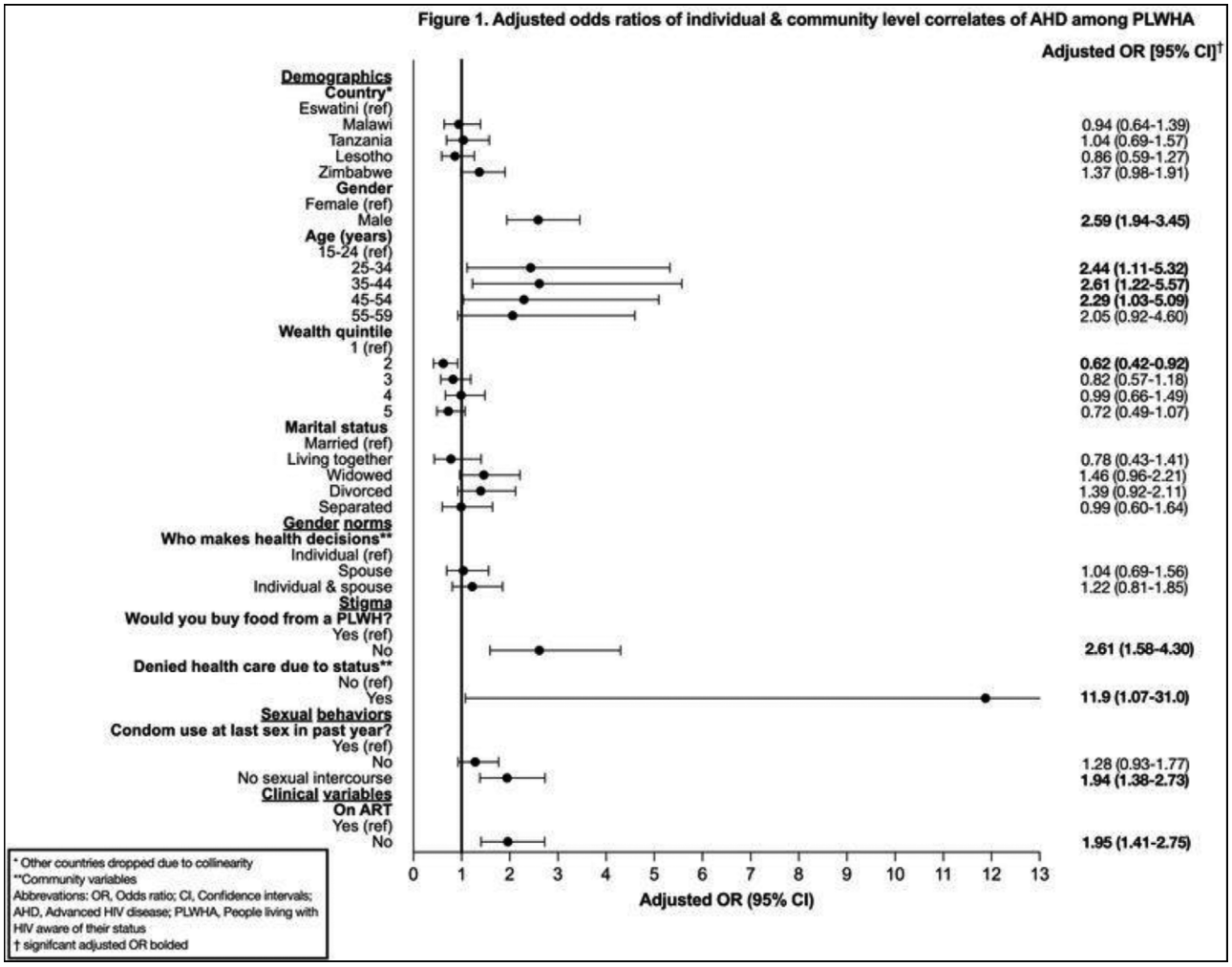
**Background:** As of September 2021, 775.805 individuals were on antiretroviral therapy (ART) in Brazil. Until January 2017, the only Integrase Strand Transfer Inhibitor (INSTI) available in Brazil was Raltegravir, mainly used for salvage therapy when resistance to protease inhibitors (PIs) was detected. In January 2017, dolutegravir was introduced for first-line treatment. We evaluate the national prevalence of transmitted drug resistance (TDR) mutations in treatment-naïve patients initiating ART.
**Methods:** The HIV Threshold Survey methodology was utilized. From September 2020 to February 2022, subjects were selected from seven highly populated cities representative of all Brazilian macro-regions: Belem (North), Salvador (Northeast), Brasilia (Central), Rio de Janeiro and Santos (Southeast), and Itajai and Porto Alegre (South). Dried Blood Spots were collected on SS903 cards and transported to a central laboratory for genotyping of the reverse transcriptase, protease, and integrase of the *pol* gene.
**Results:** Of 244 individuals analyzed, 56 (22.95%) harbored TDR mutations. The mean CD4+T-cell count was 425 cells/μL, and the mean viral load was 312.923 copies/mL. The regional TDR prevalence was 16.66% in the Northeast, 22.05% in the Southeast, 14.89% in the Central region, 35.71% in the North, and 24% in the South. Overall, TDR prevalence was 4.09% for nucleoside reverse transcriptase inhibitors, 11.47% for non-nucleoside reverse transcriptase inhibitors, 2.87% for PIs, and. 2.05% for INSTI (Table). TDR to two and three antiretroviral classes was 0,82% and 0.41%, respectively. The prevalence of Non-B subtypes was 32.79%, being 20.49% of C, 4.92% of F, and 7.38% of recombinants.
**Conclusions:** We identified variable TDR prevalence, ranging from intermediate to more frequently high levels. Previous use of Raltegravir in salvage therapy may have contributed to this unprecedented level of INSTI TDR.




**Abstract PESAC01-Figure 1.**

**Abstract PESAC02-Table 1. Prevalence of resistant associated mutations in percentages for each antiretroviral class.**

| NRTI (%) | | NNRTI (%) | | PI (%) | | INSTI* (%) | |
|---|---|---|---|---|---|---|---|
| M184V, I | 2.70 | K103N | 6,48 | V82A | 0.53 | T97A | 1.79 |
| V75I | 0.54 | V106I | 2,70 | M46I | 0.53 | E138K | 0.90 |
| K219Q | 0.54 | V179D, M203I | 4,86 | V32I | 0.53 | G140S | 0.45 |
| A62V | 1.08 | V108I | 1.08 | V43T | 0.53 | G140R | 0.45 |
| L210W | 0.54 | M230I | 1.08 | N88D | 0.53 | | |
| | | A98G | 0.54 | L10F | 0.53 | | |
| | | E138A, K, G, Q | 7,02 | L33F | 0.53 | | |
| | | G190A | 0.54 | | | | |
| | | Y181C | 0.54 | | | | |

*Substitution N155K detected in one patient infected with clade B virus

# PESAC03

## "MENTORS MOTHERS"! The Link between community and health facilities for PMTCT Programs in Tanzania

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**Background:** In the implementation of GF 2020–2023, the target is to eliminate new HIV infection among HIV exposed infants from 8% in 2018 to below 5% in 2023 and to increase access to ART among HIV infected children from 60% in 2016 to 95% by 2023. The use of the community approach through mentor mothers is a new strategy to ensure early identification and linkage, retention throughout the cascade of care. The intervention is implemented in a total of 10 regions, 57 councils, and 330 health facilities.