Aging with HIV:
Association of ART Type and Adherence with Viral Suppression

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BACKGROUND

- Adherence to antiretroviral therapy (ART) is essential for effective management of HIV
- Barriers to ART adherence include mental health conditions and substance abuse, while older age is often associated with better adherence
- ART forgiveness allows people living with HIV (PWH) to stay virally suppressed at lower adherence levels (e.g., <90%)

STUDY AIMS

- Identify patterns (i.e., latent classes) of ART utilization in a real-world clinical population
- Describe age differences in latent class membership, HIV viral suppression, and ART adherence
- Determine whether certain ART utilization patterns were more forgiving of poor adherence

METHOD

Sample

- 3,552 adult members of a Medicaid managed care plan who were HIV positive and continuously enrolled from 2017 through 2019
- Claims and clinical records data

Baseline Demographics		
Gender Identity	Cis Female	32%
	Cis Male	63%
	Transgender	5%
Race	Black/African American	54%
	White	8%
	Multiracial	35%
Ethnicity	Hispanic/Latino	35%
Age categories	18 – 29 years	13%
	30 – 49 years	57%
	50 – 64 years	29%

Analysis

- Pharmacy fill data were used to characterize ART medications with latent class analysis (LCA) to capture the complexity of real-world ART usage (e.g., multiple medications, ART switching)
- Logistic regression models examined whether odds of viral suppression vary by ART adherence level for each latent class
- Covariates: sociodemographics, physical comorbidities, behavioral conditions, nadir CD4 cell count, ART switches

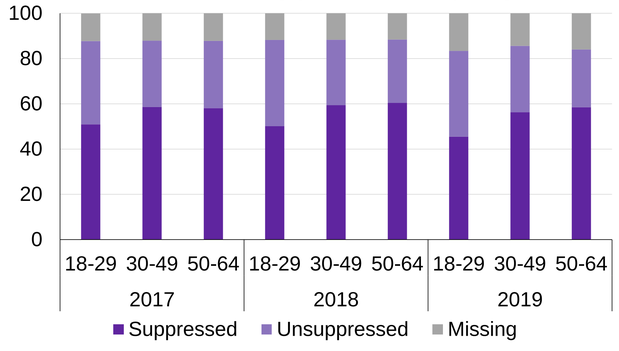
RESULTS

Latent Classes by Age

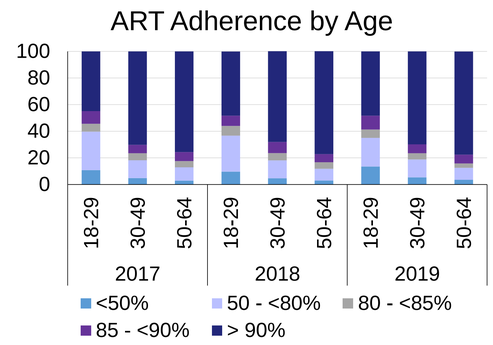
		2017	2018	2019
LCA 1 (DTG+FTC/TAF+DRV/COBI)	**Total**	**26%**	**25%**	**20%**
	18-29	22%	21%	14%
	30-49	25%	25%	20%
	50-64	30%	26%	22%
LCA 2 (DRV+RTV+FTC/TDF)	**Total**	**16%**	**11%**	**6%**
	18-29	10%	4%	3%
	30-49	16%	11%	6%
	50-64	19%	13%	8%
LCA 3 (DTG/ABC/3TC)	**Total**	**37%**	**15%**	**30%**
	18-29	44%	15%	30%
	30-49	37%	14%	31%
	50-64	35%	16%	30%
LCA 4 (BIC/FTC/TAF)	**Total**		**26%**	**25%**
	18-29		31%	31%
	30-49		26%	25%
	50-64		25%	22%
LCA 5 (EVG/COBI/FTC/TAF)	**Total**		**24%**	**19%**
	18-29		29%	23%
	30-49		25%	19%
	50-64		20%	17%

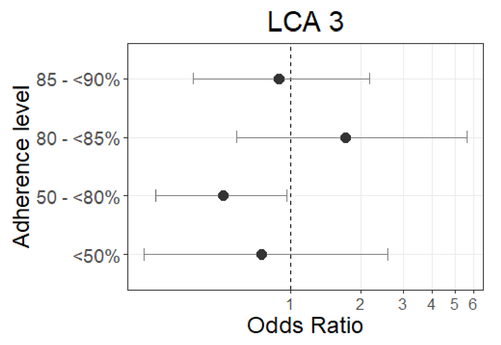
Drug names: 3TC = lamivudine; ABC = abacavir; BIC = bictegravir; COBI = cobicistat; DRV = darunavir; DTG = dolutegravir; EVG = elvitegravir; FTC = emtricitabine; TAF = tenofovir alafenamide; TDF = tenofovir disoproxil fumarate. Note: Drugs identified in each latent class to not identify a specific regimen but represent the range of participants' most commonly used medications

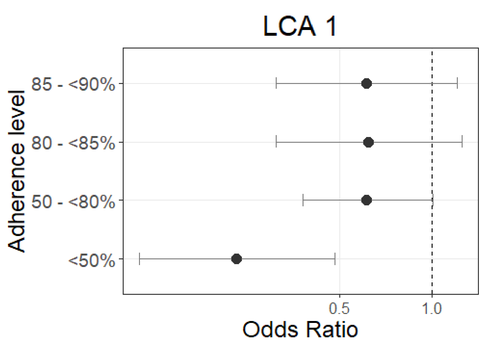
HIV Viral Suppression by Age

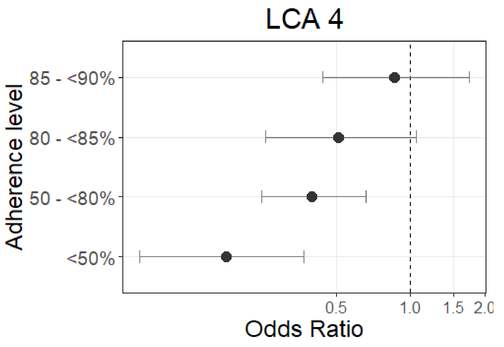


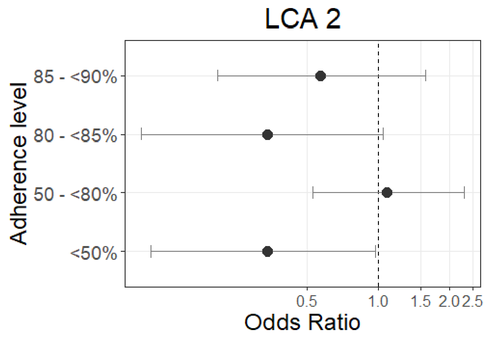
Association between Adherence Levels and HIV Viral Suppression by Latent Classes

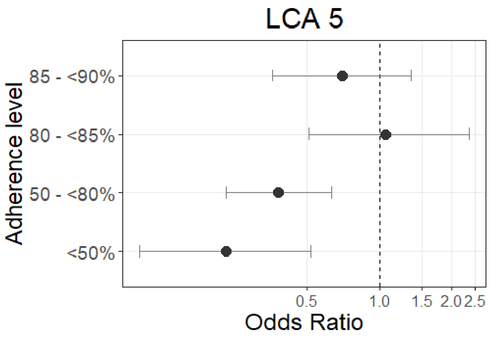












RESULTS SUMMARY

- Five latent classes of ART medication usage were identified consistently out of 1100+ unique medication combinations
- Approximately 50% of the sample reported an undetectable HIV viral load each year across all age groups
- Older age was positively associated with ART adherence in each year
- Latent classes of ART medication usage did not differ significantly in odds of maintaining viral suppression with at least 80% adherence
- Covariates, nadir CD4 count and number of behavioral conditions, were consistently associated with viral suppression for all age groups

CONCLUSIONS

- ART adherence levels required for HIV viral suppression in real-world settings may be lower than previously used benchmarks
- Failure to maintain durable viral suppression appears to be part of a syndrome of poor health in this population of PWH engaged in commonly used contemporary ART regimens
- These findings highlight the importance of life-course illness trajectories when considering disease management and treatment strategies among PWH as they age