Persistence on Guideline-Recommended HIV Treatment: Comparison Among US Medicaid Beneficiaries Newly Initiating Treatment with Single- versus Multiple-Tablet Regimens

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Introduction

- There is a paucity of persistence data on US Medicaid beneficiaries prescribed Department of Health & Human Services (DHHS) guideline-recommended antiretroviral treatment (ART) regimens.[1]

Objective

- The purpose of this study is to compare the persistence of newer DHHS guideline-recommended single- and multiple-tablet regimens (STRs and MTRs) for treatment-naïve patients.

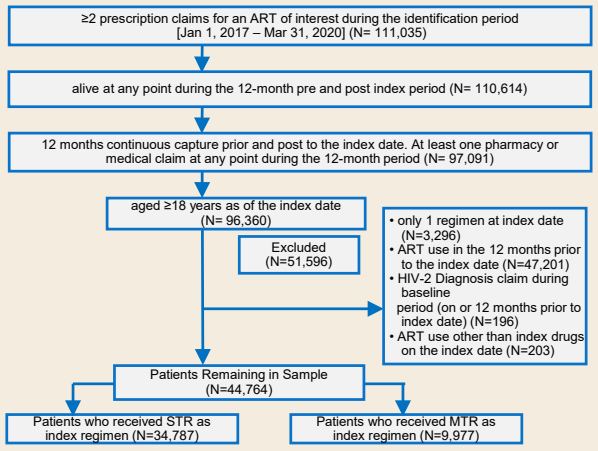
Methods

- A retrospective analysis was conducted using the All-Payer Claims Database (APCD) for persons living with HIV initiating ART between Jan 1st, 2017, and Mar 31st, 2020, with 12 months continuous capture prior and post to the index date.
- For STRs, the index date was defined as the date of the 1st ART claim.
- For MTRs, the index date was the fill date for the last medication in the regimen (±5-day window between fills for component comprising the regimen is allowed).
- Persistence was measured from the index date until treatment discontinuation (≥90-day gap between fills of index regimen) or the end of the study period, whichever occurred first.
- For MTRs, patients must remain on all therapies that comprise the initial regimen to be counted as persistent.

Results

- We identified 44,764 (STRs=34,787; MTRs=9,977) Medicaid beneficiaries who newly initiated ART (Figure 1, Table 1). Patient characteristics between groups were mostly similar as seen in Table 2.
- At 6 months, 62% of patients on STRs were persistent, compared to 41% for MTRs (Table 3)
- Among all patients regardless of DHHS recommendation status, persistence was highest with B/F/TAF 68% at 6 months and 44% at 12 months

Figure 1. Sample Selection



ART: antiretroviral treatment; MTR: multiple-tablet regimen; STR: single-tablet regimen

Results, cont'd

Table 1. Patient Distribution STRs & MTRs

	Regimen	N	%
STRs N=34,787	B/F/TAF	9052	26.02%
	DTG/3TC	157	0.45%
	DTG/RPV	424	1.22%
	DTG/ABC/3TC	7384	21.23%
	EVG/COBI/FTC/TAF	9500	27.31%
	EVG/COBI/FTC/TDF	1569	4.51%
	RPV/FTC/TAF	2699	7.76%
	RPV/FTC/TDF	1112	3.20%
	EFV/FTC/TDF	1986	5.71%
	EFV/3TC/TDF	9	0.03%
	DRV/c/r/FTC/TAF	873	2.51%
	DOR/3TC/TDF	22	0.06%
MTRs N=9,977	FTC/TDF+DTG	2122	21.27%
	FTC/TAF+DTG	5487	55.00%
	3TC/TDF+DTG	1	0.01%
	FTC/TDF+RAL	1697	17.01%
	FTC/TAF+RAL	657	6.59%
	FTC/TDF+DRV/r,c*	3	0.03%
	FTC/TAF+DRV/r,c*	7	0.07%
	FTC/TDF+ATV/r,c*	2	0.02%
	FTC/TAF+ATV/r,c*	1	0.01%

ABC: Abacavir, ATV: Atazanavir, B: Bictegravir, c: Cobicistat, DOR: doravirine, DRV: Darunavir, DTG: Dolutegravir, EFV: Efavirenz, EVG: Elvitegravir, F: Emtricitabine, FTC: Emtricitabine, MTR: multiple-tablet regimen, RAL: Raltegravir, RPV: Rilpivirine, r: Ritonavir, STR: single-tablet regimen, TAF: Tenofovir alafenamide fumarate, 3TC: Lamivudine, TDF: Tenofovir disoproxil fumarate

* Boosted with cobicistat or ritonavir.

Table 2. Baseline Demographics and Clinical Characteristics

Demographics and Clinical Characteristics	Total (N=44,764)		STR (N=34,787)		MTR (N=9,977)	
Age, mean (SD)	43.5 (12.4)		43.7 (12.3)		42.6 (12.8)	
18-34 years	13,031	29.1%	9,825	28.2%	3,206	32.1%
35-49 years	14,615	32.6%	11,482	33.0%	3,133	31.4%
50-64 years	16,377	36.6%	12,883	37.0%	3,494	35.0%
≥65 years	741	1.7%	597	1.7%	144	1.4%
Gender (n,%)						
Male	29,162	65.1%	23,259	66.9%	5,903	59.2%
Female	15,602	34.9%	11,528	33.1%	4,074	40.8%
US Geographic Region						
Northeast	10,958	24.5%	8,628	24.8%	2,330	23.4%
North Central	7,189	16.1%	5,652	16.2%	1,537	15.4%
South	16,742	37.4%	13,060	37.5%	3,682	36.9%
West	8,917	19.9%	6,814	19.6%	2,103	21.1%
Other	958	2.1%	633	1.8%	325	3.3%
Pre-index medication use (n, %)						
Antihypertensives	2,205	4.9%	1,709	4.9%	496	5.0%
Antidiabetics	1,980	4.4%	1,509	4.3%	471	4.7%
Anticoagulants	189	0.4%	37	0.1%	152	1.5%
Antiarrhythmic drugs	0	0.0%	0	0.0%	0	0.0%
Lipid-lowering therapy	62	0.1%	53	0.2%	9	0.1%
Antibiotics	2,022	4.5%	1,523	4.4%	499	5.0%
Respiratory drugs	2,583	6.0%	1,928	6.0%	655	7.0%
Antipsychotics	2,111	4.7%	1,467	4.2%	644	6.5%
Number of unique medications on index date (n, %)						
Patients with only ART on the index date	40,880	91.0%	31,859	92.0%	9,021	90.0%
Patients with ≥1 drug other than ART on the index date	3,004	7.0%	2,269	7.0%	735	7.0%
Post-index observation days, mean (SD)	966.6 (338.8)		957.9 (341.8)		996.8 (326.5)	
Quan-Charlson Comorbidity Index Score, mean (SD)	1.4 (2.3)		1.4 (2.3)		1.4 (2.4)	
Baseline Individual Clinical Comorbidities (n, %)*						
Central Nervous System Toxicity	11,650	26.0%	8,794	25.3%	2,856	28.6%
Lipid Disorders	5,398	12.1%	4,382	12.6%	1,016	10.2%
Hypertension	9,476	21.2%	7,478	21.5%	1,998	20.0%

* ART: antiretroviral treatment, MTR: multiple-tablet regimen, STR: single-tablet regimen, SD: standard deviation, US: United States

* Presented top 3 baseline individual comorbidities prevalent in at least 10% of patients on ART

Table 3. Mean and Median Persistence by Treatment regimen

Regimen*	N	Mean**	Median**	Patients with 6-month persistence (n, %)	Patients with 12-month persistence (n, %)
STR Overall	**34,787**	**239**	**282**	**62%**	**36%**
B/F/TAF	9,052	259	341	68%	44%
DTG/ABC/3TC	7,384	239	282	62%	36%
EVG/COBI/FTC/TAF	9,500	234	268	60%	34%
EVG/COBI/FTC/TDF	1,569	185	152	44%	20%
RPV/FTC/TAF	2,699	254	330	66%	43%
RPV/FTC/TDF	1,112	202	184	50%	24%
EFV/FTC/TDF	1,986	207	196	52%	27%
DRV/c/r/FTC/TAF	873	237	272	62%	35%
MTR Overall	**9,977**	**168**	**115**	**41%**	**22%**
FTC/TDF+DTG	2,122	107	30	23%	9%
FTC/TAF+DTG	5,487	207	201	52%	30%
FTC/TDF+RAL	1,697	95	30	19%	8%
FTC/TAF+RAL	657	233	283	60%	39%

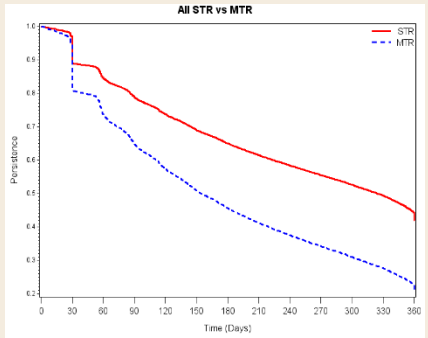
ABC: Abacavir, B: Bictegravir, COBI: Cobicistat, DRV: Darunavir, DTG: Dolutegravir, EFV: Efavirenz, EVG: Elvitegravir, F: Emtricitabine, FTC: Emtricitabine, RAL: Raltegravir, RPV: Rilpivirine, TAF: Tenofovir alafenamide fumarate, TDF: Tenofovir disoproxil fumarate, 3TC: Lamivudine

* Mean and median number of days persistent assessed during 12 months follow-up

** Regimens only with sample size >=500 were assessed for persistence outcomes

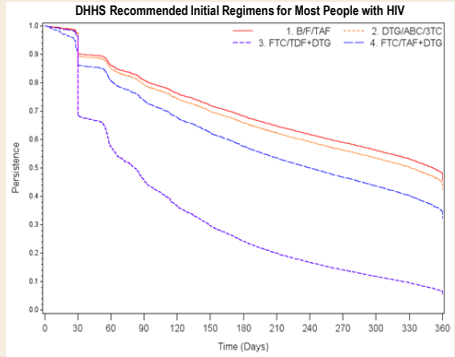
- Figures 2 and 3 depict the Kaplan-Meier analyses of persistence over time for STRs and MTRs overall, as well as for specific regimens.
- Patients on a STR had more days on therapy than those on MTRs (Figure 2)
- Patients on B/F/TAF had more days on therapy than those on DTG/ABC/3TC, FTC/TDF+DTG, and FTC/TAF+DTG (Figure 3)

Figure 2: Persistence of STR vs MTR



MTR: multiple-tablet regimen, STR: single-tablet regimen

Figure 3: Treatment Persistence among Regimens

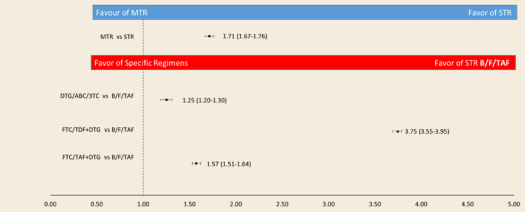


B: Bictegravir, 3TC: Lamivudine, ABC: Abacavir, DHHS: Department of Health and Human Services, DTG: Dolutegravir, F: Emtricitabine, FTC: Emtricitabine, RPV: Rilpivirine, TAF: Tenofovir alafenamide fumarate, TDF: Tenofovir disoproxil fumarate

After controlling for baseline characteristics, Figure 4 shows the adjusted results:

- MTRs were associated with 1.71 greater risk of treatment discontinuation compared to STRs (p<0.001)
- When compared to B/F/TAF, the risks of treatment discontinuation based on hazard ratios were:
  - 1.25 times higher for DTG/ABC/3TC (p<0.001)
  - 3.75 times higher for FTC/TDF+DTG (p<0.001)
  - 1.57 times higher for FTC/TAF+DTG (p<0.001)

Figure 4: Adjusted Hazard ratio for Treatment Discontinuation



ABC: Abacavir, B: Bictegravir, 3TC: Lamivudine, DTG: Dolutegravir, F: Emtricitabine, FTC: Emtricitabine, MTR: multiple-tablet regimen, STR: single-tablet regimen, TAF: Tenofovir alafenamide fumarate, TDF: Tenofovir disoproxil fumarate

Limitations

- This analysis focused on those covered by Medicaid insurance, and results may differ for commercial insurance populations
- The geographic spread of Medicaid beneficiaries in the analysis is skewed towards the South.

Conclusions

- Among adult US Medicaid beneficiaries living with HIV, STRs were associated with longer persistence on a first-line therapy compared to MTRs.
- Among adult US Medicaid beneficiaries living with HIV, B/F/TAF had the highest persistence rate compared to DTG/ABC/3TC, FTC/TDF+DTG, and FTC/TAF+DTG.

References: DHHS Panel on Antiretroviral Guidelines for Adults and Adolescents – A Working Group of the Office of AIDS Research Advisory Council. Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents with HIV. 2021. Available at: https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/AdultandAdolescentGL.pdf. **Abbreviations:** 95% confidence interval (95% CI%); antiretroviral therapy (ART); multiple tablet regimens (MTR); persons living with HIV (PLWH); single tablet regimen (STR); abacavir (ABC); bictegravir (B); dolutegravir (DTG); elvitegravir (EVG); emtricitabine (FTC); lamivudine (3TC); tenofovir alafenamide (TAF); tenofovir disoproxil fumarate(TDF). **Disclosures:** Ishveen Chopra, Qiao Mu, Vasantha Pedarla, are employees of StatInMed Research; Joshua Gruber, Woodie Zachry, Dylan Mezzio are employees of Gilead; Joshua Cohen is an employee of Tufts University.