ADHERENCE TO ANTIRETROVIRAL THERAPY IN MEDICARE FEE-FOR-SERVICE BENEFICIARIES WITH HIV

H04

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BACKGROUND & AIMS

- The introduction of antiretroviral therapy (ART) has revolutionized HIV treatment and significantly lowered mortality and morbidity rates for people living with HIV (PLWH)
- After initiating ART, PLWH are expected to continue treatment indefinitely
  - ART adherence is a critical element of survival for PLWH, given its ability to achieve durable virologic suppression as well as minimizing drug resistance
- Medicare has quietly emerged as a major source of HIV care for PLWH in the United States (US)
  - Among the 1.2 million PLWH in the US, approximately 25% are covered by Medicare, a federally funded health insurance program for elderly (≥65 years) and disabled (<65 years) individuals[1]
- Yet little is known about ART adherence among PLWH in the Medicare program

OBJECTIVES

- To assess factors associated with poor adherence to ART and describe healthcare resource use (HCRU) and costs by adherence levels among PLWH in the Medicare program

METHODS

Study Design and Data

- A retrospective analysis was conducted using 2013-2018 Chronic Conditions Warehouse (CCW) 100% Medicare Part A, B, and D claims available from the Centers for Medicare and Medicaid Services (CMS)

Study Sample

- PLWH who initiated a new (index) anchor ART agent from the INSTI, NNRTI, or PI class between January 1, 2014 and December 31, 2017. The fill date of the new anchor agent was deemed the index date
- Continuous eligibility for fee-for-service Medicare Parts A, B, and D are covered in the 12 months pre- and post-index period
  - ≥1 inpatient or outpatient claim with an HIV diagnosis in the 12-month pre-index period (ICD-9-CM codes 042, V08, 079.53 or ICD-10-CM codes B20, B97.35, O98.711, O98.712, O98.713, O98.719, O98.72, O98.73, Z21)

Measures of Interest

- Adherence to any anchor ART agent in the 12-month post-index period was measured using the proportion of days covered (PDC) method (days spent in hospital were not counted in calculating PDC)
  - PLWH were categorized into 3 groups: PDC ≥0.95, 0.95> PDC ≥0.70, and PDC <0.70
- All-cause and HIV-related HCRU and costs in the 12-month post-index period

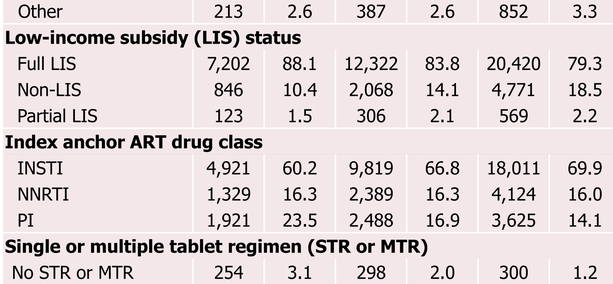
Analysis

- Multinomial logistic regression assessed factors associated with different adherence levels, adjusted for sociodemographic and clinical characteristics of PLWH
- All-cause and HIV-related 12-month HCRU and costs were examined by 3 categorized adherence groups

RESULTS

- The final study sample included 48,627 PLWH
- The mean PDC was 0.86 (SD=0.21) with 53.0% of PLWH having PDC ≥0.95 (**Figure 1**)

Figure 1. Distribution of ART adherence categories[a] in study sample



[a]Based on adherence to any anchor ART over 12 months of follow-up from initiation of new anchor ART agent.
ART, antiretroviral therapy; PDC, proportion of days covered.

- Differences in characteristics were observed across the 3 adherence groups (**Table 1**)

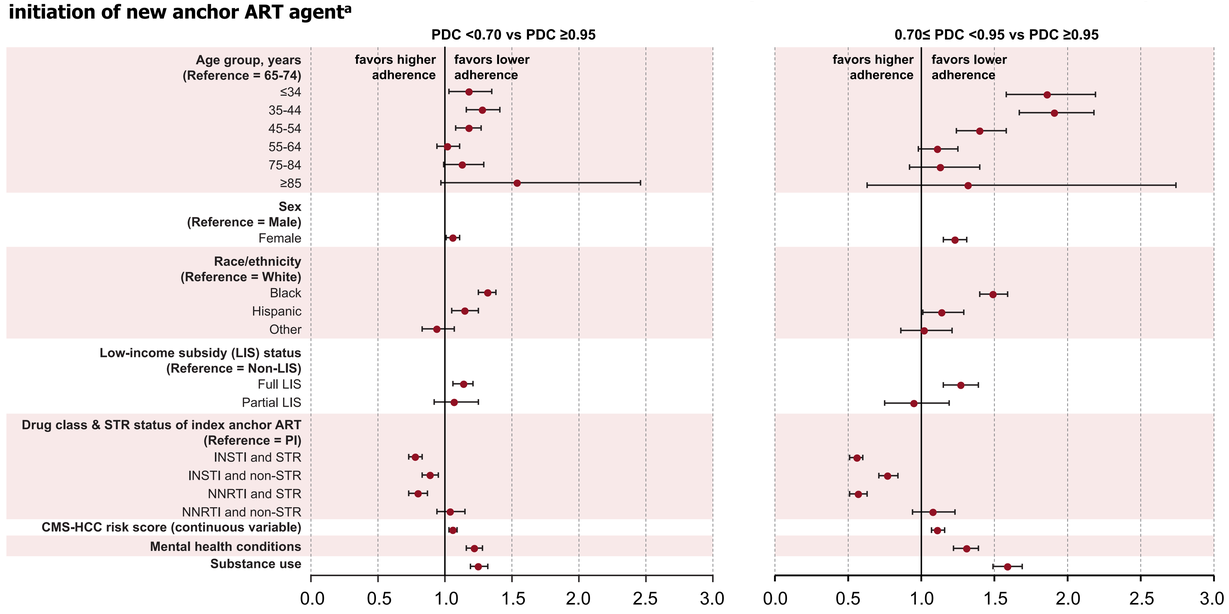
Table 1. Selected sample characteristics by level of adherence to any anchor ART over 12 months of follow-up from initiation of new anchor ART agent

Characteristics	PDC <0.70[a] (N=8,171) N	PDC <0.70[a] (N=8,171) %	0.70≤ PDC <0.95[a] (N=14,696) N	0.70≤ PDC <0.95[a] (N=14,696) %	PDC ≥0.95 (N=25,760) N	PDC ≥0.95 (N=25,760) %
Age group, years						
≤34	773	9.5	656	4.5	693	2.7
35-44	1,659	20.3	1,859	12.6	2,211	8.6
45-54	2,948	36.1	5,406	36.8	8,576	33.3
55-64	1,917	23.5	4,416	30.0	8,849	34.4
65-74	725	8.9	1,916	13.0	4,435	17.2
75-84	140	2.0	412	2.8	946	3.7
≥85	<11[b]	<0.1	31	0.2	50	0.2
Male	5,605	68.6	10,768	73.3	19,791	76.8
Race/ethnicity						
White	2,862	35.0	6,456	43.9	13,761	53.4
Black	4,626	56.6	6,918	47.1	9,508	36.9
Hispanic[c]	470	5.8	935	6.4	1,639	6.4
Other	213	2.6	387	2.6	852	3.3
Low-income subsidy (LIS) status						
Full LIS	7,202	88.1	12,322	83.8	20,420	79.3
Non-LIS	846	10.4	2,068	14.1	4,771	18.5
Partial LIS	123	1.5	306	2.1	569	2.2
Index anchor ART drug class						
INSTI	4,921	60.2	9,819	66.8	18,011	69.9
NNRTI	1,329	16.3	2,389	16.3	4,124	16.0
PI	1,921	23.5	2,488	16.9	3,625	14.1
Single or multiple tablet regimen (STR or MTR)						
No STR or MTR	254	3.1	298	2.0	300	1.2
MTR	6,372	78.0	11,450	77.9	20,399	79.2
STR	1,545	18.9	2,948	20.1	5,061	19.6
CMS-HCC risk score, mean (SD)	1.00	0.98	1.04	0.95	1.05	0.89

[a]Both groups were significantly different from PDC ≥0.95 group at $P<0.05$ on age, sex, race/ethnicity, low-income subsidy status, index anchor ART agent drug class, and single or multiple tablet regimen. The mean CMS-HCC risk score in PDC <0.70 vs PDC ≥0.95 group was significantly different at a $P<0.05$; however, it was not statistically different between the 0.70≤ PDC <0.95 vs PDC ≥0.95 group.
[b]Exact numbers cannot be reported, given CMS policy not permitting display of cell sizes with n <11.
[c]May be underreported since one single field captures both race and ethnicity in Medicare administrative data.
ART, antiretroviral therapy; PDC, proportion of days covered; INSTI, integrase strand transfer inhibitor; NNRTI, non-nucleoside reverse transcriptase inhibitor; PI, protease inhibitor; PLWH, people living with HIV; CMS-HCC, Centers for Medicare & Medicaid Services (CMS) Hierarchical Condition Categories (HCC) risk score.

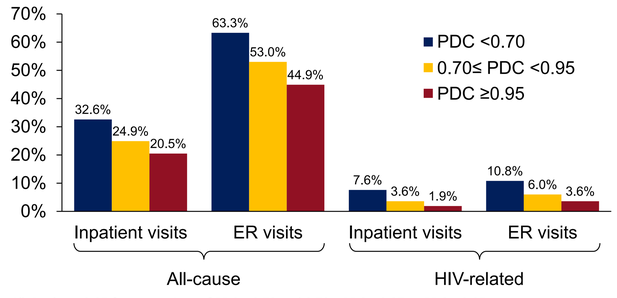
- The younger age, female sex, Black race, Hispanic ethnicity, full low-income subsidy status, higher comorbidity score, index anchor agent from PI class, and conditions such as mental illnesses and substance use were associated with higher odds of being in the lower adherence groups relative to the PDC ≥0.95 group ($P<0.05$ for all) (**Figure 2**)

Figure 2. Selected factors associated with different levels of adherence to any anchor ART over 12 months of follow-up from initiation of new anchor ART agent[a]



[a]Multinomial logit on three categories outcome (PDC <0.70 and 0.70≤ PDC <0.95 vs PDC ≥0.95).
ART, antiretroviral therapy; INSTI, integrase strand transfer inhibitor; NNRTI, non-nucleoside reverse transcriptase inhibitor; OR, odds ratio; PDC, proportion of days covered; PI, protease inhibitor; STR, single tablet regimen, CMS-HCC risk score, Centers for Medicare & Medicaid Services (CMS) Hierarchical Condition Categories (HCC) risk score.

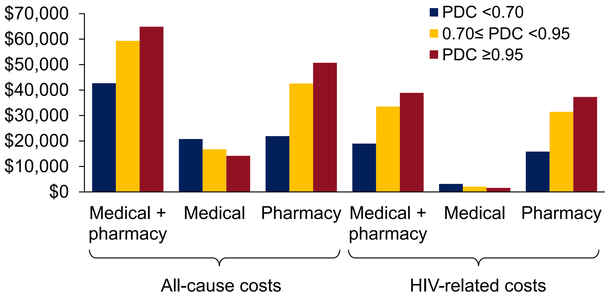
Figure 3. Proportion of PLWH with inpatient and ER visits by level of adherence to any anchor ART over 12 months of follow-up from initiation of new anchor ART agent[a]



[a]All P-value <0.05 for comparison of PDC <0.70 and 0.70≤ PDC <0.95 vs PDC ≥0.95.
ART, antiretroviral therapy; ER, emergency room; PDC, proportion of days covered; PLWH, people living with HIV.

- All-cause and HIV-related hospitalization and emergency room (ER) visits rates were higher among lower adherence groups (**Figure 3**)

Figure 4. Mean health-care costs by level of adherence to any anchor ART over 12 months of follow-up from initiation of new anchor ART agent[a]



[a]All P-value <0.05 for comparison of PDC <0.70 and 0.70≤ PDC <0.95 vs PDC ≥0.95.
ART, antiretroviral therapy; PDC, proportion of days covered.

- All-cause and HIV-related total costs were lower among lower adherence groups and largely driven by lower pharmacy costs. However, medical costs were higher among lower adherence groups (**Figure 4**)

CONCLUSIONS

- To our knowledge, this is the first study to examine ART adherence and associated HCRU and costs among PLWH in the Medicare program
- Among Medicare beneficiaries living with HIV, poor adherence to anchor ART was not uncommon
- PLWH with lower adherence had higher hospitalization rates and medical costs
- The study findings provide insights into the characteristics of PLWH with poor ART adherence and highlights the need for clinical and policy-level interventions to mitigate barriers to adherence in PLWH enrolled in Medicare

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