Single-Tablet Regimens (STR) Offer Better Persistence and Adherence, With Lower Costs by Adherence Status, Than Multiple-Tablet Regimens (MTR) for People Living With HIV (PLWH) Enrolled in Medicaid

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Key Takeaways

- **Overall, adherence to antiretroviral therapy (ART) was poor for people living with HIV (PLWH) enrolled in Medicaid in the United States**
- **PLWH enrolled in Medicaid were more persistent and adherent to single-tablet regimens (STR) vs multiple-tablet regimens (MTR)**
- **STR offers cost savings for PLWH enrolled in Medicaid who are adherent to ART compared with MTR**

Introduction

- High adherence to ART is essential to achieving and maintaining virologic suppression and preventing the development of resistance and transmission of HIV to others[1]
  - An adherence rate of ≥95% to ART has been associated with optimal virologic suppression[2]
- Use of STR is associated with higher rates of ART adherence compared with use of MTR; however, in the United States, the shift to STR has been slower among PLWH covered by Medicaid vs commercial insurance[3-6]
- This study examined persistence, adherence, healthcare resource utilization (HCRU), and costs associated with STR vs MTR use among new initiators and treatment-experienced PLWH enrolled in Medicaid over a 1-year study period

Objectives

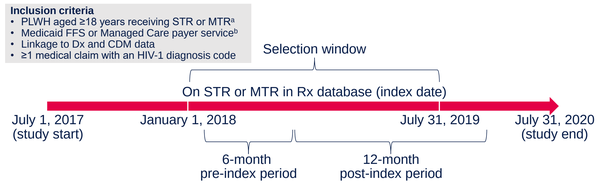
- To assess adherence (primary objective) and HCRU and costs (secondary objectives) associated with STR vs MTR use overall and by treatment experience (new initiators vs treatment-experienced) for PLWH covered by Medicaid in the United States

Methods

Design

- Retrospective observational cohort analysis in PLWH covered by Medicaid in the United States and treated with STR or MTR (Figure 1)
  - A HIPAA-compliant deterministic matching algorithm linked PLWH across databases using IQVIA's New Data Warehouse (Prescription Claims [Rx], Professional Fee Claims [Dx], and Hospital Charge Data Master [CDM]) to develop 2 mutually exclusive cohorts on STR vs MTR during the study selection window

Figure 1. Study Timeline



CDM, Hospital Charge Data Master; Dx, Professional Fee Claims; FFS, Fee-for-Service. [a]During the selection window. [b]AIDS Drug Assistance Program was allowed.

- A 6-month pre-index period was used to assess study eligibility criteria and patient demographic and clinical characteristics, and a 12-month post-index period was used to descriptively evaluate treatment patterns and all-cause and disease-specific HCRU/costs
  - For the STR cohort, date of the first STR claim was used for the index date; for the MTR cohort, date of the first MTR drug during the selection window was used for the index date
  - The following definitions were used:
    - Persistence: not discontinuing or switching ART regimens during the 1-year post-index period
    - Discontinuation: gap of ≥90 days in STR or MTR continuous covered days
    - Switch from STR to MTR: filling an MTR after the index date up to the end of the post-index period or 60 days after STR discontinuation, with a ≥30-day supply of MTR in the post-index period
    - Switch from MTR to STR: filling an STR after the index date up to 30 days before or 60 days after MTR discontinuation, with a ≥30-day supply of STR in the post-index period
      - PLWH who both switched and discontinued ART regimens were reported as having switched
    - Adherence: proportion of days covered (PDC) over the post-index period and calculated as the number of days covered by STR or MTR during follow-up divided by total days of follow-up

Results

Patient Demographics and Clinical Characteristics

- The final sample included 4,603 and 2,728 PLWH in the STR and MTR cohorts, respectively (Table 1)
  - Overall, PLWH on STR vs MTR had similar mean (SD) age (44.4 [12.3] vs 47.4 [11.7] years); 57% of both populations were male, and Charlson comorbidity index scores were comparable
- In treatment-experienced PLWH, the most common core agents were INSTIs (STR, 69%; MTR, 60%), NNRTIs (STR, 33%; MTR, 13%), and PIs (STR, 2%; MTR, 51%)

Table 1. Patient Demographics and Clinical Characteristics

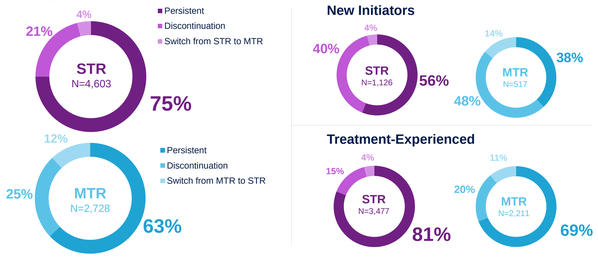
	Overall (N=7,331)		New initiators (N=1,643)[a]		Treatment-experienced (N=5,688)	
Characteristic	**STR (N=4,603)**	**MTR (N=2,728)**	**STR (N=1,126)**	**MTR (N=517)**	**STR (N=3,477)**	**MTR (N=2,211)**
Age, mean (SD), years	44.4 (12.3)	47.4 (11.7)	40.9 (12.5)	42.2 (12.8)	45.5 (12.0)	48.6 (11.1)
Age group (%), years						
18-54	74	67	81	81	72	64
≥55	26	33	19	19	28	36
Sex, male, %	57	57	56	53	58	58
Medicaid expansion state, %[b]	83	79	83	80	83	79
Payer type, %						
Fee-for-Service	25	29	26	28	25	30
Managed Care	75	71	74	72	75	70
Physician specialty, %						
Primary care provider[c]	46	47	44	37	46	50
Infectious disease	50	48	50	53	50	47
Other	4	5	5	9	3	3
Missing/Unknown	<1	<1	1	1	<1	<1
Charlson comorbidity index, %[d]						
0	72	64	72	67	73	63
1-2	23	28	23	26	23	29
3-4	4	6	4	5	4	6
5+	1	2	1	2	1	2

[a]Identified as having no prior STR or MTR ART in the pre-index period. [b]States that expanded Medicaid coverage as part of the Affordable Care Act. [c]Includes internal medicine, general practice, family practice, physician assistant, and nurse practitioner. [d]Excluding HIV/AIDS from the calculation, a higher score indicates higher 1-year mortality risk.

Persistence and Adherence

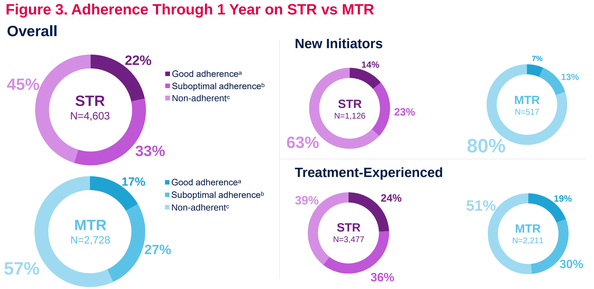
- Overall, persistence over the 1-year follow-up was higher among PLWH on STR (75%) vs MTR (63%; Figure 2)
- Mean (SD) number of persistent days was higher in the STR (295.3 [111.4]) vs MTR cohort (267.5 [120.4])
  - New initiators had higher discontinuation rates (STR, 40%; MTR, 48%) than treatment-experienced PLWH (STR, 15%; MTR, 20%)

Figure 2. Persistence, Discontinuation, and Regimen Switch Through 1 Year in PLWH on STR vs MTR



- Overall, 4% of PLWH on STR switched to MTR, whereas 12% of PLWH on MTR switched to STR; results were comparable among new initiators and treatment-experienced PLWH
- Across the entire study population (N=7,331), only 20% of PLWH maintained good adherence (≥95% PDC) through 1 year; 80% of PLWH had suboptimal adherence (≥80% to <95% PDC) or were non-adherent (<80% PDC)
- A higher proportion of PLWH on STR vs MTR had good adherence (≥95% PDC; STR, 22% vs MTR, 17%), and a higher proportion of PLWH on MTR were non-adherent (<80% PDC; STR, 45% vs MTR, 57%; Figure 3)

Figure 3. Adherence Through 1 Year on STR vs MTR

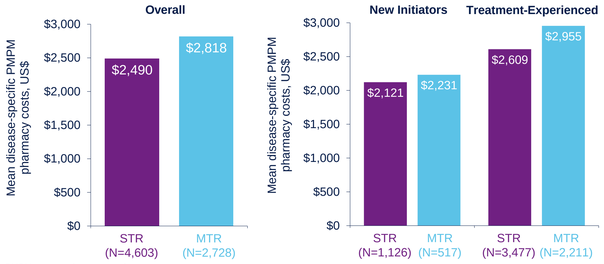


[a]Good adherence: proportion of days covered ≥95%. [b]Suboptimal adherence: proportion of days covered ≥80% to <95%. [c]Non-adherent: proportion of days covered <80%.

Disease-Specific Costs

- Overall, mean disease-specific per-member per-month pharmacy costs were higher among PLWH on MTR ($2,818) vs STR ($2,490; Figure 4)
  - Across regimens, costs were higher for treatment-experienced PLWH vs new initiators

Figure 4. Disease-Specific Per-Member Per-Month Pharmacy Costs

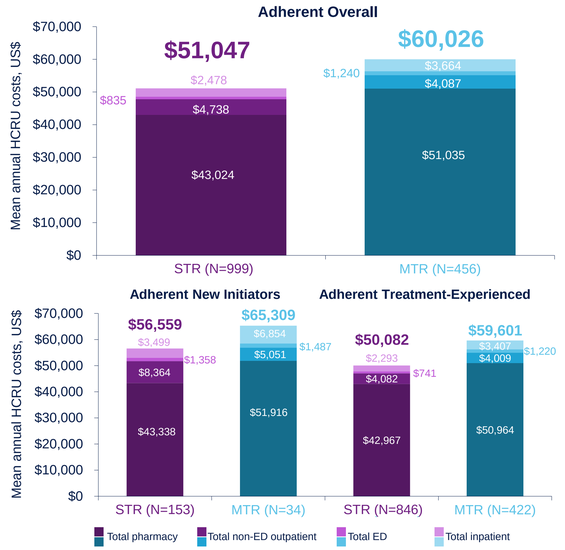


PMPM, per-member per-month.

All-Cause HCRU and Costs

- Through the 1-year study period, a lower proportion of adherent (≥95% PDC) PLWH had ≥1 all-cause emergency department visit (STR, 43%; MTR, 43%) vs non-adherent PLWH (STR, 56%; MTR, 56%), whereas minimal differences were observed for ≥1 all-cause hospitalization among adherent (STR, 5%; MTR, 7%) vs non-adherent PLWH (STR, 6%; MTR, 8%)
- Overall, among adherent PLWH, annual all-cause costs were lower for PLWH on STR vs MTR ($51,074 vs $60,026), primarily due to higher mean pharmacy costs for PLWH on MTR (STR, $43,024; MTR, $51,035); comparable results were observed for new initiators and treatment-experienced PLWH (Figure 5)

Figure 5. Mean Annual All-Cause HCRU Costs Among Adherent PLWH[a]



Total all-cause cost shown above each bar. ED, emergency department. [a]Adherence was defined as proportion of days covered ≥95%.

- Overall, among non-adherent PLWH, annual all-cause costs were lower for PLWH on STR vs MTR ($37,712 vs $43,991; Table 2)

Table 2. Mean All-Cause Annual HCRU Costs Among Non-Adherent PLWH[a]

	Overall		New initiators		Treatment-experienced	
All-cause HCRU cost per patient, mean, US$	**STR (N=3,604)**	**MTR (N=2,272)**	**STR (N=973)**	**MTR (N=483)**	**STR (N=2,631)**	**MTR (N=1,789)**
Total all-cause	37,712	43,991	36,900	41,746	38,012	44,597
Total pharmacy	29,682	34,514	25,233	27,636	31,327	36,372
Total non-ED outpatient	3,559	4,092	3,829	4,805	3,460	3,900
Total ED	1,208	1,486	1,784	2,290	995	1,268
Total inpatient	3,263	3,899	6,054	7,016	2,231	3,057

ED, emergency department. [a]Non-adherent was defined as proportion of days covered <95%.

Conclusions

- PLWH enrolled in Medicaid were more persistent and adherent to STR vs MTR, and this result was consistent across new initiators and treatment-experienced PLWH
- PLWH on STR vs MTR had lower mean all-cause total costs with the same adherence/treatment experience status
- All-cause costs were lower in non-adherent vs adherent PLWH, primarily due to lower pharmacy costs as a result of non-adherence; however, non-adherence to ART increases the risk of virologic failure and resistance development as well as HIV transmission[1]
- Although demographic and clinical characteristics of the cohorts were similar at the pre-index period, limitations include lack of a matched comparison between groups and no adjustments to account for differences between groups
- Among PLWH adherent to ART, STR offers potential cost savings for appropriate patients

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