

# Clinical observations of antiretroviral (ART) switching in HIV-suppressed patients after availability of TAF



Trio Health

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## 1. BACKGROUND AND AIMS

In HIV-suppressed patients, DHHS guidelines support switching ART for tolerability and adherence. Tenofovir alafenamide (TAF) was approved in Nov 2015 as a component of E/C/F/TAF, and in 2016 as F/TAF and R/F/TAF. This study evaluated ART switching in HIV-suppressed patients in the first year of TAF availability.

## 2. METHODS

- EMR, prescription, and dispensing data were collected from 4 HIV treatment centers as of Nov 2015 through Oct 2016 for HIV patients with virologic suppression (HIV<200 copies/ml) and followed for at least 365 days.
- Statistical analyses were performed using SAS.
- Univariate analyses to identify association of different variables with an outcome was conducted using chi-squared testing for proportions, Student t testing for continuous variables with normal distributions, or Wilcoxon rank-sums testing for non-Gaussian continuous variables.
- Significant P values are two-tailed and <0.05.
- For viral suppression, we examined the first viral measure closest to but after 6 months from therapy start.

## 3. PATIENT CHARACTERISTICS BY SWITCH GROUP

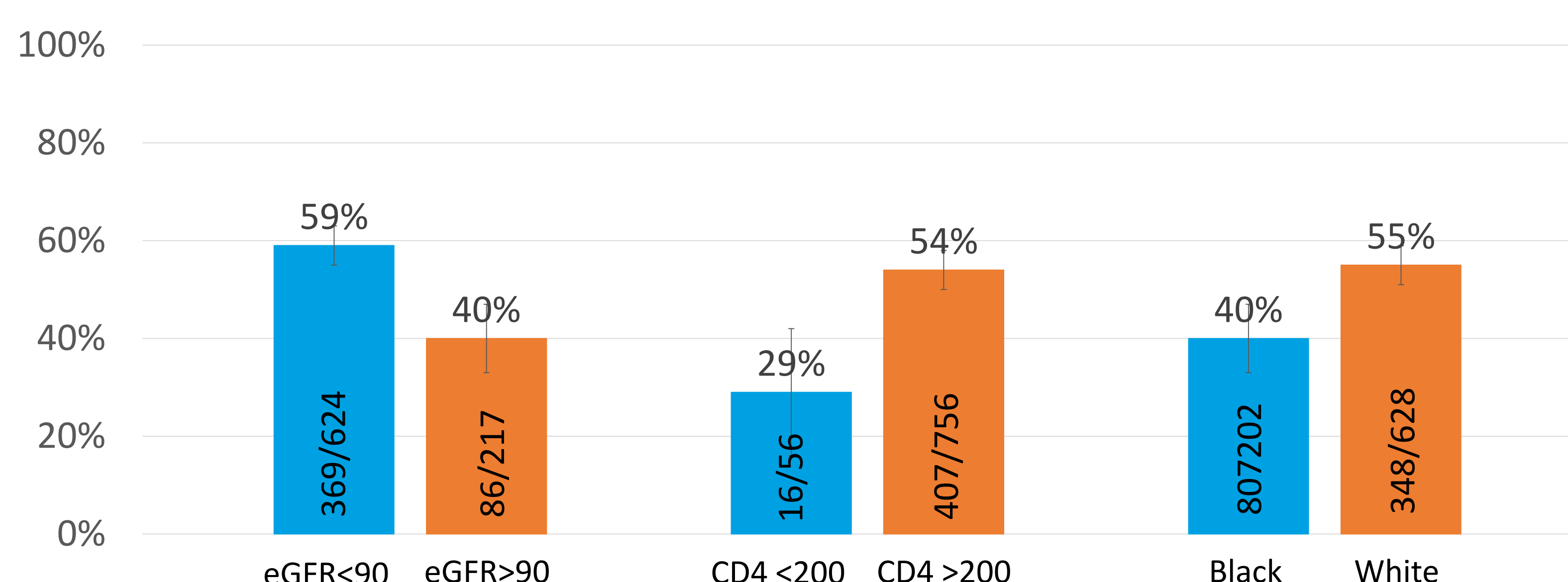
- In the first year of TAF availability, 50% (470/931) of patients switched regimens.
- Patients who switched were similar to non-switch patients for age and gender.
- Statistically significant differences included a higher percentage of patients that switched had eGFR <90 ml/min (81% (369/455) vs 66% (255/386)), and treatment switch group had fewer patients with lower CD4 counts <200 (4% (16/423) vs 10% (40/389)).
- Baseline ALT was significantly different between groups though mean values were normal.

no. (%)	Non-Switch n=461	Treatment Switch n=470	Total n=931
Age mean (SD)	51 (12)	50 (12)	50 (12)
Male	375 (81%)	398 (85%)	773 (83%)
Race			
Asian	3 (1%)	---	3 (0%)
Black*	122 (26%)	80 (17%)	202 (22%)
White*	280 (61%)	348 (74%)	628 (67%)
Other	23(5%)	22 (5%)	45 (5%)
<b>Median (IQR) n</b>			
CD4 cells/mm <sup>3</sup> *	571 (347-781) n=389	631 (463-827) n=423	302 (405-817) n=812
ALT U/L*	25 (17.5-38) n=384	30 (21-42) n=454	28 (19-41) n=838
AST U/L	22 (18-30) n=384	22 (18-29) n=454	22 (18-29) n=838
eGFR ml/min*	78.5 (60-96) n=386	60 (60-81) n=455	66 (60-90) n=841
<b>n (%)</b>			
CD4 <200 cells/mm <sup>3</sup> *	40/389 (10%)	16/423 (4%)	56/812 (7%)
eGFR <90 (ml/min)*	255/386 (66%)	369/455 (81%)	624/841 (74%)

\*Statistically significant based on chi-square or t-test where appropriate (p values for % comparisons): Black (p<0.001), White (p<0.001), CD4 Count <200 (p<0.001), eGFR <90 (p<0.001), ALT Mean (SD) (p=0.016)

## 4. SWITCH RATES BY SUBPOPULATIONS

Switch rates were higher in groups with eGFR<90 ml/min, CD4 >200 cells/mm<sup>3</sup>, and white.



## 5. REGIMEN INFORMATION

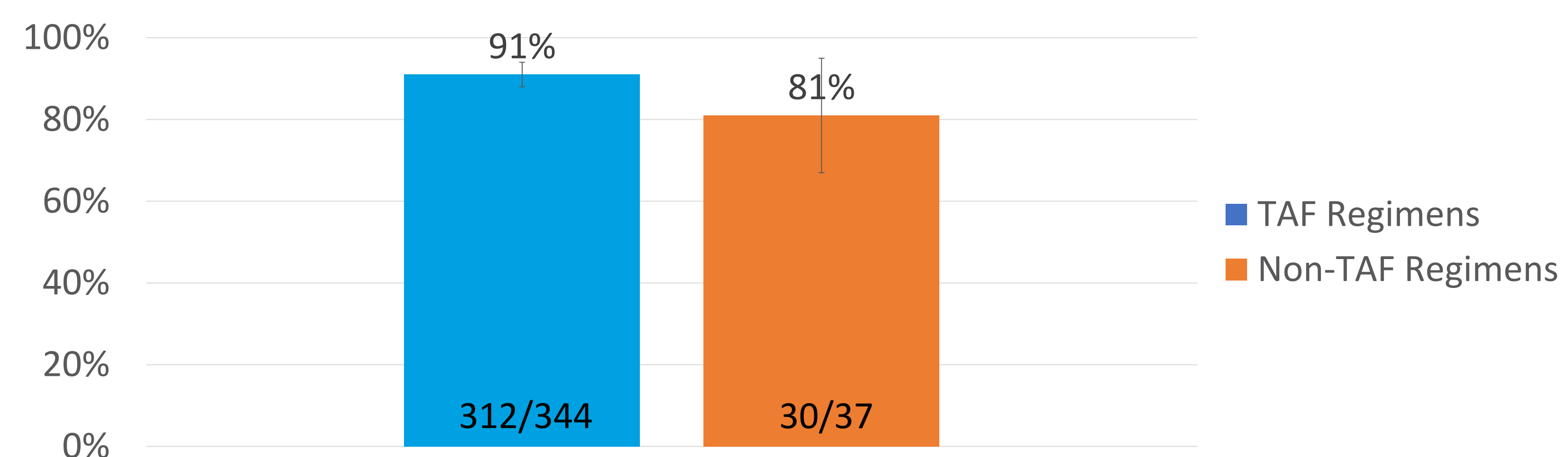
- Of the patients that did not switch, 3 therapies accounted for 48% of treatment: DTG/ABC/3TC, EFV/TDF/FTC, and EVG/c/TDF/FTC.
- Of the patients that switched therapies, EVG/c/TDF/FTC, RPV/TDF/FTC, and EFV/TDF/FTC accounted for 52% of discontinued therapies.
- 86% of treatment switch patients switched to regimens containing TAF, with nearly half receiving EVG/c/TAF/FTC.
- MTR use in the switch group declined from 45% pre-switch to 35% post-switch. MTR use was 44% in the non-switch group.

Regimen Name	Non-Switch n=461		Treatment Switch: Regimens switched from n=470		Treatment Switch: Regimens switched to n=470	
	no.	(%)	Regimen Name	no. (%)	Regimen Name	no. (%)
DTG/ABC/3TC	94	(20%)	EVG/c/TDF/FTC	130 (28%)	EVG/c/TAF/FTC	217 (46%)
EFV/TDF/FTC	64	(14%)	RPV/TDF/FTC	56 (12%)	RPV/TAF/FTC	60 (13%)
EVG/c/TDF/FTC	63	(14%)	EFV/TDF/FTC	55 (12%)	DRV/c + TAF/FTC	37 (8%)
RPV/TDF/FTC	39	(8%)	DRV/c + TDF/FTC	36 (8%)	DTG + TAF/FTC	36 (8%)
DTG + TDF/FTC	21	(5%)	DTG + TDF/FTC	31 (7%)	DTG/ABC/3TC	14 (3%)
DRV/c+TDF/FTC	17	(4%)	DRV+RTV+TDF/FTC	18 (4%)	DRV+EVG/c/TAF/FTC	8 (2%)
DRV/c + DTG	16	(3%)	DTG/ABC/3TC	14 (3%)	ATV/c + TAF/FTC	6 (1%)
Other	148	(32%)	Other	130 (28%)	Other	92 (20%)

Regimen Type	Non-Switch n=461		Treatment Switch: Regimens switched from n=470		Treatment Switch: Regimens switched to n=470	
	no.	(%)	Regimen Type	no. (%)	Regimen Type	no. (%)
MTR	201	(44%)	MTR	211 (45%)	MTR	166 (35%)
TAF Regimens	---		TAF Regimens	---	TAF Regimens	404 (86%)
TDF Regimens	272	(59%)	TDF Regimens	397 (85%)	TDF Regimens	26 (6%)
DTG Regimens	176	(38%)	DTG Regimens	79 (17%)	DTG Regimens	82 (17%)

## 6. VIRAL SUPPRESSION

Those who switched to TAF-based regimens were numerically but not significantly more likely to maintain virologic suppression than those who switched to non-TAF regimens (p=0.057)



## 7. SUMMARY

This study utilized EMR, prescription, and dispensing data to assess ART switching in HIV-suppressed patients at 4 HIV centers in the US. In the first year of TAF availability, 50% patients switched therapies with 85% switching to TAF. Switching to TAF was associated with a pre-switch lower eGFR and a post-switch trend to higher virologic suppression. Black patients were less likely to switch ART compared to whites. Further assessments of virologic suppression between TAF and non-TAF switching should be explored in future observational studies.

Dr. Elion receives grants from Gilead and Proteus, serves on the Advisory boards for Gilead and ViiV, and is a speaker for Gilead and Janssen. Dr. Eron consults for Merck, ViiV Healthcare, Gilead and Janssen. The University of North Carolina receives research funding from ViiV Healthcare, Gilead and Janssen from which he receives support as an investigator. Dr. Santiago serves on the Medical Advisory Board for Gilead and is a Speaker for Gilead and Janssen. Dr. Sax consults for Gilead, ViiV Healthcare, Merck and Janssen. He has received grants from BMS, Gilead, Merck and ViiV Healthcare. Dr. Ramgopal is a speaker for Gilead, AbbVie, Janssen and Allergan. He is a consultant for ViiV Healthcare, Merck and Gilead. Dr. Huhn advises for and received grants from Gilead, ViiV Healthcare and Janssen. He advises for Theratechnologies, and received grants from Proteus. Dr. Milligan is employed by Trio Health and received grants from Gilead, AbbVie, and Merck. Dr. Althoff previously served on a Medical Advisory Board for Gilead. Drs. Althoff, Elion, Eron, Huhn, and Sax serve on Trio Health's Scientific Advisory Board.

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