

GREATER WEIGHT GAIN AMONG TREATMENT-NAÏVE PERSONS STARTING INTEGRASE INHIBITORS

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BACKGROUND

The median BMI and prevalence of baseline obesity among PLWH initiating ART has been steadily increasing.¹

Short-term weight gain following ART initiation has been associated with increased risk of diabetes and cardiovascular disease.^{2,3}

Previously reported significant weight gain in virologically suppressed PLWH switching from efavirenz- to INSTI-based regimens (esp. DTG).⁴

Several studies have investigated the association between INSTI-based regimens and weight gain (ACTG study A5260, PROGRESS study).^{5,6}

However, data exploring differences in short-term weight gain between different INSTI drugs and between these drugs and other PI and NNRTI-based regimens are limited.

METHODS

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Inclusion Criteria:

- ART Naïve patients, defined as having no prior ART exposure longer than 45 days anywhere on record, starting treatment between January 1st, 2007 and December 31st, 2016
- Initiated a sustained 3-drug ART regimen with an INSTI, PI or NNRTI
- 17 NA-ACCORD Cohorts

Bar chart icon
Statistical Analysis:

- **Multivariate Linear Mixed Effects Model**
- **Models adjusted** for demographics (age, sex, race); baseline weight; CD4 count; HIV-1 RNA; year of ART initiation & cohort site.
- **Interaction terms** between time from ART start & regimen/drug, time from ART start & sex, time from ART start & race
- **5-knots restricted cubic splines** for continuous variables; multiple imputations for missing variables; bootstrapping to generate 95%CI
- **Censoring:** virologic failure, ART switch or loss to follow-up.

Line graph icon
Outcomes Assessed:

1. Weight by ART class (INSTI, PI, NNRTI) within 5-years of ART initiation
2. Weight by INSTI drug (DTG, EVG, RAL) & between INSTI drugs and PI/NNRTI within 2-years of ART initiation

RESULTS

24,001 patients included in our analysis

	NNRTI (n=11,825)	PI (n=7,436)	INSTI (n=4,740)
Age*	43 (32, 52)	42 (32, 50)	39 (29, 50)
Black race*	42%	43%	40%
Male sex*	90%	80%	86%
Year ART start*	2010 (2008, 2012)	2010 (2008, 2012)	2014 (2012, 2015)
BMI* (kg/m ²)	25 (23, 29)	25 (22, 28)	25 (22, 29)
CD4+ T cell count* (cells/μL)	312 (180, 452)	262 (105, 406)	360 (195, 531)
HIV-1 RNA* (log ₁₀ copies/mL)	4.6 (4.0, 5.1)	4.7 (4.1, 5.2)	4.6 (4.1, 5.2)

Table 1. Baseline clinical and demographic characteristics of study population. Continuous variables are described in median (IQR) * p-value <0.05

INSTI distribution: 4,740 Total; 1,681 (35%) RAL; 2,124 (45%) EVG; 935 (20%) DTG

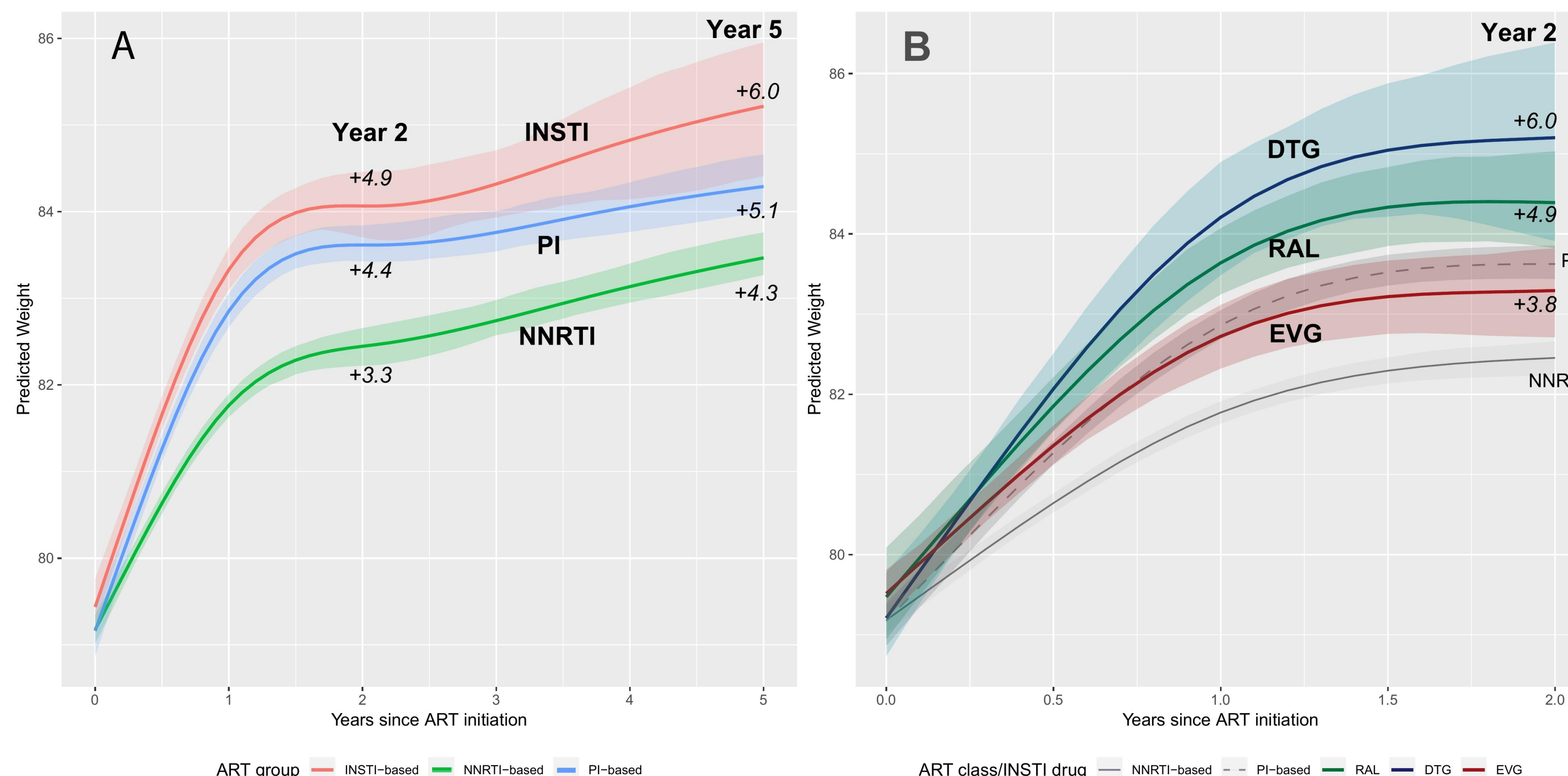


Figure 1. Predicted weight changes within: (A) 5-years of ART initiation by ART class (B) 2-years of ART initiation by INSTI drug and ART class

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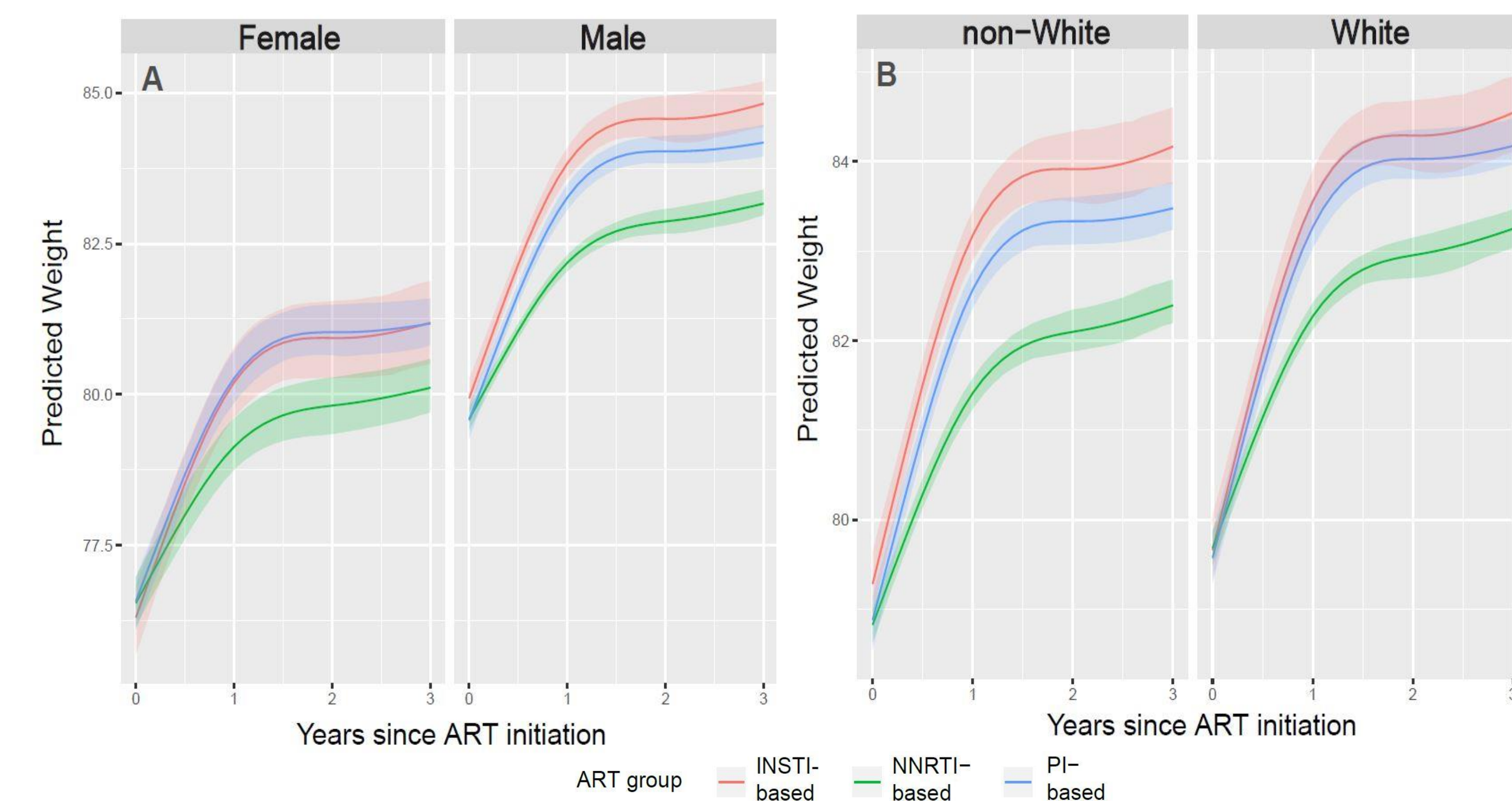


Figure 2. Predicted weight change by ART class: (A) dichotomized by sex; (B) dichotomized by race

CONCLUSIONS

- 1 Treatment-naïve PLWH starting INSTI, especially DTG and RAL, are at higher risk of weight gain compared to NNRTI-class regimens.
- 2 Weight gain among patients starting INSTI is not uniform, with PLWH starting RAL and DTG gaining significantly more weight than PLWH starting EVG.
- 3 Weight gain associated with INSTI-based regimens did not vary by sex (male vs. female) or race (white vs. non-white).
- 4 Further studies are needed to understand the mechanism explaining the difference noted in weight gain among INSTI-based regimens and between these regimens and NNRTI- or PI-based regimens

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