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IAS 2019
10TH IAS CONFERENCE ON HIV SCIENCE
Mexico City, Mexico 21-24 July 2019

Virologic Failure In ART-Naive HIV Patients With High Pre-Therapy Viral Load Burden Initiating On Common Core Agents

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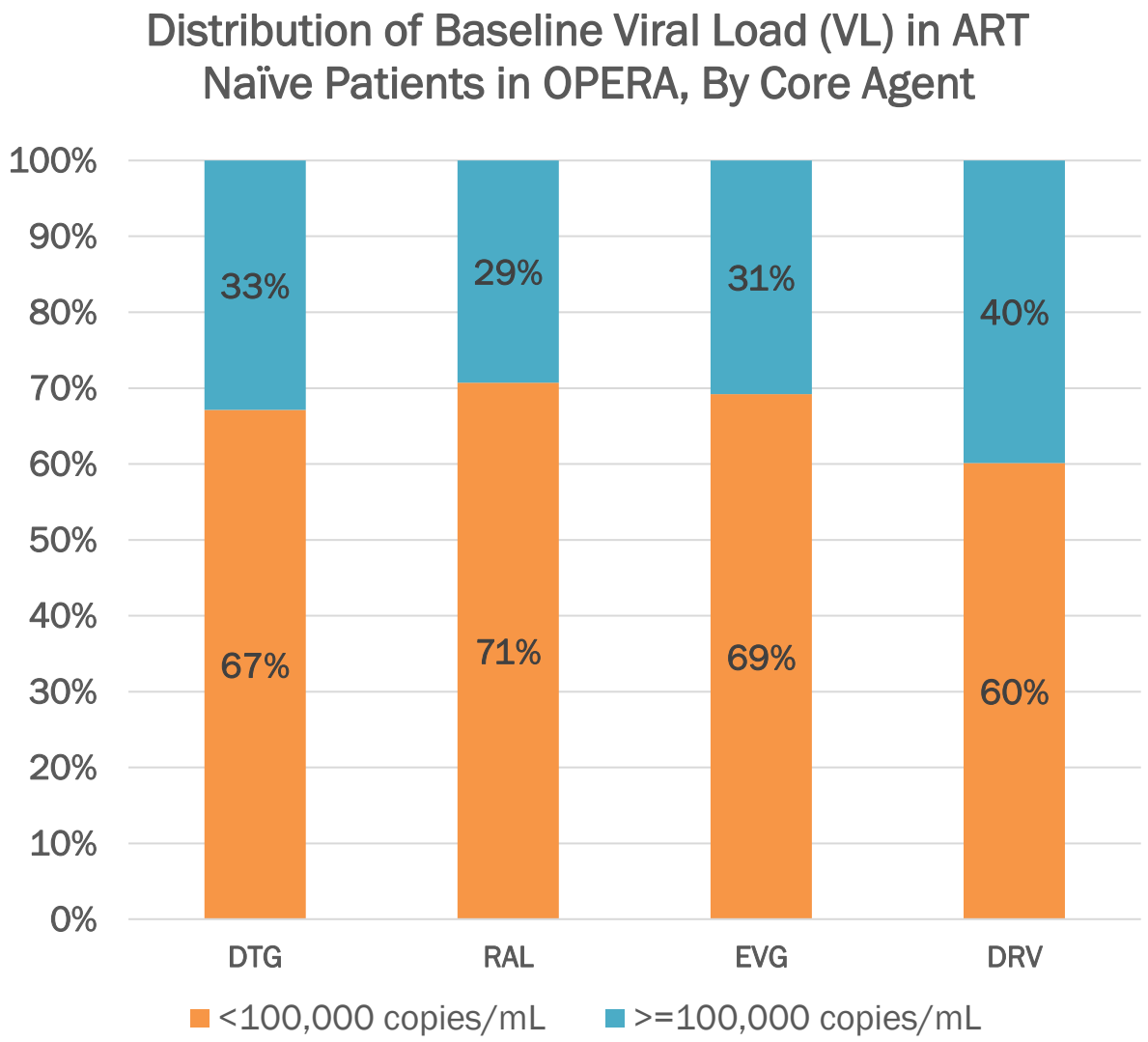
Disclosures

- Anthony Mills has received research funding from Gilead Sciences, ViiV Healthcare, Janssen, Merck and Sangamo
- He is on advisory boards for Gilead Sciences, ViiV Healthcare, Janssen & Merck

Background

- Previous work has suggested that a sizeable proportion of naïve patients present with baseline VL ≥ 100K copies/mL (Mills, ISPOR 2019)
- Achieving virologic suppression in these patients can be challenging (DiBiagio, 2014; Raffi, 2017)



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Objective

- We assessed the effectiveness of dolutegravir (DTG), elvitegravir (EVG), raltegravir (RAL) and darunavir (DRV) on rates of virologic failure (VF) in antiretroviral (ART) naïve patients initiating therapy with a high viral load burden (≥ 100,000 copies/mL) in a real world setting

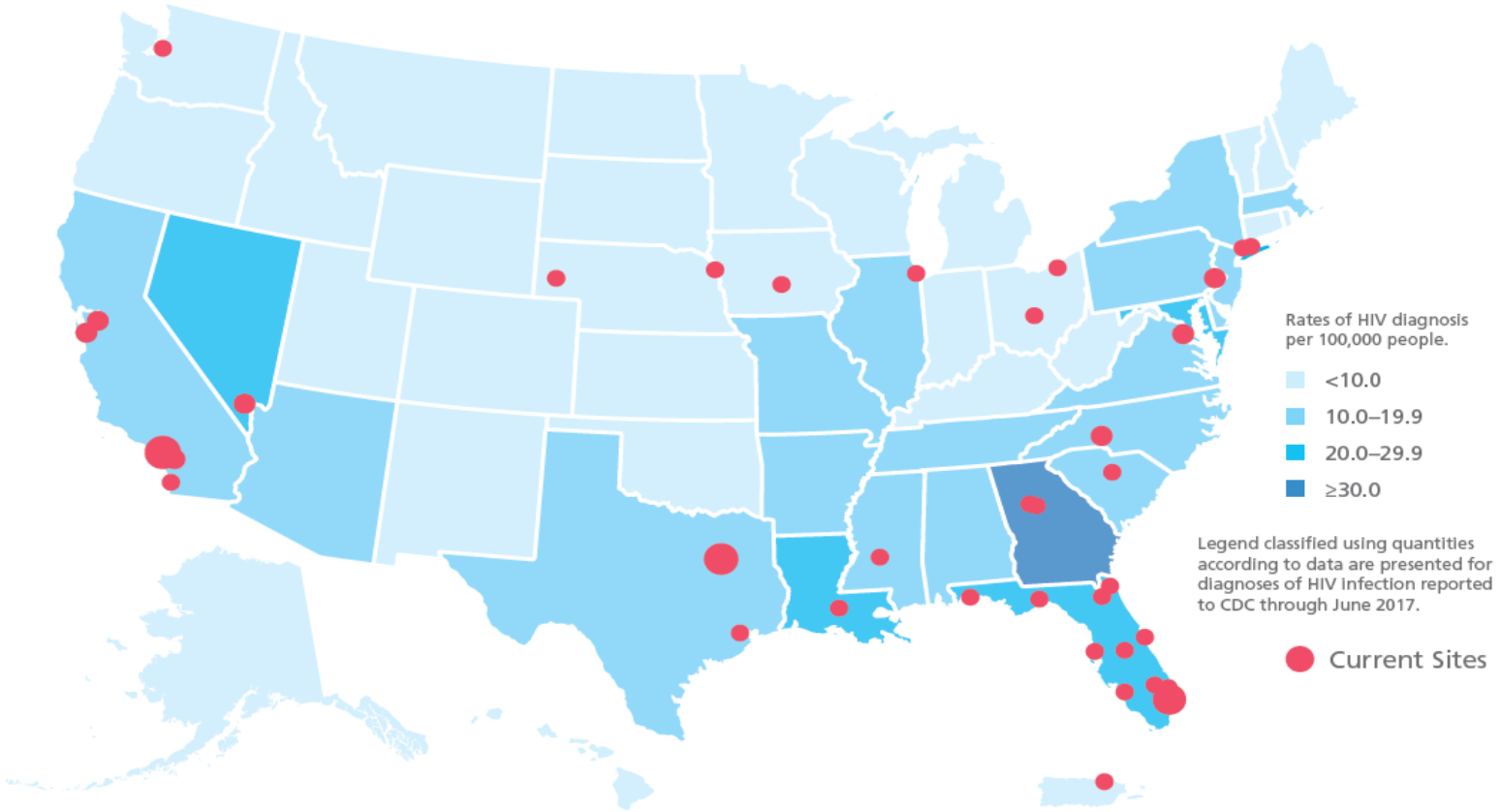
METHODS

Study Population: Data Source

- Observational Pharmaco-Epidemiology Research & Analysis (OPERA) cohort

- Prospectively captured, routine clinical data from electronic health records

U.S. Map of OPERA & CDC, HIV+ Population



100,000+ Patients

65 Cities

19 States

1 US Territory

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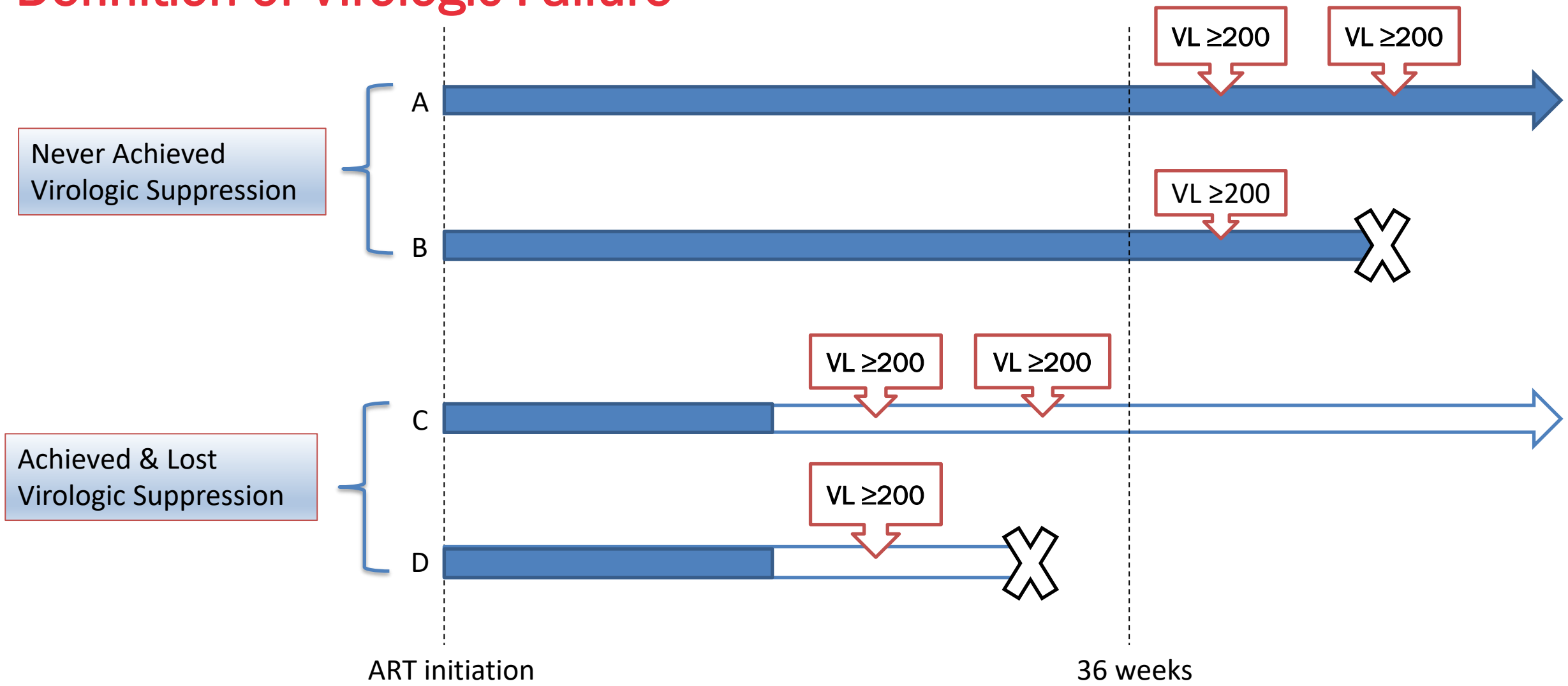
Study Design

- Eligibility Criteria
  - HIV-positive
  - ≥ 13 years of age
  - ART naïve, prescribed DTG, EVG, RAL or DRV by an OPERA caregiver
  - Baseline viral load ≥100,000 copies/mL

- Eligibility period
  - August 12, 2013 to July 31, 2017
  - Follow-up through July 31, 2018

- Baseline
  - Date of core agent initiation

Definition of Virologic Failure

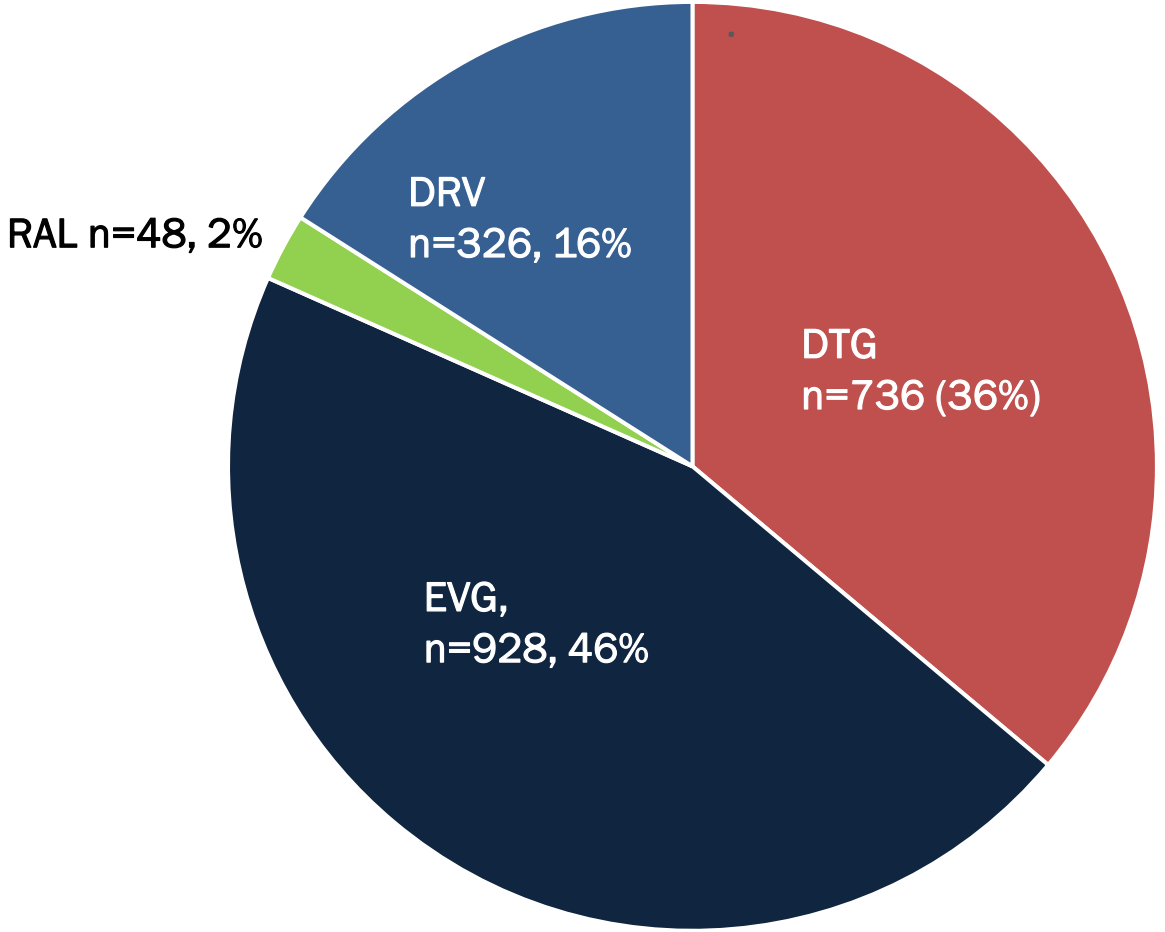


Analyses

- Unadjusted and adjusted cumulative virologic failure probability
  - Kaplan Meier methods
  - Multivariate Cox Proportional Hazards model
  - Adjustment set: baseline age, sex, race, CD4 cell count, HIV RNA VL, history of AIDS, VACS score, drug abuse, history of syphilis infection, calendar year of ART initiation, route of infection and type of health coverage

RESULTS

Study Population (N=2,038)



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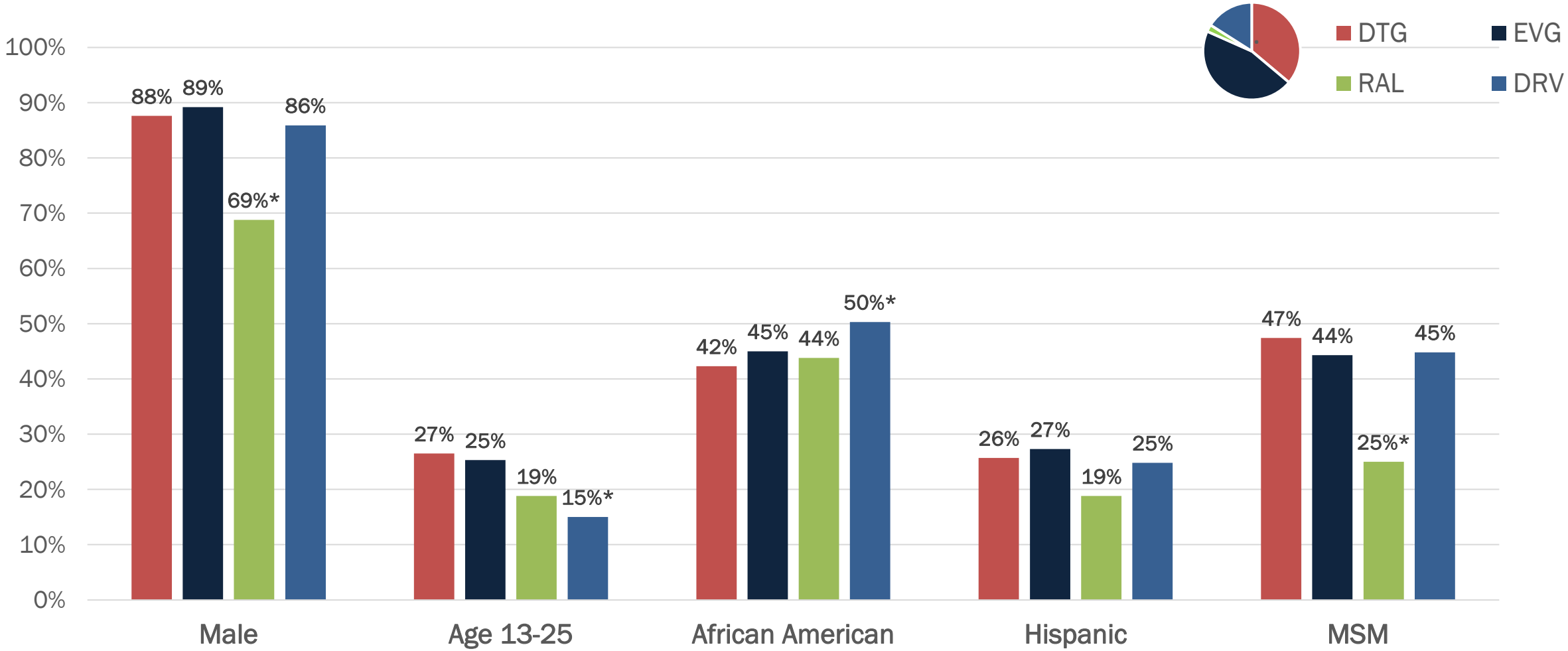
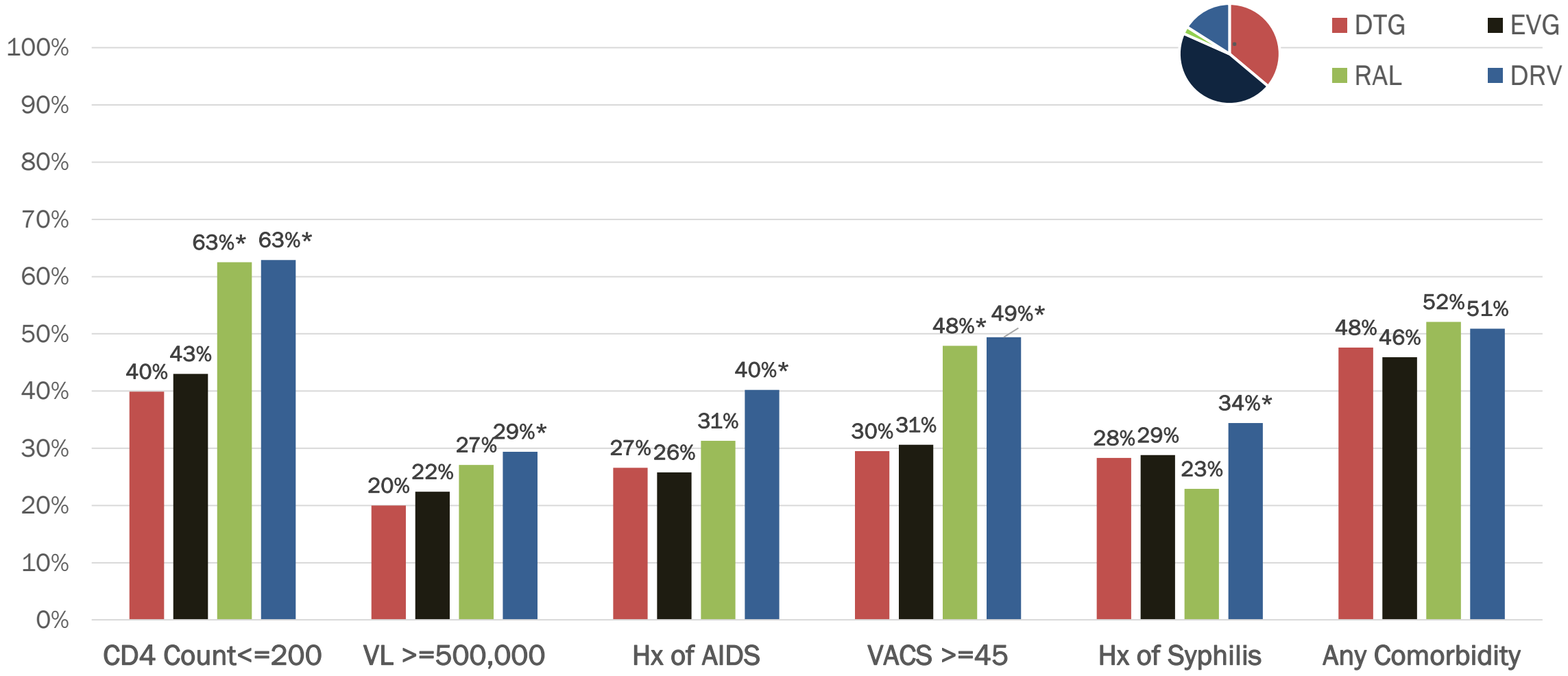
Baseline Demographic Characteristics



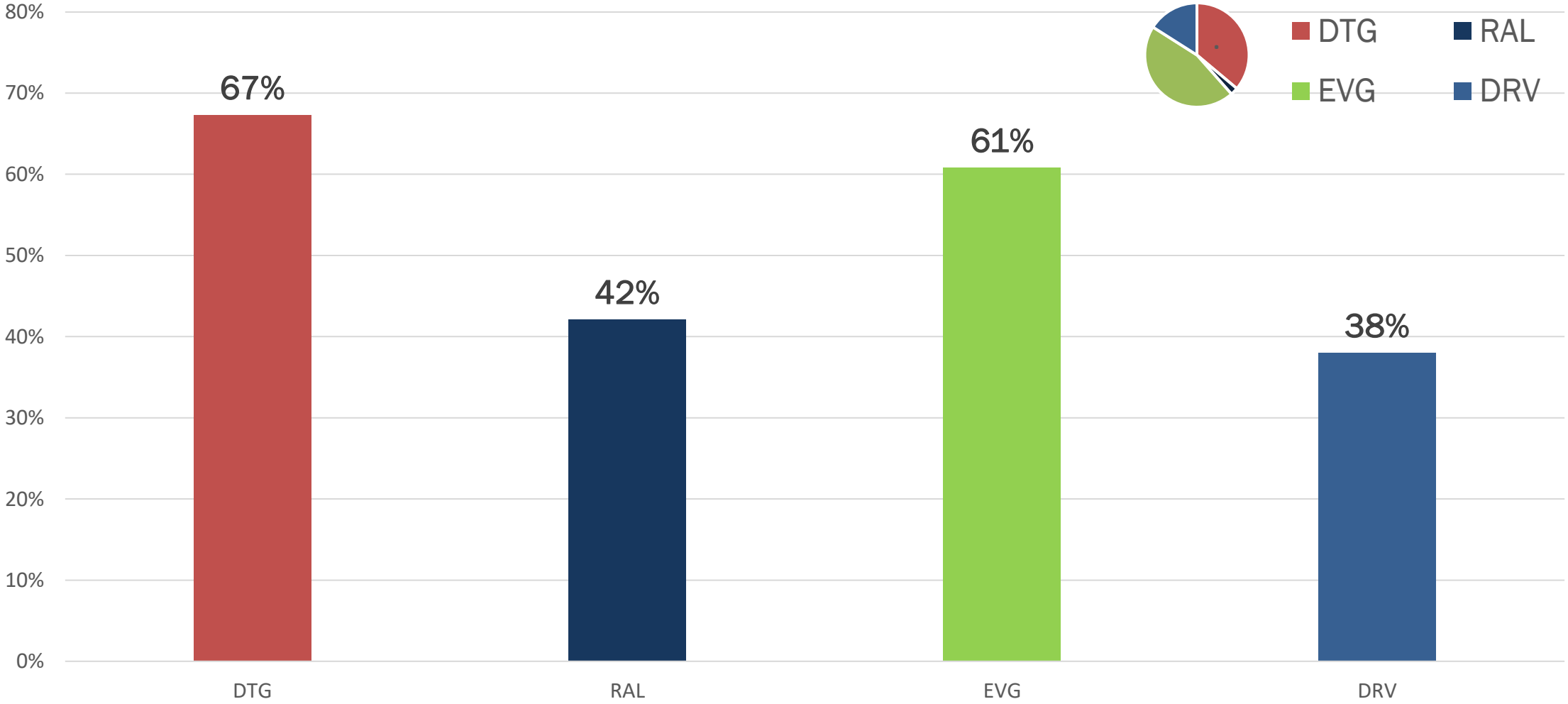
*Result is statistically significant (p<.05) compared to DTG

Baseline Clinical Characteristics



*Result is statistically significant (p<.05) compared to DTG

Achieved Virologic Suppression by 36 Weeks, Unadjusted



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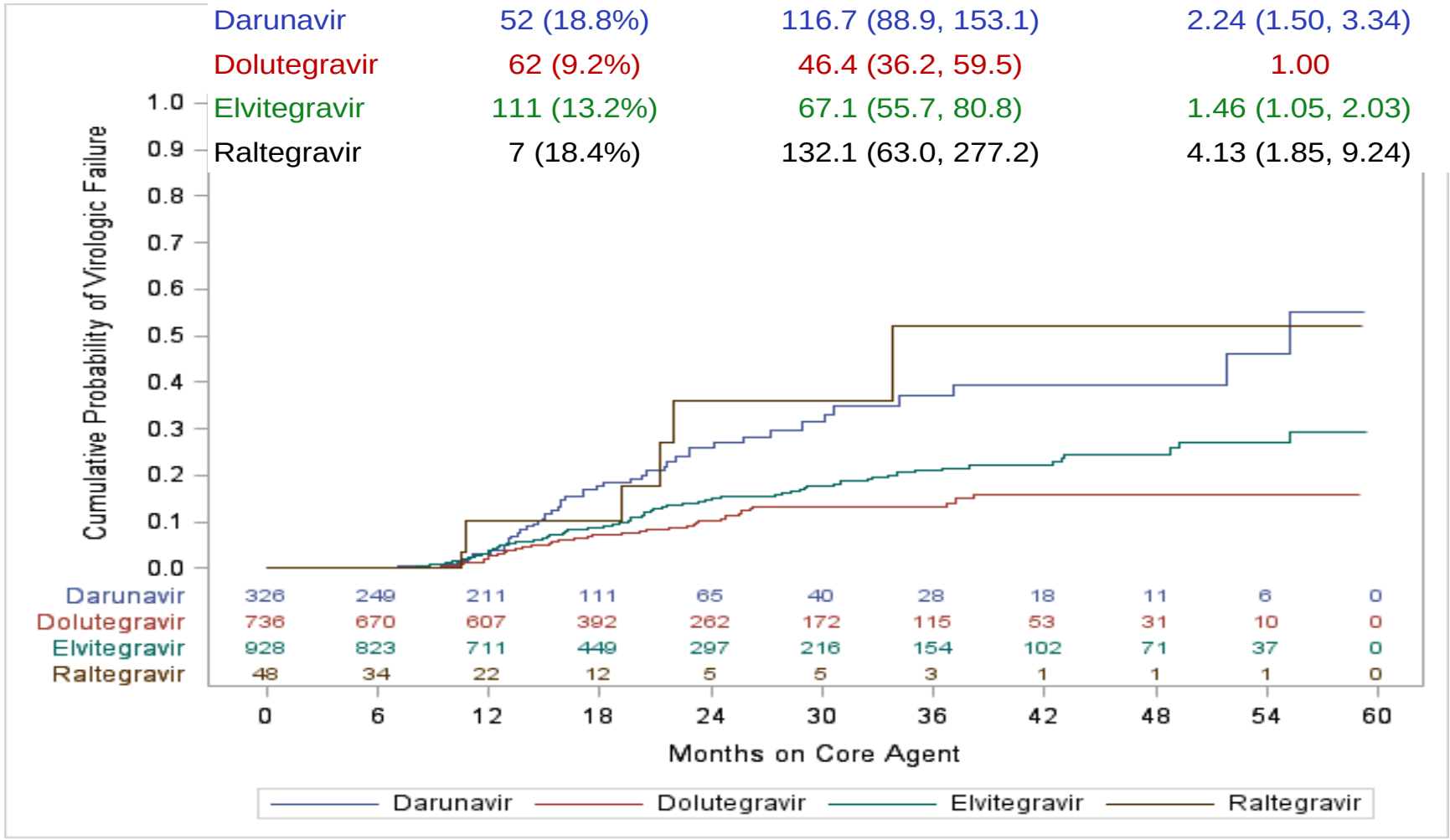
Virologic Failure: Cumulative Probability and Adjusted Hazard Ratio

	Frequency of VF n (%)	Crude Incidence Rate Per 1,000 PY (95% CI)	Adjusted Hazard Ratio aHR (95% CI)
Darunavir	52 (18.8%)	116.7 (88.9, 153.1)	2.24 (1.50, 3.34)
Dolutegravir	62 (9.2%)	46.4 (36.2, 59.5)	1.00
Elvitegravir	111 (13.2%)	67.1 (55.7, 80.8)	1.46 (1.05, 2.03)
Raltegravir	7 (18.4%)	132.1 (63.0, 277.2)	4.13 (1.85, 9.24)



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DISCUSSION

Key Findings

- ART-naïve patients with high viral loads initiating on DTG were significantly less likely to experience VF compared to EVG, RAL and DRV initiators even after adjusting for differences in baseline characteristics

Strengths

+ Large sample size in each of the treatment groups with the exception of raltegravir

+ OPERA cohort is a representative sample of the HIV population receiving care in the United States
  - Approximately 7% of all US patients active in care are represented in the database
+ Electronic medical records:
  - Availability of lab results
  - Ability to identify and account for history of disorders

Limitations

- Small sample size in raltegravir group
- DRV patients differed notably, especially on baseline characteristics associated with risk for treatment failure
- OPERA clinical data is collected at point-of-care and is subject to the record-keeping practices of each healthcare provider and each clinic
- The latest DHSS recommended agent, bictegravir, and new formulations of raltegravir and darunavir were not included in this study as their approval occurred after the close of study eligibility

Acknowledgements

- This research would not be possible without the participation of people living with HIV and their caregivers

- Co-authors: Kathy Schulman, Jennifer Fusco, Michael Wohlfeiler, Julie Priest, Alan Oglesby, Laurence Brunet, Phil Lackey, Gregory Fusco

- I am grateful for the following contributions: Amelito Torres (SAS programming), Jeff Briney (QA/QC), Rodney Mood (site selection and support), Ted Ising (database architecture and support), Bernie Stooks and Redemptor Perez (database support) and Judy Johnson (medical terminology classification)

- This research was supported by ViiV Healthcare