

Prevalence of Neuropsychiatric Conditions among HIV Positive Compared to HIV Negative Commercially Insured Individuals

Joshua Cohen¹, Anne Beaubrun², Rolin Wade³, Dionne M. Hines³

1. Tufts University, Boston, MA USA

2. Gilead Sciences Inc, Foster City, CA, USA

3. IQVIA, Plymouth Meeting, PA, USA

Disclosures – Joshua P. Cohen

Relations possibly relevant to this meeting:	
Sponsoring & Research grants:	This research was supported by Gilead Sciences, Inc.
Honoraria or consultation fees:	I received consulting fees from Gilead Sciences, Inc.
Stock shareholder:	I own no stocks in Gilead Sciences, Inc. or any other pharmaceutical company
Other support:	None

Background

- Prior research has shown that the central nervous system is commonly affected by HIV¹
- Compared to patients without HIV, patients living with HIV have higher rates of neuropsychiatric complications such as anxiety, depression, and sleep disorders^{2,3}
- Comorbid neuropsychiatric conditions in patients living with HIV could lead to lower medication adherence, impaired ability to perform tasks of daily living, and poorer quality of life^{1,2}
- This study offers updated, contemporary data on the prevalence of neuropsychiatric conditions in patients living with HIV compared to matched HIV-negative controls

1. Mayer KH et al. Assessment, diagnosis, and treatment of HIV-associated neurocognitive disorder: a consensus report of the mind exchange program. *Clin Infect Dis* 2013;56:1004-1017
2. Deshmukh NN, Borkar AM, Deshmukh JS. Depression and its associated factors among people living with HIV/AIDS: Can I affect their quality of life? *J Family Med Prim Care* 2017;6:549-553
3. Gallego L, Barreiro P, Lopez-Ibor JJ. Diagnosis and clinical features of major neuropsychiatric disorders in HIV infection. *AIDS Rev* 2011;13:171-9.

Methods

- This retrospective cohort study was conducted using annual cross-sectional analyses of real-world commercial health care claims from 2013-2017
- Adults (≥ 18 years of age) identified in IQVIA's Real-World Adjudicated Claims Data – US database were selected for analysis if they met the following criteria:
 - › ≥ 1 HIV-1 diagnosis on any non-ancillary claim and ≥ 1 claim for antiretroviral therapy (ART) between January and December of the respective evaluation year
 - › Continuous health plan enrollment
- Patients without an HIV diagnosis or ART any time during the observation period were directly matched 3:1 to HIV-positive patients for evaluation of neuropsychiatric events, which were defined by ICD-9/10 diagnosis codes
 - › Matching variables included age, year, gender, and geographic region

Results: Baseline Characteristics

	HIV-Positive (N=29,039)	HIV-Negative (N=87,117)
Age in years, mean \pm SD	47.3 \pm 11.0	47.3 \pm 11.0
Male, %	82.0	82.0
U.S. Geographic Region, % (n)		
Northeast	15.6 (4,516)	15.6 (13,548)
Midwest	17.4 (5,059)	17.4 (15,177)
South	58.9 (17,096)	58.9 (51,288)
West	8.2 (2,368)	8.2 (7,104)

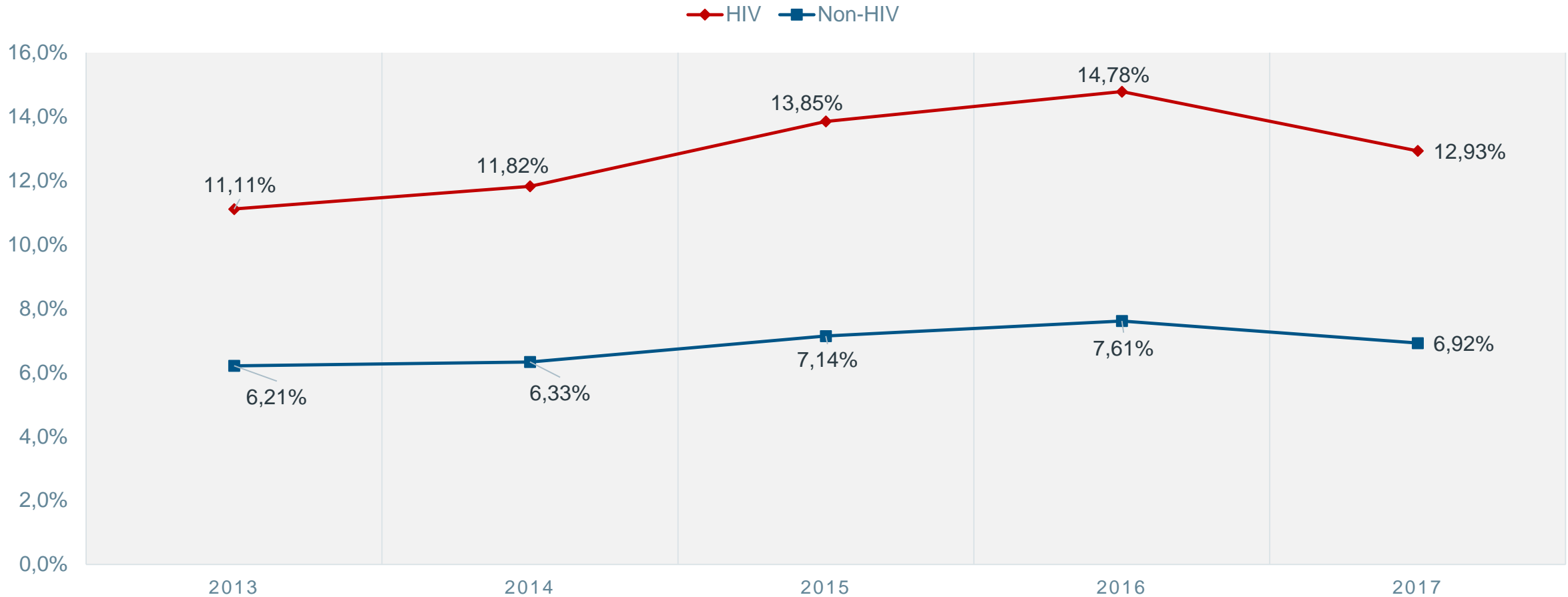
*based on last year of data (2017)

Neuropsychiatric conditions were observed at a significantly higher prevalence in patients with HIV compared to individuals without HIV

	HIV-Positive (N=29,039) % (n)	HIV-Negative (N=87,117) % (n)	P-value
Anxiety Disorders (n, %)	12.93 (3,756)	6.92 (6,026)	<0.0001
Sleep Disorders (n, %)	8.88 (2,580)	7.85 (6,837)	<0.0001
Nonorganic Sleep Disorders (n, %)	1.49 (432)	0.76 (666)	<0.0001
Somnolence (n, %)	0.58 (168)	0.37 (319)	<0.0001
Other Sleep Disorders (n, %)	0.02 (7)	0 (2)	0.003
Dizziness (n, %)	3.03 (879)	2.18 (1,896)	<0.0001
Manic Episode (n, %)	0.06 (16)	0.02 (16)	0.002
Bipolar Affective Disorder (n, %)	2.18 (632)	0.60 (523)	<0.0001
Major Depressive Disorders (n, %)	12.84 (3,728)	4.51 (3,932)	<0.0001
Persistent Mood Affective Disorders (n, %)	1.23 (357)	0.51 (447)	<0.0001
Suicidal Ideation	0 (1)	0 (0)	0.083

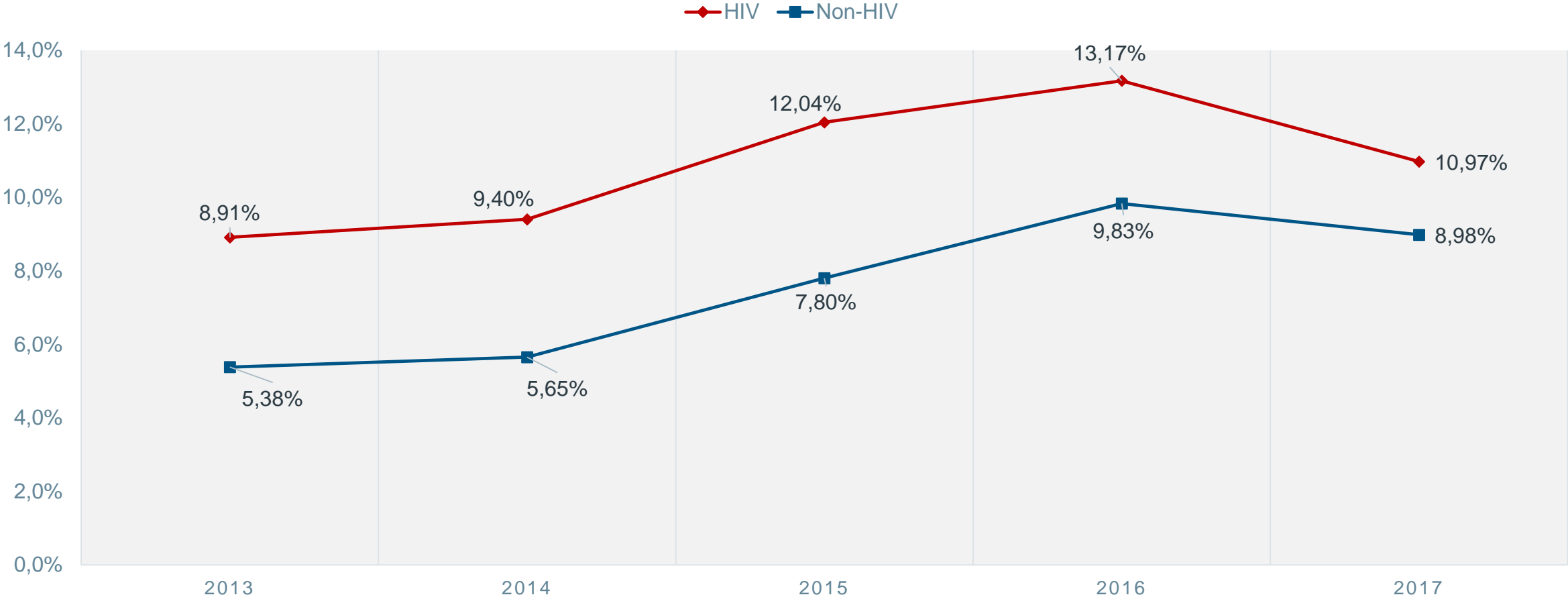
Anxiety prevalence increased over the 5-year period among patients with HIV, while prevalence remained relatively steady in patients without HIV

ANXIETY TRENDS: 2013-2017



Both cohorts experienced a rise in sleep disorders across time; however, patients with HIV had a higher prevalence of sleep disorders

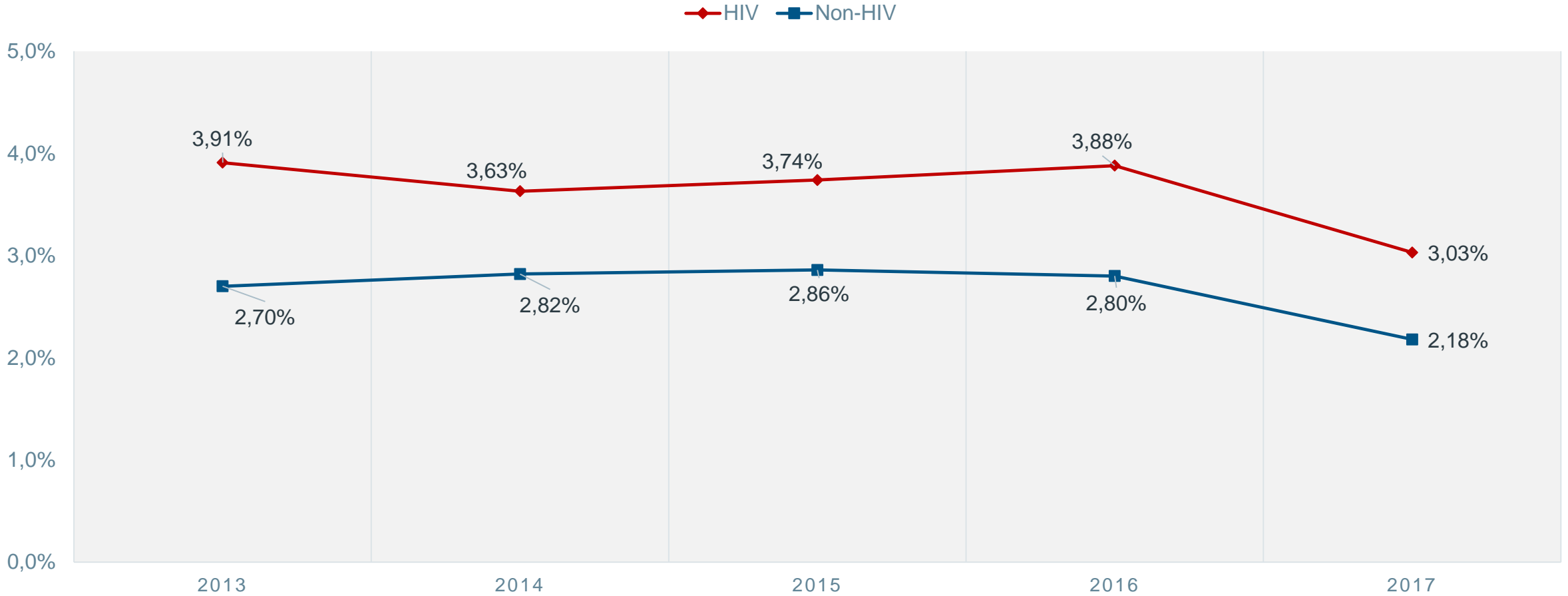
SLEEP DISORDERS* TRENDS: 2013-2017



*includes somnolence, nonorganic sleep disorders, and other types of sleep disorders

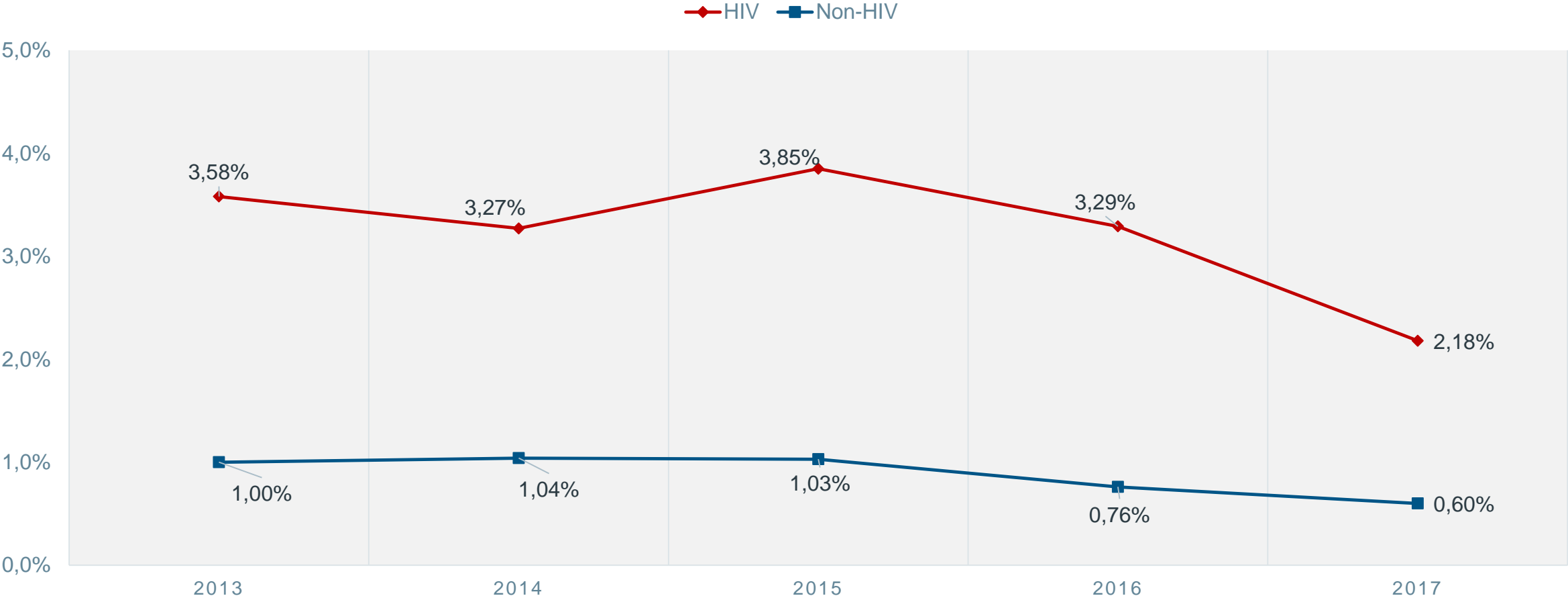
Fewer than 5% of both cohorts experienced dizziness, with stable prevalence across the 5-year timeframe

DIZZINESS TRENDS: 2013-2017



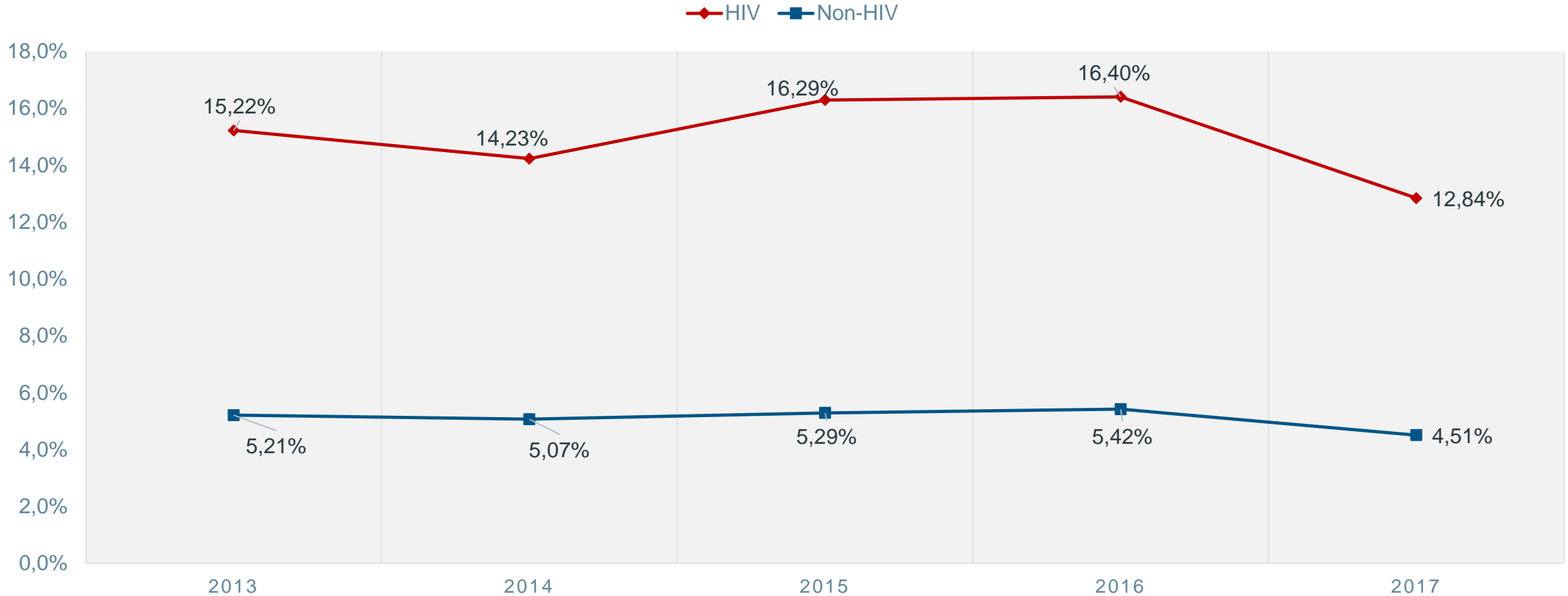
Bipolar affective disorder was 3 times more frequent in patients with HIV than in those without HIV

BIPOLAR AFFECTIVE DISORDER TRENDS: 2013-2017



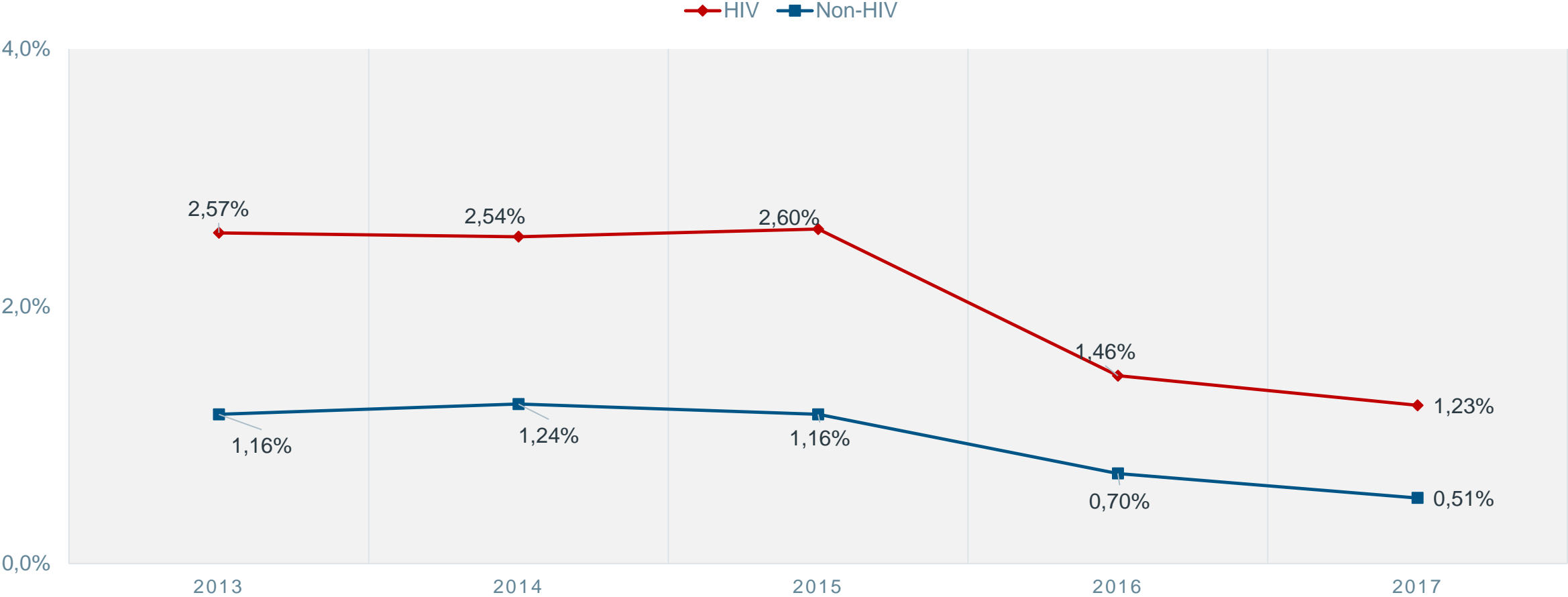
Major depressive disorder was also approximately 3 times higher each year in individuals with HIV compared to those without HIV

MAJOR DEPRESSIVE DISORDER TRENDS: 2013-2017



Mood affective disorders were higher in patients with HIV compared to those without HIV, but decreased in both cohorts after 2015

MOOD AFFECTIVE DISORDER TRENDS: 2013-2017



Strengths and Limitations

- These results provide updated estimates for the prevalence of multiple neuropsychiatric conditions in a large cohort of over 100,000 individuals with and without HIV over a 5-year timeframe.
- While patients were matched by age, gender, year, and geographic region, results were not adjusted for treatment, duration of disease, or comorbidities, which could have contributed to neuropsychiatric conditions.
- Capture of neuropsychiatric conditions was based on diagnosis codes and did not take into account therapeutic treatments. Hence, prevalence presented here may be underestimated.
- The switch from ICD-9 coding to ICD-10 coding in October 2015 may have contributed to some of the observed trends.
- These data were derived from health claims, which are subject to selection bias by only capturing insured patients.
- The claims database used for this analysis consists primarily of commercially insured populations; thereby limiting generalizability for patients over age 65.

Conclusions

- These findings support previous reports of significantly greater prevalence of neuropsychiatric conditions in patients living with HIV compared to HIV negative patients
- Anxiety and major depressive disorder were the two most common neuropsychiatric conditions among patients with HIV
- To preserve patients' mental health and quality of life, careful choice of treatment and screening for neuropsychiatric conditions should be a routine part of HIV management