Varenicline Access and Impact Among People with HIV in Routine Clinical Care

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Heidi M. Crane[1], Karen Cropsey[2], Conall O'Cleirigh[3], Bridget M. Whitney[1], Lydia N Drumright[1], Sonia Napravnik[4], Sherif Eltonsy[5], Mari M. Kitahata[1], Allan Rodriguez[6], Kenneth H. Mayer[3], Inga Peter[7], Geetanjali Chander[1], Michael S Saag[2], Carolyn Fahey[1], Kristina Crothers[1], Joseph A.C. Delaney[1]

1 University of Washington; 2 University of Alabama, Birmingham; 3 Fenway Health; 4 University of North Carolina, Chapel Hill; 5 University of Manitoba; 6 University of Miami; 7 Mount Sinai University

BACKGROUND

- Smoking rates among people with HIV (PWH) are twice general population rates and a driver of mortality and morbidity
- ATS guidelines recommend varenicline even among those with psychiatric conditions or not ready to stop smoking[1]
- Despite this, less than half of HIV providers report prescribing it regularly[2,3]
- Effectiveness of smoking cessation treatments may be lower among PWH for reasons including higher rates of concomitant depression, other substance use as well as higher levels of nicotine dependency compared to the general population
- Trials often exclude those with substance use or include extensive behavioral programs not feasible in clinical care

We evaluated the impact of varenicline on amount smoked, smoking cessation, anxiety, and depression among PWH in care and compared impact to PWH who received nicotine replacement therapy (NRT)

METHODS

Setting & Participants

Centers for AIDS Research Network of Integrated Clinical Systems (CNICS) Cohort

CNICS is a 10-site cohort of adult PWH engaged in care at academic clinics across the US

PWH who reported smoking cigarettes on the CNICS clinical assessment of patient reported outcomes from 1/2014 to 7/2025 (dates varied slightly by site) were included in this study

Outcomes

1. Change in cigarettes per day
2. Change in anxiety/panic level (PHQ-PD)
3. Change in depression symptom score (PHQ-9)
4. Time to smoking cessation

Exposure: PWH who received varenicline vs. NRT

Analyses

Linear mixed model with random slope for follow up years for change in key outcomes

Cox survival model for time to smoking cessation

All models adjusted for age, sex, race/ethnicity, year of initial CNICS visit, and time-updated other substance use, depression, and anxiety level

Sensitivity analyses examined interactions between varenicline or NRT and depression or anxiety for the change in cigarettes per day outcome or the time to quitting outcome

In routine care, varenicline increased smoking quit rates by 16% among people with HIV, with no added mental health risks

RESULTS

Table 2. Association of receiving varenicline or NRT on change in outcomes or time to smoking cessation in adjusted models

Outcome	Varenicline	NRT
	Coefficient (95% CI) p-value	Coefficient (95% CI) p-value
Change in cigarettes per day	-0.8 (-1.2,-0.3) p=0.001	-0.5 (-0.8,-0.1) p=0.01
Change in anxiety/panic level	0.00 (-0.04,0.04) p=0.9	0.02 (-0.01, 0.05) p=0.3
Change in depression (PHQ-9) score	-0.2 (-0.3,0.3) p=0.9	0.2 (-0.2,0.3) p=0.9
	HR (95% CI) p-value	HR (95% CI) p-value
Smoking cessation	1.16 (1.04,1.31) p=0.01	1.11 (1.00,1.23) p=0.051

- PWH who smoked and who were **Black** (RR 0.71, p<0.001) or **Hispanic** (RR 0.77, p=0.02) were *significantly less likely* to receive varenicline. PWH **with higher depression scores** were *significantly less likely* to receive varenicline (RR 0.94, p=0.03 per 5 pts)
- There were no significant interactions between varenicline or NRT with depression or anxiety for the change in cigarettes per day outcome or the time to quitting outcome

REFERENCES: 1. Leone et al. *Am J Respir Crit Care Med*. Jul 15 2020;202(2):e5-e31. 2. Shuter et al. *AIDS Behav*. Feb 2012;16(2):288-94. 3. Bold et al. *Transl Behav Med*. Jul 7 2022;12(6):726-733.

RESULTS

Table 1. Baseline Characteristics by Smoking Cessation

	Continued smoking	Smoking cessation
N (%) or mean (SD)	N=1,863	N=1,760
Age	46 (11)	45 (12)
Female	391 (21%)	351 (20%)
Non-Hispanic White	739 (40%)	669 (38%)
Non-Hispanic Black	895 (48%)	823 (47%)
Hispanic	156 (8)	196 (11)
Depression (PHQ-9) score	6.6 (6.5)	6.0 (6.2)
Years of follow-up	4.4 (3.3)	3.2 (2.6)
Varenicline use (by end of follow-up)	417 (22%)	397 (23%)
NRT use (by end of follow-up)	743 (40%)	603 (40%)

LIMITATIONS

- NRT capture may be incomplete as it is available without a prescription

CONCLUSIONS

- Receipt of varenicline is low in HIV care and there is inequitable prescription
- Varenicline and NRT are both effective treatment options for smoking in PWH; varenicline is associated with greater likelihood of smoking cessation than NRT
- Our findings provide real-world evidence of impacts to support those from trials
- Despite historic concerns regarding varenicline impacts on mental health, there was no appreciable impact on depression or anxiety levels or significant interactions

ADDITIONAL INFORMATION

The authors would like to acknowledge all CNICS participants and personnel for their contributions to this work. This work was supported by NIH funding (R01DA044112, R01HL126538, and R24AI067039)

Contact: Heidi Crane, hcrane@uw.edu

Plain language summary: In a cohort of PWH engaged in clinical care who smoked, varenicline was associated with more smoking cessation than nicotine replacement therapy and did not result in a mean increase in depression or anxiety/panic symptoms.