Evolving drivers of preexposure prophylaxis discontinuation among US MSM

Samuel M. Jenness[a], Bevin Manuelpillai[a], Steven M. Goodreau[b], Julia L. Marcus[c], Eva A. Enns[d], Irah L. Lucas[a], Cristian Acero Martinez[a], Aaron J. Siegler[a] and Travis Sanchez[a]

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Objective: To examine temporal trends in reasons for stopping preexposure prophylaxis (PrEP) among MSM from 2018 to 2024, including how reasons co-occur and vary by demographics.

Design: Pooled repeated cross-sectional analysis of seven annual waves of the American Men's Internet Survey (AMIS), a national behavioral survey of US cisgender MSM ($N = 54\,612$).

Methods: Among 3074 noncurrent PrEP users who reported reasons for stopping, we collapsed checklist items into six thematic categories and estimated adjusted prevalence by survey year using multivariable logistic regression with g-computation. Latent class analysis (LCA) identified subgroups with distinct discontinuation profiles.

Results: The most common reason was Altered Sexual Activity (55%), followed by Side Effects (31.6%) and Financial/Access (29.4%). After demographic adjustment, Altered Sexual Activity rose from 46.2% in 2018 to 61.2% in 2024 [adjusted odds ratio (aOR) 1.93], and Privacy/Discrimination roughly doubled from 5.6 to 11.3%, the only reason with a significant linear trend (aOR 1.14 per year; $P = 0.003$). Financial/Access remained stable at approximately 29% across all 7 years. LCA identified three classes: Changed Circumstances (35.1%), Structural Barriers (23.8%), and Clinical/Multi-Barrier (41.1%). Being uninsured was the strongest predictor of financial discontinuation (aOR 4.31).

Conclusions: Over 7 years of PrEP scale-up, circumstance-driven discontinuation grew increasingly dominant while stigma-related discontinuation doubled and cost barriers persisted. Three distinct discontinuation profiles argue for tailored approaches: re-engagement pathways for those whose circumstances change, financial navigation for structural barriers, and comprehensive clinical support for those experiencing multiple challenges.

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AIDS 2026, **40**:1885–1894

Keywords: health services accessibility, HIV infections, latent class analysis, medication adherence, preexposure prophylaxis, sexual and gender minorities, social stigma

[a]Department of Epidemiology, Rollins School of Public Health, Emory University, Atlanta, GA, [b]Departments of Anthropology and Epidemiology, University of Washington, Seattle, WA, [c]Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Healthcare Institute, Boston, MA, and [d]Division of Health Policy and Management, University of Minnesota, Minneapolis, MN, USA.

Correspondence to Samuel M. Jenness, Emory University, 1520 Clifton Road, Atlanta, GA 30323, USA.

E-mail: samuel.m.jenness@emory.edu
Received: 25 March 2026; revised: 11 May 2026; accepted: 14 May 2026.

DOI:10.1097/QAD.0000000000004593

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Introduction

Pre-exposure prophylaxis (PrEP) reduces the risk of HIV acquisition by up to 99% when taken consistently [1,2]. Since the US Food and Drug Administration (FDA) approval in 2012, PrEP uptake among MSM, the population with the highest burden of new HIV diagnoses in the United States, has expanded from fewer than 14 000 prescriptions in 2014 to an estimated 460 000 in 2022 [3], supported by evolving coverage mandates, federal programs, and new formulations, though uptake of long-acting injectable alternatives remains limited [4]. Yet PrEP discontinuation remains pervasive: only about 40% of initiators persist through 2 years [5], with a global meta-analysis estimating 41% discontinuation within 6 months [6]. In the United States, persistence is lowest among young adults, people from racial and ethnic groups disproportionately affected by HIV, and those without private insurance [5–7], the very populations where scale-up is most needed. In clinical cohorts, the majority of HIV seroconversions among PrEP-experienced individuals occurred after discontinuation rather than during use [8–10], underscoring the need to understand why people stop.

The reasons people stop PrEP span multiple domains: changes in perceived HIV risk (e.g. entering a monogamous relationship, becoming sexually inactive), financial and insurance barriers, side effects, adherence difficulties, and stigma concerns [6,9,11,12]. A global meta-analysis found perceived low risk and side effects were most commonly reported, while structural barriers were prominent in US-based studies [6]. These reasons often co-occur: individuals facing insurance lapses may simultaneously contend with clinic scheduling and medication costs, while those experiencing stigma may struggle with adherence [11,12]. PrEP-specific stigma (concerns about social rejection or assumptions of promiscuity, discomfort with disclosure) has been shown to erode engagement with PrEP care [13–15]. Current frameworks recognize that PrEP use may be episodic, with individuals cycling on and off during 'seasons of risk' [16,17], a concept reinforced by growing acceptance of event-driven (2–1–1) dosing [18,19]. As clinical guidance has shifted from formal periodic reassessment toward collaborative decision-making about PrEP continuation [20–22], understanding whether discontinuation reflects volitional decisions aligned with actual risk reduction or premature stopping that leaves individuals exposed has become a central question.

Key gaps in our understanding of PrEP discontinuation remain. First, most studies draw from single clinical sites [9,11], pharmacy claims [5], or small qualitative samples [12,14], limiting generalizability. Second, few have examined whether reasons for stopping changed over time. Between 2018 and 2024, the PrEP user population became younger and more racially and socioeconomically diverse [3,7], while the policy environment shifted substantially with the USPSTF Grade A coverage recommendation [23], the federal Ready, Set, PrEP program [24], generic tenofovir disoproxil fumarate/emtricitabine, evolving clinical practice guidelines, and long-acting injectable cabotegravir. Without longitudinal data on discontinuation reasons, it is impossible to disentangle temporal trends from compositional changes. Third, existing analyses examine reasons in isolation, whereas discontinuation is often driven by co-occurring reasons [11,12]. Person-centered approaches such as latent class analysis (LCA) have been applied to PrEP discontinuation reasons in non-US settings [25,26] but have not, to our knowledge, been applied to characterize discontinuation among US MSM.

To address these gaps, we analyzed seven annual waves (2018–2024) of the American Men's Internet Survey (AMIS), a large national cross-sectional behavioral survey of US MSM [27]. Among more than 3000 respondents who reported stopping PrEP, we: described the prevalence of discontinuation reasons by survey year, examining co-occurrence structure; fit multivariable logistic regression models using g-computation to estimate adjusted temporal trends accounting for shifting demographics; and conducted LCA to identify subgroups with distinct discontinuation profiles. Together, these analyses provide a comprehensive portrait of why MSM stopped PrEP during a critical period of scale-up, how these reasons evolved, and how they clustered within individuals.

Methods

Study design and sample

Data were drawn from the American Men's Internet Survey (AMIS), a repeated annual cross-sectional survey of MSM in the United States that recruits participants through convenience sampling via online platforms [27]. Eligible participants were cisgender men aged at least 15, residing in the United States, who reported oral or anal sex with a man. Persons with HIV were excluded. Seven annual waves (2018–2024) were pooled. Per-wave sample sizes declined from 10 121 in 2018 to 3357 in 2024, apart from a 2020 peak ($n = 13\,065$) coinciding with elevated online engagement during the early COVID-19 pandemic; this decline reflects diminishing efficiency of online health-research recruitment industry-wide and corresponding reductions in AMIS annual targets (Appendix A3, https://links.lww.com/QAD/D950). Respondents were classified as never PrEP, current PrEP, or noncurrent PrEP based on harmonized skip logic across waves (Appendix A1, https://links.lww.com/QAD/D950). The study was approved by the Emory University Institutional Review Board.

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Preexposure prophylaxis discontinuation reasons

Noncurrent PrEP users were asked to select all applicable reasons for stopping from a checklist (13 items in 2018, expanded to 16 by 2022). We collapsed these into six binary thematic categories: Financial/Access, Altered Sexual Activity (perceived risk reduction due to sexual inactivity or monogamy), Privacy/Discrimination, Adherence Challenges, Side Effects, and Other Prevention Methods (Appendix A2a, https://links.lww.com/QAD/D950); respondents could endorse multiple categories. Open-ended 'other specify' responses (2018–2022) were independently dual-coded (Appendix A2b, https://links.lww.com/QAD/D950). The 2024 wave introduced formulation-specific batteries that were harmonized to the same six categories (Appendix A2c, https://links.lww.com/QAD/D950).

Demographic covariates

Six demographic covariates were included: age, race/ethnicity, insurance, household income, education, and region. Category definitions and reference levels are shown in Table 3; race/ethnicity coding was harmonized across waves (Appendix A3, https://links.lww.com/QAD/D950).

Analytic sample

The primary analytic sample comprised noncurrent PrEP users who reported at least one mapped reason for stopping (Figure S1, https://links.lww.com/QAD/D950). Respondents in 2023–2024 who selected only 'another reason' (with no text follow-up available) were excluded and addressed via sensitivity analysis (Appendix B5, https://links.lww.com/QAD/D950). Respondents with missing covariates or residing in US Dependent Areas were further excluded from regression models.

Statistical analysis

Sample characteristics were summarized by PrEP use status. Among noncurrent PrEP users, we computed reason prevalence overall and by year, examined co-occurrence patterns, and estimated pairwise tetrachoric correlations [28].

Separate multivariable logistic regression models were fit for each of the six reason categories, with survey year (categorical; reference: 2018), age, race/ethnicity, insurance, income, education, and region as covariates. To estimate adjusted temporal trends on the probability scale, g-computation (marginal standardization) [29] was used: for each year, all respondents in the analytic sample were assigned to that year while retaining their observed covariate values, and the sample-average predicted probability was computed. This approach answers the counterfactual question: what would the prevalence of each reason have been in each year if the demographic composition of noncurrent PrEP users had remained constant?

LCA was performed on the six binary reason indicators [30] (Appendix A4, https://links.lww.com/QAD/D950). Five sensitivity analyses assessed robustness: excluding the 2020 wave, fitting a continuous linear year term, examining 4-class and 5-class LCA solutions, reallocating 'other reason'-only respondents proportionally, and excluding within-window repeat participants (Appendix B5, https://links.lww.com/QAD/D950). Repeaters [$n = 209$ (7.2%) of the regression sample], identified via the wave-specific recruitment-source variable, were treated as independent observations because AMIS lacks a persistent person-level identifier across waves. A supplementary analysis of adjusted PrEP status trends is in Appendix B4, https://links.lww.com/QAD/D950. All analyses were conducted in R [31].

Results

Study sample and preexposure prophylaxis use over time

Of 54 612 MSM across seven AMIS waves, 54 565 had an assignable PrEP status (Table 1; Figure S1, https://links.lww.com/QAD/D950): 41 368 (75.8%) never used PrEP, 9884 (18.1%) were current users, and 3313 (6.1%) were noncurrent users. Current PrEP use rose from 10.6% in 2018 to 32.8% in 2024; the proportion of noncurrent users grew from 3 to 8.9% (Figure S8, https://links.lww.com/QAD/D950). A supplementary analysis confirmed these trends were not artifacts of changing sample composition (Table S7, https://links.lww.com/QAD/D950; Figure S9, https://links.lww.com/QAD/D950; Appendix B4, https://links.lww.com/QAD/D950). Of 3313 noncurrent PrEP users, 3074 reported at least one mapped reason for stopping and constituted the primary analytic sample; the remainder reported only 'other reason' or had no mapped reason (Figure S1, https://links.lww.com/QAD/D950). Noncurrent PrEP users were younger than never-users (37% aged 25–34 vs. 22.7%) and more likely to be uninsured (9.3%) than current users (3.7%); additional demographic comparisons are in Appendix B1, https://links.lww.com/QAD/D950.

Prevalence and co-occurrence of discontinuation reasons

Among the 3074 noncurrent PrEP users, the most common reason was Altered Sexual Activity (1690; 55%), followed by Side Effects (970; 31.6%), Financial/Access (904; 29.4%), Adherence Challenges (359; 11.7%), Privacy/Discrimination (259; 8.4%), and Other Prevention Methods (212; 6.9%) (Table 2).

Most noncurrent PrEP users reported a single reason (2104; 68.4%), but a substantial minority (970; 31.6%) cited multiple reasons (Table S1, https://links.lww.com/QAD/D950). Among those reporting exactly one reason, the most common was Altered Sexual Activity (995;

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Table 1. Demographic characteristics of MSM by preexposure prophylaxis use status, American Men's Internet Survey 2018–2024 (*N* = 54 565).

	Overall	Never PrEP	Current PrEP	Noncurrent PrEP
Overall	54 565 (100.0)	41 368 (75.8)	9884 (18.1)	3313 (6.1)
Study year				
2018	10 121 (18.5)	8743 (21.1)	1074 (10.9)	304 (9.2)
2019	10 119 (18.5)	8532 (20.6)	1105 (11.2)	482 (14.5)
2020	13 065 (23.9)	10 912 (26.4)	1319 (13.3)	834 (25.2)
2021	9049 (16.6)	6075 (14.7)	2379 (24.1)	595 (18.0)
2022	4348 (8.0)	2596 (6.3)	1365 (13.8)	387 (11.7)
2023	4506 (8.3)	2552 (6.2)	1542 (15.6)	412 (12.4)
2024	3357 (6.2)	1958 (4.7)	1100 (11.1)	299 (9.0)
Race/ethnicity				
White	41 094 (75.7)	31 078 (75.5)	7575 (77.0)	2441 (74.2)
Hispanic	4410 (8.1)	3318 (8.1)	798 (8.1)	294 (8.9)
Black	6182 (11.4)	4901 (11.9)	929 (9.4)	352 (10.7)
Other	2069 (3.8)	1427 (3.5)	473 (4.8)	169 (5.1)
Unknown/prefer not to answer	528 (1.0)	429 (1.0)	67 (0.7)	32 (1.0)
Age				
15–24	15 290 (28.0)	13 677 (33.1)	970 (9.8)	643 (19.4)
25–34	13 373 (24.5)	9395 (22.7)	2751 (27.8)	1227 (37.0)
35–44	7169 (13.1)	4617 (11.2)	1989 (20.1)	563 (17.0)
45–54	6977 (12.8)	4683 (11.3)	1896 (19.2)	398 (12.0)
55+	11 756 (21.5)	8996 (21.7)	2278 (23.0)	482 (14.5)
Current insurance				
Private	37 514 (69.7)	27 357 (67.3)	7858 (79.8)	2299 (69.8)
Public	9743 (18.1)	7755 (19.1)	1409 (14.3)	579 (17.6)
None	4092 (7.6)	3426 (8.4)	361 (3.7)	305 (9.3)
Unknown	2464 (4.6)	2135 (5.2)	217 (2.2)	112 (3.4)
Annual income				
$0–19 999	6385 (12.8)	5396 (14.4)	638 (6.7)	351 (11.0)
$20 000–39 999	9367 (18.7)	7507 (20.1)	1262 (13.3)	598 (18.8)
$40 000–74 999	12 855 (25.7)	9617 (25.7)	2418 (25.5)	820 (25.8)
$75 000+	21 387 (42.8)	14 828 (39.7)	5151 (54.4)	1408 (44.3)
Education				
Less than HS	2008 (3.7)	1907 (4.6)	59 (0.6)	42 (1.3)
HS diploma/equivalent	7435 (13.7)	6607 (16.1)	526 (5.3)	302 (9.1)
Some college/technical	17 188 (31.7)	13 966 (34.0)	2267 (23.0)	955 (28.9)
College degree+	27 654 (50.9)	18 630 (45.3)	7014 (71.1)	2010 (60.7)
Region				
Northeast	9569 (17.5)	6986 (16.9)	1929 (19.5)	654 (19.7)
Midwest	10 974 (20.1)	8569 (20.7)	1807 (18.3)	598 (18.1)
South	21 346 (39.1)	16 653 (40.3)	3517 (35.6)	1176 (35.5)
West	12 596 (23.1)	9084 (22.0)	2629 (26.6)	883 (26.7)
US-dependent areas	79 (0.1)	75 (0.2)	2 (0.0)	2 (0.1)

PrEP, preexposure prophylaxis.

47.3%), followed by Financial/Access (494; 23.5%) and Side Effects (409; 19.4%). Among those reporting multiple reasons, each individual reason was reported at higher rates than among single-reason stoppers, consistent with a broad constellation of overlapping factors rather than discrete pairs (Appendix B1, https://links.lww.com/QAD/D950). The most common combinations were Altered Sexual Activity with Side Effects ($n = 214$; 22.1%) and Altered Sexual Activity with Financial/Access ($n = 143$; 14.7%) (Table S2; Fig. 1).

Tetrachoric correlations (Figure S4, https://links.lww.com/QAD/D950; Table S5, https://links.lww.com/QAD/D950) revealed a meaningful co-occurrence structure. Financial/Access and Altered Sexual Activity were negatively correlated ($r = -0.54$), as were Side Effects and Altered Sexual Activity ($r = -0.36$) and Financial/Access and Side Effects ($r = -0.36$), indicating these represent largely distinct discontinuation experiences. In contrast, Privacy/Discrimination was positively correlated with both Other Prevention Methods ($r = 0.25$) and Adherence Challenges ($r = 0.23$), indicating that respondents who faced stigma were also more likely to struggle with adherence, a pattern later confirmed by LCA.

Demographic variation in discontinuation reasons

Reason prevalence varied substantially by demographics (Figure S3, https://links.lww.com/QAD/D950; Table 3), with several patterns consistent across unadjusted (Table S3, https://links.lww.com/QAD/D950) and adjusted analyses.

Age

Adolescents and young adults (15–24) were significantly more likely than older age groups to cite Privacy/Discrimination (aOR 2.68; 95% CI: 1.87–3.87; $P < 0.001$). Older adults were progressively less likely to cite

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Table 2. Prevalence of preexposure prophylaxis discontinuation reasons by survey year among noncurrent preexposure prophylaxis users who are MSM, American Men's Internet Survey 2018–2024 ($n = 3074$).

Reason	Overall	2018	2019	2020	2021	2022	2023	2024
N (PrEP stoppers)	3074	226	480	813	585	382	352	236
Financial/Access	904 (29.4)	68 (30.1)	160 (33.3)	249 (30.6)	157 (26.8)	113 (29.6)	101 (28.7)	56 (23.7)
Altered Sexual Activity	1690 (55.0)	103 (45.6)	274 (57.1)	498 (61.3)	295 (50.4)	184 (48.2)	195 (55.4)	141 (59.7)
Privacy/Discrimination	259 (8.4)	14 (6.2)	40 (8.3)	71 (8.7)	43 (7.4)	35 (9.2)	34 (9.7)	22 (9.3)
Adherence Challenges	359 (11.7)	27 (11.9)	63 (13.1)	106 (13.0)	67 (11.5)	39 (10.2)	31 (8.8)	26 (11.0)
Side Effects	970 (31.6)	65 (28.8)	169 (35.2)	223 (27.4)	217 (37.1)	116 (30.4)	116 (33.0)	64 (27.1)
Other Methods	212 (6.9)	18 (8.0)	38 (7.9)	45 (5.5)	46 (7.9)	20 (5.2)	28 (8.0)	17 (7.2)

PrEP, preexposure prophylaxis.

Altered Sexual Activity (aOR for 55+: 0.39; 95% CI: 0.30–0.50; $P < 0.001$) and more likely to cite Side Effects (aOR for 45–54: 1.75; 95% CI: 1.34–2.28; $P < 0.001$).

Race/ethnicity

Black MSM were less likely to cite Altered Sexual Activity (aOR 0.54; 95% CI: 0.42–0.70; $P < 0.001$) and more likely to cite Adherence Challenges (aOR 1.48; 95% CI: 1.04–2.08; $P < 0.05$). The unadjusted association between Black race and Financial/Access (OR 1.43; 95% CI: 1.12–1.83) attenuated to null after adjustment for income and insurance (aOR 1.11; 95% CI: 0.84–1.45), suggesting the unadjusted racial disparity was largely explained by differences in socioeconomic position.

Insurance and income

Being uninsured had the largest effect size in the analysis, with aOR 4.31 (95% CI: 3.26–5.73; $P < 0.001$) for Financial/Access, and was associated with lower odds of citing Side Effects (aOR 0.47) and Other Prevention Methods (aOR 0.31), consistent with cost concerns dominating other considerations. Low income was independently associated with Financial/Access (aOR for <$20 000 vs. $75 000+: 1.58; 95% CI: 1.16–2.14) and

Table 3. Adjusted odds ratios from multivariable logistic regression models for preexposure prophylaxis discontinuation reasons among MSM, American Men's Internet Survey 2018–2024 ($n = 2912$).

	Financial/Access	Altered Sexual Activity	Privacy/Discrimination	Adherence Challenges	Side Effects	Other Methods
Year (ref: 2018)						
2019	1.13 (0.78–1.66)	1.58 (1.12–2.24)	1.37 (0.73–2.71)	1.03 (0.62–1.72)	1.38 (0.96–1.99)	1.09 (0.58–2.12)
2020	1.06 (0.75–1.52)	1.76 (1.28–2.42)	1.32 (0.74–2.52)	0.97 (0.62–1.58)	0.96 (0.68–1.35)	0.67 (0.37–1.29)
2021	0.93 (0.64–1.35)	1.28 (0.91–1.79)	1.64 (0.87–3.28)	1.26 (0.76–2.13)	1.30 (0.91–1.87)	1.16 (0.63–2.24)
2022	1.06 (0.71–1.57)	1.18 (0.82–1.69)	1.96 (1.01–3.96)	1.10 (0.64–1.93)	1.01 (0.69–1.48)	0.75 (0.37–1.57)
2023	1.08 (0.72–1.63)	1.59 (1.10–2.30)	2.23 (1.15–4.54)	1.02 (0.57–1.82)	1.12 (0.76–1.65)	1.16 (0.59–2.34)
2024	0.80 (0.51–1.27)	1.93 (1.30–2.89)	2.18 (1.06–4.62)	1.35 (0.73–2.47)	0.82 (0.53–1.26)	1.09 (0.52–2.33)
Age (ref: 25–34)						
15–24	0.95 (0.74–1.22)	0.90 (0.72–1.14)	2.68 (1.87–3.87)	1.52 (1.13–2.05)	1.05 (0.82–1.33)	1.45 (0.94–2.21)
35–44	1.23 (0.95–1.58)	0.59 (0.47–0.75)	0.79 (0.50–1.22)	0.61 (0.42–0.88)	1.16 (0.91–1.47)	1.13 (0.72–1.74)
45–54	1.24 (0.92–1.65)	0.41 (0.32–0.54)	1.09 (0.67–1.71)	0.60 (0.38–0.91)	1.75 (1.34–2.28)	0.80 (0.45–1.36)
55+	1.32 (0.99–1.75)	0.39 (0.30–0.50)	0.88 (0.54–1.39)	0.33 (0.19–0.54)	1.74 (1.34–2.26)	1.24 (0.76–1.99)
Race (ref: White)						
Hispanic	1.01 (0.74–1.36)	1.03 (0.78–1.37)	0.89 (0.53–1.43)	1.15 (0.77–1.69)	1.02 (0.76–1.37)	1.42 (0.85–2.28)
Black	1.11 (0.84–1.45)	0.54 (0.42–0.70)	1.34 (0.87–2.01)	1.48 (1.04–2.08)	1.23 (0.95–1.60)	1.49 (0.93–2.31)
Other	0.81 (0.53–1.22)	0.96 (0.67–1.38)	0.92 (0.47–1.66)	1.60 (0.96–2.55)	0.87 (0.58–1.27)	1.18 (0.58–2.18)
Unknown	1.43 (0.60–3.20)	0.43 (0.18–0.98)	1.11 (0.18–3.82)	4.52 (1.79–10.49)	1.67 (0.75–3.64)	1.24 (0.20–4.28)
Insurance (ref: private)						
Public	0.78 (0.60–1.00)	0.79 (0.63–0.99)	1.16 (0.79–1.68)	1.22 (0.88–1.68)	0.88 (0.70–1.11)	0.77 (0.48–1.18)
None	4.31 (3.26–5.73)	0.58 (0.44–0.77)	0.75 (0.43–1.25)	0.67 (0.43–1.01)	0.47 (0.34–0.65)	0.31 (0.13–0.63)
Unknown	1.41 (0.87–2.24)	0.90 (0.58–1.43)	1.39 (0.69–2.60)	0.75 (0.35–1.44)	0.80 (0.48–1.30)	0.94 (0.38–1.97)
Income (ref: $75 000+)						
$0–19 999	1.58 (1.16–2.14)	0.53 (0.40–0.71)	1.31 (0.85–2.01)	1.68 (1.14–2.47)	1.13 (0.83–1.53)	0.93 (0.52–1.62)
$20 000–39 999	1.87 (1.46–2.40)	0.58 (0.46–0.73)	0.74 (0.49–1.10)	1.31 (0.94–1.82)	1.19 (0.93–1.51)	1.15 (0.75–1.75)
$40 000–74 999	1.55 (1.24–1.93)	0.72 (0.59–0.87)	0.56 (0.38–0.82)	1.03 (0.75–1.41)	1.08 (0.88–1.33)	0.75 (0.50–1.11)
Education (ref: college+)						
Less than HS	2.35 (1.15–4.77)	0.86 (0.42–1.73)	0.61 (0.10–2.11)	2.15 (0.87–4.79)	0.62 (0.25–1.38)	0.44 (0.02–2.15)
HS diploma	1.61 (1.18–2.18)	0.54 (0.40–0.73)	1.19 (0.74–1.85)	0.96 (0.62–1.47)	0.89 (0.64–1.22)	1.16 (0.66–1.93)
Some college	1.48 (1.21–1.79)	0.66 (0.55–0.80)	1.06 (0.77–1.46)	1.62 (1.25–2.11)	1.26 (1.04–1.53)	0.99 (0.69–1.41)
Region (ref: South)						
Northeast	0.97 (0.76–1.23)	0.99 (0.80–1.23)	0.92 (0.62–1.35)	0.96 (0.69–1.33)	0.96 (0.76–1.20)	1.21 (0.81–1.80)
Midwest	0.94 (0.74–1.20)	0.91 (0.73–1.13)	1.11 (0.75–1.63)	0.85 (0.60–1.20)	0.98 (0.78–1.24)	0.92 (0.58–1.43)
West	0.90 (0.72–1.12)	1.13 (0.93–1.38)	1.07 (0.76–1.51)	0.96 (0.72–1.30)	0.85 (0.69–1.05)	0.97 (0.66–1.43)

PrEP, preexposure prophylaxis.

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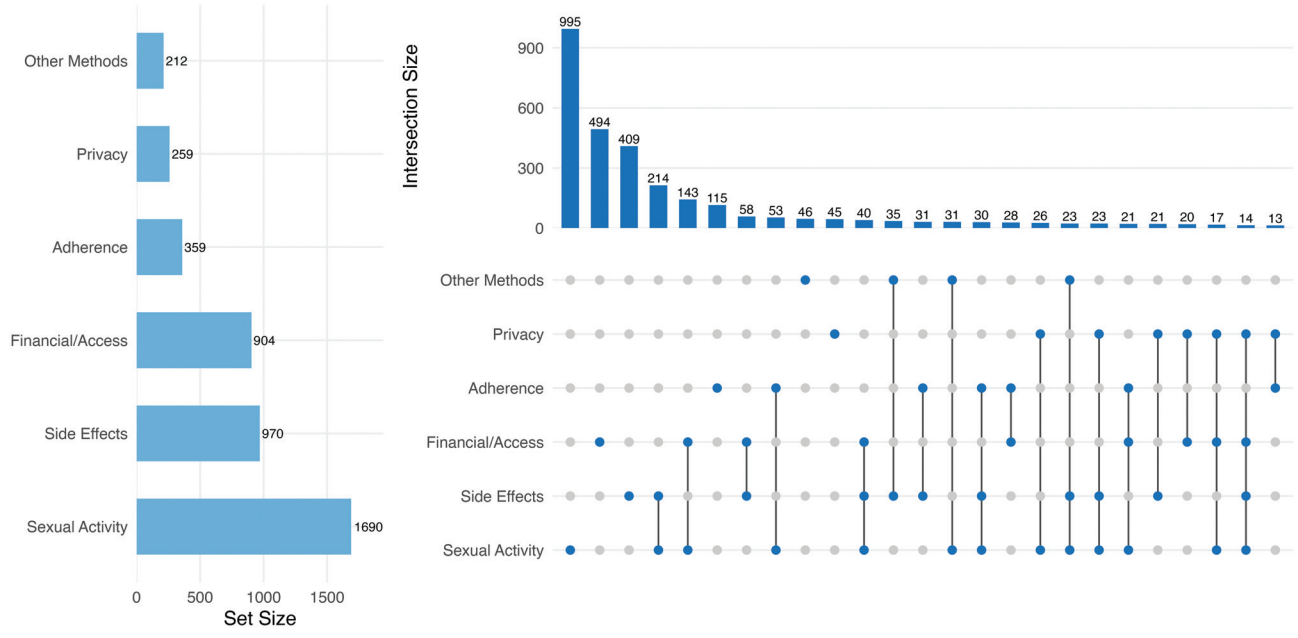


Fig. 1. Intersection plot of preexposure prophylaxis discontinuation reason combinations among respondents reporting two or more reasons. The top 20 most common combinations are shown. Vertical bar heights indicate the number of respondents with each specific combination; the dot matrix below identifies which reasons are included in each combination. The left sidebar shows the total number of endorsements for each individual reason.

inversely with Altered Sexual Activity (aOR 0.53; 95% CI: 0.40–0.71). Education gradients paralleled income patterns (Appendix B2, https://links.lww.com/QAD/D950).

Temporal trends in discontinuation reasons

Unadjusted reason prevalences by year (Table 2; Figure S2, https://links.lww.com/QAD/D950) revealed diverging trajectories across the six categories. Because the demographic composition of noncurrent PrEP users shifted over the study period, we focus on adjusted trends that standardize over the observed covariate distribution via g-computation (Fig. 2; Table S4, https://links.lww.com/QAD/D950). Two distinct temporal patterns emerged (Table 3).

Reasons that increased

Altered Sexual Activity, already the most common reason in 2018 (adjusted prevalence 46.2%), rose to 61.2% by 2024, the highest point in the series (aOR 1.93; 95% CI: 1.30–2.89). The trajectory was nonlinear: a steep initial increase to 59.1% in 2020 was followed by a dip to 50.0% in 2022 and a subsequent surge in 2023–2024. Privacy/Discrimination showed sustained growth, with adjusted prevalence roughly doubling from 5.6% in 2018 to 11.3% by 2024 (aOR 2.18; 95% CI: 1.06–4.62), though the wide confidence interval and small absolute numbers (n = 259 endorsers overall) should be noted.

Reasons that remained stable

Financial/Access showed no significant change over the study period (adjusted prevalence 28.9% in 2018 to 25.1% in 2024; aOR 0.80; 95% CI: 0.51–1.27), though the 2024 estimate was the lowest in the series. Side Effects fluctuated without a clear directional trend (29.3–25.4%; aOR 0.82; 95% CI: 0.53–1.26). Adherence Challenges was stable (11.3–14.4%; aOR 1.35; 95% CI: 0.73–2.47). Other Prevention Methods remained low (7.1–7.7%; aOR 1.09; 95% CI: 0.52–2.33).

Latent classes of preexposure prophylaxis discontinuers

LCA identified three subgroups among the 3074 noncurrent PrEP users with distinct profiles of reason endorsement (Figures S5, https://links.lww.com/QAD/D950 and S6, https://links.lww.com/QAD/D950; Table S6, https://links.lww.com/QAD/D950).

1. Class 1: 'Changed Circumstances' ($n = 1079$; 35.1%) was defined by near-universal Altered Sexual Activity endorsement (100%) and negligible endorsement of all other reasons. This class had the highest incomes and private insurance rates (Figure S7, https://links.lww.com/QAD/D950). Its share grew from 35% in 2018 to 42.4% in 2024.
2. Class 2: 'Structural Barriers' ($n = 731$; 23.8%) was defined by universal Financial/Access endorsement (100%) with roughly one-quarter also citing Altered Sexual Activity (23.5%) and low endorsement of all other reasons. This class had the highest uninsured rate and lowest incomes (Figure S7, https://links.lww.com/QAD/D950). Its share declined from 24.8% in 2018 to 19.1% in 2024.
3. Class 3: 'Clinical/Multi-Barrier' ($n = 1264$; 41.1%), the largest class, was characterized by high Side Effects endorsement (66.6%) alongside substantial co-endorsement

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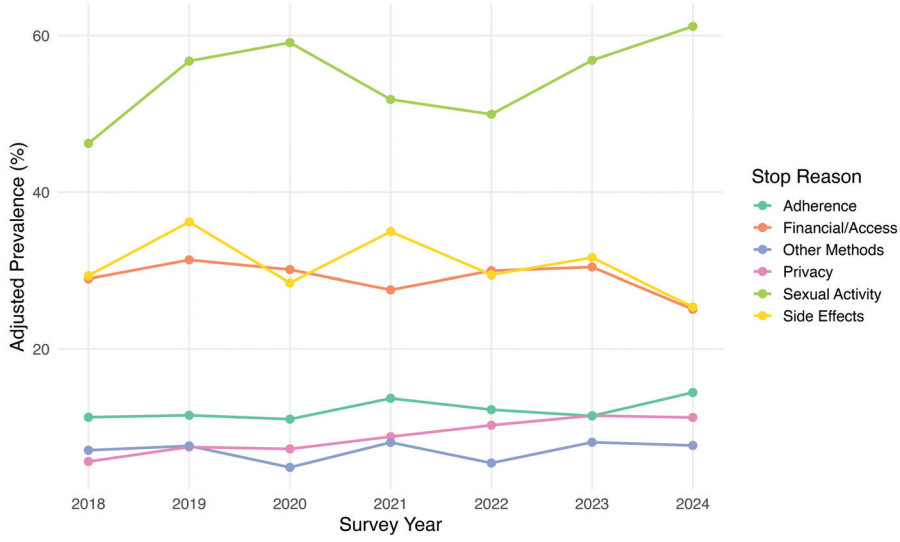


Fig. 2. Adjusted trends in preexposure prophylaxis discontinuation reasons over time, American Men's Internet Survey 2018–2024. Lines show the standardized predicted probability of reporting each stop reason by survey year, estimated via g-computation from multivariable logistic regression models adjusting for age, race/ethnicity, insurance, income, education, and region. By holding the demographic composition constant, these trends isolate true temporal shifts from compositional changes in the noncurrent PrEP user population.

of Altered Sexual Activity (36.2%), Adherence Challenges (20.5%), Financial/Access (17.5%), Privacy/Discrimination (15.2%), and Other Prevention Methods (13.8%). The majority of all Privacy/Discrimination endorsers were in this class. This class had the highest proportion of older adults and public insurance recipients (Figure S7, https://links.lww.com/QAD/D950).

Class membership was significantly associated with survey year and all demographic variables tested (all $P < 0.05$). Temporal shifts in class composition and additional demographic detail by class are reported in Appendix B3, https://links.lww.com/QAD/D950.

Sensitivity analyses

All five sensitivity analyses confirmed the robustness of the primary findings (Appendix B5, https://links.lww.com/QAD/D950). Excluding the 2020 pandemic wave produced virtually identical year effects (Table S8, https://links.lww.com/QAD/D950; Figure S10, https://links.lww.com/QAD/D950). With year as a continuous linear term, Privacy/Discrimination was the only reason showing a significant trend (Table S9, https://links.lww.com/QAD/D950). The three-class LCA structure was preserved in four-class and five-class solutions (Tables S10 and S11; Figure S11). Proportional reallocation of 83 'other reason'-only 2023–2024 respondents (Table S12, https://links.lww.com/QAD/D950; Figure S12, https://links.lww.com/QAD/D950) and exclusion of within-window repeat AMIS participants (Table S13, https://links.lww.com/QAD/D950; Figure S13, https://links.lww.com/QAD/D950) likewise preserved all temporal trends.

Discussion

Over seven annual AMIS waves (2018–2024), current PrEP use among more than 54 000 MSM increased from 10.6 to 32.8%, while the proportion of noncurrent users grew from 3 to 8.9%, yielding more than 3000 individuals who reported reasons for stopping. Among these, we identified three central findings: Altered Sexual Activity rose from an adjusted prevalence of 46.2–61.2% by 2024 (aOR 1.93); Privacy/Discrimination concerns roughly doubled (5.6–11.3%) even as PrEP became more widely adopted; and Financial/Access remained stable (~29%) despite major affordability policies. LCA identified three distinct discontinuation profiles (Changed Circumstances, Structural Barriers, and Clinical/Multi-Barrier) with divergent demographic compositions and intervention implications.

The growing centrality of Altered Sexual Activity is the dominant temporal finding: by 2024, three in five noncurrent PrEP users cited this reason (adjusted prevalence 61.2%, up from 46.2% in 2018; aOR 1.93; 95% CI: 1.30–2.89). Several contextual factors may explain this trend. The U.S Centers for Diease Control and Prevention (CDC) clinical practice guidelines progressively shifted from formal periodic reassessment of PrEP need [20] toward collaborative clinician–patient dialogue about continuation [21,22], normalizing discontinuation as a routine clinical decision. Concurrently, growing acceptance of episodic PrEP use and the 'seasons of risk' framework [16,17] reframed discontinuation as responsive to changing risk contexts rather than a failure of retention. However, AMIS did not distinguish daily

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from event-driven (2–1–1) PrEP users [18,19], so some respondents using episodic approaches during low-risk periods may have classified themselves as 'noncurrent', reflecting measurement artifact rather than true discontinuation. As PrEP matured, circumstance-driven discontinuation increasingly displaced structural and clinical barriers [32–34]. Whether this trend is clinically benign depends on accurate self-assessment of future HIV risk: condomless anal intercourse among MSM rose during PrEP scale-up [35], and discontinuers with ongoing risk had three-fold to four-fold elevated seroconversion risk after stopping [8,9]. This tension between the normalization of episodic use and the potential for premature discontinuation should inform clinical counseling about stopping and restarting.

The rise in stigma-related discontinuation, while based on small absolute numbers ($n = 259$ endorsers), was confirmed by Privacy/Discrimination being the only reason with a significant linear trend (aOR 1.14 per year; 95% CI: 1.04–1.24; $P = 0.003$), robust to exclusion of the 2020 wave. As PrEP expanded to younger, more diverse, and lower income populations [3,7], new users may have been exposed to environments where stigma is more intense. Younger MSM (15–24), with nearly three times the odds of citing stigma (aOR 2.68), may be especially vulnerable as they navigate identity development and disclosure [13–15]. That stigma concentrated in the Clinical/Multi-Barrier class, co-occurring with side effects, adherence difficulties, and cost, confirms it compounds rather than operates in isolation, consistent with qualitative research documenting cascading disengagement when stigma intersects with other barriers [14]. The doubling of Privacy/Discrimination over 7 years signals that stigma has not diminished with familiarity and may be growing more salient as PrEP reaches populations with less access to affirming clinical environments.

The stability of Financial/Access despite major affordability developments (Ready, Set, PrEP [24]; US Preventive Services Task Force coverage mandates [23]; generic tenofovir disoproxil fumarate/emtricitabine; the Ending the HIV Epidemic initiative [36]) likely reflects offsetting dynamics: affordability policies may have prevented cost-related discontinuation from rising as PrEP expanded into more disadvantaged populations, but did not address ancillary costs of PrEP care [37,38], while expanding reach continually replenished the pool of users facing financial barriers. Because g-computation already accounts for changing demographics, this stability cannot be attributed to compositional shifts. The 2024 adjusted estimate (25.1%) was the lowest in the series, and uninsured status yielded the analysis's largest effect size (aOR 4.31), underscoring cost as the most modifiable structural determinant of discontinuation.

Side Effects, the second most prevalent reason (31.6%) and defining feature of the Clinical/Multi-Barrier class (66.6% endorsement), warrant attention as the PrEP portfolio evolves. For individuals whose physical experience drove discontinuation of daily oral PrEP, switching to long-acting injectable PrEP (cabotegravir or lenacapavir [42]) may not resolve the underlying tolerability problem; 2024 AMIS data show that injectable users themselves cite injection-site pain and difficulty maintaining the dosing schedule (Appendix A2c, https://links.lww.com/QAD/D950). This raises the possibility of a ceiling effect that formulation-switching alone will not address, supporting clinical management of side effects and diversification of complementary prevention options.

LCA revealed that PrEP discontinuation encompasses at least three qualitatively distinct pathways. The Changed Circumstances class (35.1%) represents volitional discontinuation among higher income, well insured individuals whose risk context changed. The Structural Barriers class (23.8%) represents a population facing a dominant financial barrier amenable to targeted policy intervention. The Clinical/Multi-Barrier class (41.1%) requires comprehensive support addressing side effects, stigma, adherence, and cost simultaneously [11]. This three-class structure maps onto a tiered intervention framework consistent with multidomain discontinuation profiles identified in LCA studies internationally [25,26].

This study has limitations. AMIS uses convenience sampling and overrepresents white, older, digitally connected MSM [27]; Black and Hispanic MSM are underrepresented. The repeated cross-sectional design precludes individual-level trajectories, and g-computation adjusts for observed demographics but cannot account for unobserved selection. Declining sample sizes over time may have selected later respondents differing in unmeasured factors such as intrinsic motivation, stigma exposure, or PrEP-related salience. A sensitivity analysis excluding repeat AMIS participants preserved all temporal trends, and AMIS trends align with other national surveillance, but residual selection cannot be ruled out and temporal findings should be considered suggestive. AMIS did not distinguish complete discontinuation from episodic or event-driven use, so some respondents using 2-1-1 dosing or the 2024 injectable formulation during low-risk periods may have classified themselves as noncurrent; future waves should capture respondents' intentions toward specific PrEP modalities (daily oral, event-driven 2-1-1, or long-acting injectable) to better differentiate volitional discontinuation from interim pauses. Self-reported reasons are subject to recall bias, and the 2023–2024 surveys lacked open-ended text fields, preventing reclassification of 83 'other reason'-only respondents (addressed via sensitivity analysis). Six regression models were fit without multiple-comparison correction [39]; the Privacy/Discrimination trend ($P = 0.003$) survives Bonferroni correction. The COVID-19 pandemic likely influenced 2020 Altered Sexual Activity endorsement, though excluding 2020 produced virtually identical results [40]. Covariates reflect status at survey time, not at PrEP discontinuation. Our three-class

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LCA prioritized parsimony; the structure was preserved in four-class and five-class solutions (Appendix B5, https://links.lww.com/QAD/D950).

In conclusion, these findings have implications for PrEP policy and clinical practice as the United States works toward ending the HIV epidemic [36]. Because retention interventions can meaningfully reduce HIV incidence [41], understanding why people stop is essential. The growing dominance of circumstance-driven discontinuation argues for accessible re-engagement pathways. Persistent Financial/Access signals that affordability efforts must extend beyond medication to laboratory monitoring, visits, and insurance navigation [37,38], and rising stigma-related discontinuation calls for interventions targeting clinical and structural contexts, especially among younger MSM [13,15]. Long-acting injectable PrEP (cabotegravir and lenacapavir [42]) may ease adherence and side-effect burdens, though slow rollout and high costs may sustain barriers for some. Three distinct discontinuation profiles argue against one-size-fits-all retention strategies.

Acknowledgements

Funding: this work was supported by grants from National Institutes of Health grant (R01 MH128130) and the Emory Center for AIDS Research grant (P30 AI050409). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Disclosures: S.M.J. has conducted research with grants from Merck to his institution and has received consulting payments from Gilead Sciences and the Elton John AIDS Foundation to conduct research. J.L.M. received an honorarium for development of medical education content for MyBodyPro. All other authors have no disclosures.

Contributions: S.M.J. led the design, analysis, and writing of the article. B.M. assisted with the analysis and writing of the article. S.M.G., J.L.M., and E.A.E. contributed to the design, writing, and editing of the article. I.L.L., C.A.M., and A.J.S. contributing to the design and implementation of the parent study and contributed to the editing of the article. T.S. led the design and implementation of the parent study and contributed to the editing of the article.

Conflicts of interest

There are no conflicts of interest.

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