**Appendix.** The 5 automated searches and the manual search that comprise the CDC Prevention Research Synthesis (PRS) database annual search

* Risk reduction (1988 – 2022)
1. MEDLINE (OVID)\*
2. EMBASE (OVID)
3. PsycINFO (OVID)
4. Sociological Abstracts (ProQuest)
* Linkage to, retention in, and reengagement to HIV care (1996 - 2022)
	1. MEDLINE (OVID)\*
	2. CINAHL (EBSCOhost)
	3. EMBASE (OVID)
	4. PsycINFO (OVID)
* Medication adherence (1996 – 2022)
	1. MEDLINE (OVID)\*
	2. CINAHL (EBSCOhost)
	3. EMBASE (OVID)
	4. PsycINFO (OVID)
* Overview of reviews (1988 – 2022)
	1. MEDLINE (OVID)\*
	2. CINAHL (EBSCOhost)
	3. EMBASE (OVID)
	4. PsycINFO (OVID)
	5. Sociological Abstracts (ProQuest)
	6. Global Health (OVID)
* Preexposure prophylaxis (2000 – 2022)
	1. MEDLINE (OVID)\*
	2. CINAHL (EBSCOhost)\*
	3. EMBASE (OVID)\*
	4. PsycINFO (OVID)\*
* Manual search (n = 27 journals) (occurs quarterly for previous 3 months)

Notes:

* Each search update is implemented annually for the previous 2 years to cover publication lag.
* The 5 searches as implemented in MEDLINE (OVID)\* and the PrEP searches\* in EMBASE, PsycINFO and CINAHL are provided in this appendix, and the searches translated to the other databases are available from the corresponding author.
* All 4 PrEP searches in each database are provided for transparency and reproducibility.
* The manual search for citations includes a hand search of 27 journals with a high yield of subject-specific citations, contacts in the field and reference list checks.

**Risk Reduction Search Strategy — MEDLINE (OVID)**

Key:

/ = index term \* = focus

$ = truncation adj = adjacency

ab = abstract ti = title

/ut = utilization subheading

/pc = prevention and control subheading

**HIV/AIDS/STDs MeSH**

1. \*HIV infections/pc
2. \*Acquired Immunodeficiency Syndrome/pc
3. \*Sexually Transmitted Diseases/pc
4. \*Sexually Transmitted Diseases, bacterial/
5. \*Sexually Transmitted Diseases, viral/
6. AIDS Serodiagnosis/ut
7. \*HIV Seropositivity/
8. or/1–7

**Prevention/Intervention/Evaluation/
Education MeSH and Keywords**

1. Primary Prevention/
2. Preventive Health Services/
3. Health Promotion/
4. Program Evaluation/
5. Randomized Controlled Trials/
6. Evaluation Studies/
7. Contact Tracing/
8. Case management/
9. Needle-Exchange Programs/
10. Intervention Studies/
11. Follow-Up Studies/
12. Longitudinal Studies/
13. Multicenter Studies/
14. Random Allocation/
15. control group.ti,ab
16. control trial.ti,ab
17. controlled trial.ti,ab
18. (rct or rcts).ti,ab
19. case management.ti,ab
20. contact tracing.ti,ab
21. (counseling or counselling).ti,ab
22. (detox or detoxification).ti,ab
23. (drug$ adj4 treatment$).ti,ab
24. education$.ti,ab
25. (effect or effects or effective or effectiveness).ti,ab
26. efficacy.ti,ab
27. evaluation$.ti,ab
28. impact$.ti,ab
29. intervention$.ti,ab
30. needle exchang$.ti,ab
31. network$.ti,ab
32. outreach$.ti,ab
33. partner notification.ti,ab
34. (partner$ adj4 contact$ adj4 referral$).ti,ab
35. (notif$ adj4 partner$).ti,ab
36. prevention$.ti,ab
37. program$.ti,ab
38. random$.ti,ab
39. rehab$.ti,ab
40. skill$.ti,ab
41. syringe exchang$.ti,ab
42. methadone.ti,ab
43. test$.ti,ab
44. training.ti,ab
45. trial$.ti,ab
46. or/9-53

**Behavior/Outcomes MeSH and Keywords**

1. Behavior/
2. Behavior Therapy/
3. Health Behavior/
4. Risk Reduction Behavior/
5. Risk-Taking/
6. Contraception Behavior/
7. Coitus/
8. Sexual Abstinence/
9. Sexual Behavior/
10. Sexual Partners/
11. Safe Sex/
12. Unsafe sex/
13. Heroin Dependence/pc
14. Needle Sharing/
15. Condoms/ut
16. Condoms, female/ut
17. Contraceptive devices, male/ut
18. Contraceptive devices, female/ut
19. Substance abuse, intravenous/pc
20. Substance-related disorders/pc
21. Cocaine-related disorders/pc
22. Health services/ut
23. heroin.ti,ab
24. cocaine.ti,ab
25. opiate$.ti,ab
26. opium.ti,ab
27. paraphernalia.ti,ab
28. (treatment$ adj2 entry).ti,ab
29. (treatment$ adj2 enter$).ti,ab
30. (abstin$ or abstain$).ti,ab
31. drug$.ti,ab
32. substance.ti,ab
33. (idu or idus or ivdu or ivdus).ti,ab
34. ((behavior$ or behaviour$ or activit$ or access$ or utiliz$ or use$ or using$ or test$ or risk$ or outcome$) adj4 (reduc$ or declin$ or chang$ or effect$ or increas$ or decreas$ or impact$ or modif$ or lower$ or maintain$ or maintenance)).ti,ab
35. bleach$.ti,ab
36. clean$.ti,ab
37. condom$.ti,ab
38. contracept$.ti,ab
39. crack$.ti,ab
40. disclos$.ti,ab
41. incidence.ti,ab
42. inject$.ti,ab
43. intention$.ti,ab
44. intercourse.ti,ab
45. needle$.ti,ab
46. infect$ adj4 (new$ or rate$ or declin$ or reduc$ or prevent$ or lower$ or decreas$).ti,ab
47. partner$.ti,ab
48. seroconver$.ti,ab
49. sex$.ti,ab
50. syring$.ti,ab
51. test$.ti,ab
52. or/55-105
53. 8 and 54 and 106

**No Language Limit**

**Year Limit:** 1988–2022

**Linkage to, Retention in, and Reengagement in HIV Care (LRC) Search Strategy MEDLINE**

Key:

/ = index term $ = truncation

adj = adjacency ab = abstract

ti = title

Subheadings

/co = complications /dt = drug therapy

/di = diagnosis /nu = nursing

/pc = prevention and control /th = therapy

/px = psychology /tm =transmission

**HIV/HIV-Positive Person MeSH and Keywords**

1. HIV infections/co, dt, di, nu, pc, px, th, tm
2. HIV infect$.ti,ab
3. (HIV adj4 diagnos$).ti,ab
4. HIV positiv$.ti,ab
5. (HIV adj4 care).ti,ab
6. (HIV adj4 treatment$).ti,ab
7. living with HIV.ti,ab
8. or/1–7

**Linking and Retention in Care MeSH and Keywords**

1. (access$ adj4 care).ti,ab
2. (access$ adj4 barrier$).ti,ab
3. (access$ adj4 (treatment or service$)).ti,ab
4. (barrier$ adj4 care).ti,ab
5. case management.ti,ab
6. case manager$.ti,ab
7. (decreas$ adj4 barrier$).ti,ab
8. (engag$ adj4 (care or service$)).ti,ab
9. (enroll$ adj4 care).ti,ab
10. ((enter$ or entry) adj4 care).ti,ab
11. ((enter$ or entry) adj4 service$).ti,ab
12. (improv$ adj4 access$).ti,ab
13. (improv$ adj4 retention).ti,ab
14. ((kept or keep$ or return$) adj4 appointment$).ti,ab
15. (link$ adj4 (retain$ or retent$)).ti,ab
16. (link$ adj4 care).ti,ab
17. (link$ adj4 case).ti,ab
18. (link$ adj4 treatment).ti,ab
19. (link$ adj4 service$).ti,ab
20. (outreach adj4 (care or link$ or program$)).ti,ab
21. ((provision or provid$) adj4 (care or service$)).ti,ab
22. (reduc$ adj4 barrier$).ti,ab
23. ((re engag$ or reengag$) adj4 (care or treatment or service$)).ti,ab
24. ((re enter$ or reenter$) adj4 (care or treatment or service$)).ti,ab
25. ((refer or refers or referred or referral$) adj4 (care or medical or treatment or clinic or service$)).ti,ab
26. ((retain$ or retent$) adj4 care).ti,ab
27. (seek$ adj4 (care or treatment$)).ti,ab
28. (utiliz$ adj4 (treatment or care or service$)).ti,ab
29. ((medical) adj4 (care or treatment or service$)).ti,ab
30. (gap$ adj2 care).ti,ab
31. (visit adj2 (constan$ or consist$)).ti,ab
32. (appointment$ adj2 adher$).ti,ab
33. ((follow-up or follow up) adj2 discontin$).ti,ab
34. ((miss$ or schedul$) adj2 (visit$ or appointment$)).ti,ab
35. ($contin$ adj2 care).ti,ab
36. or/9-43
37. 8 and 44

**No Language Limit**

**Year Limits:** 1996–2022

**Medication Adherence (MA) Search Strategy MEDLINE (OVID)**

Key:

/ = index term $ = truncation

adj = adjacency ab = abstract

ti = title

**HIV/AIDS MeSH and Keywords**

1. HIV Infections/
2. AIDS/
3. HIV Seropositivity/
4. (living adj4 (hiv or aids)).ti,ab
5. HIV positiv$.ti,ab
6. HIV infected.ti,ab
7. or/1–6

**Intervention MeSH and Keywords**

1. Intervention Studies/
2. Case management/
3. Directly Observed Therapy/
4. intervention$.ti,ab
5. (therapy or therapies).ti,ab
6. (treatment or treatments).ti,ab
7. medication event monitor$.ti,ab
8. mems.ti,ab
9. modified directly observed.ti,ab
10. mdot.ti,ab
11. directly administered.ti,ab
12. daart.ti,ab
13. directly observed therapy.ti,ab
14. dot.ti,ab
15. or/8-21

**HAART MeSH and Keywords**

1. Anti-HIV agents/
2. Anti-Retroviral Agents/
3. Antiviral Agents/
4. Antiretroviral Therapy, Highly Active/
5. haart.ti,ab
6. arv.ti,ab
7. art.ti,ab
8. antiretroviral$.ti,ab
9. anti retroviral$.ti,ab
10. antiviral$.ti,ab
11. anti viral$.ti,ab
12. (medication or medications).ti,ab
13. or/23-34

**Adherence MeSH and Keywords**

1. Patient Compliance/
2. Medication Adherence/
3. adher$.ti,ab
4. nonadher$.ti,ab
5. non adher$.ti,ab
6. complian$.ti,ab
7. non complian$.ti,ab
8. noncomplian$.ti,ab
9. viral load.ti,ab
10. (cd4 adj2 (count or counts)).ti,ab
11. or/36–45
12. 7 and 22 and 35 and 46

**No Language Limit**

**Year Limits:** 1996–2022

**Overview of Reviews (ORP) Search Strategy MEDLINE (OVID)**

Key:

/ = index term $ = truncation

pt = publication type adj = adjacency

ab = abstract ti = title

**HIV or AIDS or STD MeSH and keywords**

1. \*HIV infections/
2. \*AIDS/
3. \*Sexually transmitted diseases/
4. \*HIV Seropositivity/
5. \*AIDS Serodiagnosis/
6. HIV infect$.ti,ab
7. HIV positiv$.ti,ab
8. HIV care.ti,ab
9. (HIV adj4 incidence).ti,ab
10. (HIV adj4 prevent$).ti,ab
11. (HIV adj4 risk$).ti,ab
12. (HIV adj4 prevalen$).ti,ab
13. (HIV adj4 new$ infect$).ti,ab
14. (HIV adj4 new$ diagnos$).ti,ab
15. (HIV adj4 transm$).ti,ab
16. Sexually transmitted disease$.ti,ab
17. Sexually transmitted infection$.ti,ab
18. (STD or STDs or STI or STIs).ti,ab
19. (living adj4 HIV).ti,ab
20. (living adj4 (AIDS not hearing)).ti,ab
21. or/1-20

**Systematic Review MeSH and keywords**

1. Review/ OR Review.pt (Same Search)
2. Systematic review as topic/ or Systematic reviews.pt
3. Meta Analysis/ OR Meta-Analysis.pt
4. or/22–24
5. (MEDLINE or MEDLARS or EMBASE or PubMed or Cochrane).ab
6. (PsychINFO or PsycINFO).ab
7. (Sociofile or Sociological Abstracts).ab
8. CINAHL.ab
9. ((hand adj2 search$) or (manual$ adj2 search$)).ab
10. ((electronic or bibliographic or computer$ or online or automat$) adj3 database$).ab
11. or/26–31
12. 25 and 32
13. (meta-anal$ or meta anal$ or metaanal$).ti,ab
14. (systematic$ adj4 review$).ti,ab
15. (systematic$ adj4 overview$).ti,ab
16. (systematic$ adj4 synthes$).ti,ab
17. literature review.ti,ab
18. (literature$ adj4 overview$).ti,ab
19. (literature$ adj4 synthes$).ti,ab
20. (quantitativ$ adj4 review$).ti,ab
21. (quantitativ$ adj4 overview$).ti,ab
22. (quantitativ$ adj4 synthes$).ti,ab
23. (qualitative$ adj4 review$).ti,ab
24. (qualitative$ adj4 overview$).ti,ab
25. (qualitative$ adj4 synthes$).ti,ab
26. (methodolog$ adj4 review$).ti,ab
27. (methodolog$ adj4 overview$).ti,ab
28. (methodolog$ adj4 synthes$).ti,ab
29. (review$ adj4 article$).ti,ab
30. (review$ adj4 (study or studies)).ti,ab
31. (review$ adj4 evidence).ti,ab
32. (review$ adj4 updat$).ti,ab
33. (review$ adj4 (analy$ or anali$)).ti,ab
34. (research adj4 review$).ti,ab
35. (research adj4 overview$).ti,ab
36. (research adj4 synthes$).ti,ab
37. or/34–57
38. 33 or 58
39. 21 and 59

**No Language Limit**

**Year Limits:** 1996–2022

**Preexposure Prophylaxis (PrEP) Search Strategy MEDLINE (OVID)**

Key:

/ = index term $ = truncation

ti = title ab = abstract

**HIV or AIDS or STD MeSH and keywords**

1. HIV infections/
2. AIDS/
3. Sexually Transmitted Diseases/
4. HIV seropositivity/
5. HIV seronegativity/
6. AIDS serodiagnosis/
7. Hepatitis C/
8. HIV.ti,ab
9. (AIDS not hearing).ti,ab
10. Hepatitis C.ti,ab
11. HCV.ti,ab
12. Sexually transmitted disease$.ti,ab
13. Sexually transmitted infection$.ti,ab
14. (STD or STDs or STI or STIs).ti,ab
15. or/1–14

**Preexposure Prophylaxis MeSH and keywords**

1. Pre-Exposure Prophylaxis/
2. Chemoprevention/
3. Pre exposure prophylaxis.ti,ab
4. Preexposure prophylaxis.ti,ab
5. PrEP.ti,ab
6. (Chemoprophylaxis or Chemo prophylaxis or chemoprevention).ti,ab
7. or/16–21
8. 15 and 22

**No Language Limit**

**Year Limit:** 2000–2020

**Preexposure Prophylaxis (PrEP) Search Strategy CINAHL (EBSCOhost)**

Key:

MH=CINAHL heading \* = truncation AB = abstract TI = title

**HIV or AIDS or STI index terms and keywords**

1. (MH "HIV Infections") OR (MH "Acquired Immunodeficiency Syndrome") OR (MH "Sexually Transmitted Diseases") OR (MH "HIV Seropositivity") OR (MH "HIV Seronegativity") OR (MH "AIDS Serodiagnosis") OR (MH "Hepatitis C")
2. TI HIV OR TI ((AIDS not hearing)) OR TI Sexually transmitted disease\* OR TI Sexually transmitted infection\* OR TI (STD or STDs or STI or STIs) OR TI Hepatitis C OR TI HCV
3. AB HIV OR AB HIV OR AB ((AIDS not hearing)) OR AB Sexually transmitted disease\* OR AB Sexually transmitted infection\* OR AB (STD or STDs or STI or STIs) OR AB Hepatitis C OR AB HCV
4. or/1-3

**Preexposure Prophylaxis index terms and keywords**

1. (MH "Chemoprevention")
2. TI Chemoprophylaxis OR TI Chemo prophylaxis OR TI Chemoprevention
3. AB Chemoprophylaxis OR AB Chemo prophylaxis OR AB Chemoprevention
4. or/5-7
5. 4 and 8

**No Language Limit,**

**Year Limit:** 2000 – 2022

**Preexposure Prophylaxis (PrEP) Search Strategy EMBASE (OVID)**

Key:

/ = index term $ = truncation

ab = abstract ti = title

**HIV or AIDS or STD index terms and keywords**

1. Human Immunodeficiency Virus Infection/
2. Acquired Immune Deficiency Syndrome/
3. Sexually Transmitted Diseases/
4. Serodiagnosis/
5. Hepatitis C virus/
6. HIV.ti,ab
7. (AIDS not hearing).ti,ab
8. Hepatitis C.ti,ab
9. HCV.ti,ab
10. Sexually transmitted disease$.ti,ab
11. Sexually transmitted infection$.ti,ab
12. (STD or STDs or STI or STIs).ti,ab
13. or/1-12

**Preexposure Prophylaxis index terms and keywords**

1. Pre-Exposure Prophylaxis/
2. Pre exposure prophylaxis.ti,ab
3. Preexposure prophylaxis.ti,ab
4. PrEP.ti,ab
5. (Chemoprophylaxis or Chemo prophylaxis or chemoprevention).ti,ab
6. or/14-18
7. 13 and 19

**No Language Limit**

**Year Limit:** 2000 – 2022

**Preexposure Prophylaxis (PrEP) Search Strategy PsycINFO (OVID)**

Key:

/ = index term $ = truncation

ab = abstract ti = title

**HIV or AIDS or STI index terms and keywords**

1. HIV/
2. AIDS/
3. AIDS Prevention/
4. Sexually Transmitted Diseases/
5. Hepatitis/
6. HIV.ti,ab
7. (AIDS not hearing).ti,ab
8. Hepatitis C.ti,ab
9. HCV.ti,ab
10. Sexually transmitted disease$.ti,ab
11. Sexually transmitted infection$.ti,ab
12. (STD or STDs or STI or STIs).ti,ab
13. or/1-12

**Preexposure Prophylaxis index terms and keywords**

1. Pre exposure prophylaxis.ti,ab
2. Preexposure prophylaxis.ti,ab
3. PrEP.ti,ab
4. (Chemoprophylaxis or chemo prophylaxis or chemoprevention).ti,ab
5. or/14-17
6. 13 and 18

**No Language Limit**

**Year Limit:** 2000 – 2022

**PRS Manual Search Journal List (N=27)**

AIDS

AIDS and Behavior

AIDS Care

AIDS Education and Prevention

AIDS Patient Care and STDs

American Journal of Public Health

BMC Infectious Diseases

BMJ Open

Clinical Infectious Diseases

Cochrane Database of Systematic Reviews

Current HIV/AIDS Reports

Current Opinion in HIV and AIDS

HIV Medicine

International Journal of STD & AIDS

JAIDS Journal of Acquired Immune Deficiency Syndromes

Journal of HIV/AIDS & Social Services

Journal of the Association of Nurses in AIDS Care

Journal of the International AIDS Society

Lancet HIV

Open Forum Infectious Diseases

PLoS Medicine

PLoS ONE

Public Health Reports

Sexual Health

Sexually Transmitted Diseases

Sexually Transmitted Infections

Systematic Reviews

**Query in the PRS Database for PrEP citations**

* Trained coders screened titles and abstracts to identify HIV prevention intervention reports with PrEP behavioral or biological outcomes published in English and assign a keyword ‘PrEP’ to the article.
* Searched the PRS database for all citations assigned the keyword ‘PrEP’ published 2000 - 2022, last searched PRS database in January 2023

Table: Characteristics of interventions which were not identified as Best Practices (N=15)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Author (Year) | Intervention Name | PrEP outcome (Measurement) | Target Population | NStudy Design | Key Delivery Methods | Frequency of Sessions;Intervention Duration (Follow-up Visits) in Weeks |
| Randomized Controlled Trial but sample size <25 per arm (n=1) |
| Wray (2019) | Game Plan | Use | MSM alcohol users | 40 (I: 20, C: 20)RCT | tablet-based brief motivational intervention for alcohol use and HIV risk | As much as they like (access to game); 12 (4, 8, 12) |
| No Significant Positive Relative Outcomes Reported (n=14) |
|  *Randomized Controlled Trial (n=8)* |
| Molina(2015) | On-Demand Preexposure Prophylaxis in Men at High Risk for HIV | Adherence (pill count, tenofovir and FTC)HIV Incidence1 | MSM | 400 (I: 199, C:201)RCT | On-Demand | As needed; Ongoing (4, 8, every 8 weeks thereafter) |
| Raifman (2018) | Clinical PrEP Education | Use(self-report) | MSM | 316 (I:234, C:82)Serial cross-sectional | Clinic-wide, education-based | Once;N/A (First clinical visit after IV (M=32 [4-152]))2 |
| Blumenthal (2019) | PrEP-PARE2 | Initiation/Uptake(self-report) | MSM | 171 (I:86, C:85)RCT | Objective HIV risk scores | Once;N/A (8, 12) |
| Colson(2020) | enPrEP | Adherence (self-report)3 | Black MSM and TGW  | 204 (I:101; C:103)RCT | -One-way medication reminder-Support groups led by peer navigator-Meeting with peer navigator-Website including chatroom | Weekly (text), monthly (group), as needed (meeting, web);48 (12, 24, 36, 48) |
| Harawa (2020) | Passport to Wellness (PtW) | Initiation/Uptake(self-report)Use (self-report) | Black MSM | 61 (I=34, C=27)RCT | Culturally-informed, peer-based, and client-centered peer support | Weekly for the first 6-8 weeks4, >weekly by phone/text and monthly in-person until 24 weeks;24 (4, 16, 24) |
| Stephenson(2020) | Project Moxie  | Initiation/Uptake(self-report) | TG youth (age 15-24) | 190 (I:121, C:69)RCT | Remotely counseling while conducting HIV self-testing | Once;N/A (12, 24)  |
| Songtaweesin (2020) | APP + Youth Friendly Services | AdherenceHIV Incidence | Young (age 15-19) MSM and Transgender women | 200 (I:100, C: 100)RCT | Mobile phone application | As much as they like (access to APP); 24 (4, 8, 12, 16, 20, 24)  |
| Young(2021) | PrEP Peer Leaders | Use | Young (age 18-35) Black MSM | 340 (I:174, C:166)RCT | Peer leader interventions | Once;N/A (48) |
| *Pre-post studies (n=6)* |
| Mitchell(2018) | mSMART |  (TFV/TFV-DV values) | Young (age 18-30) MSM PrEP users  | 10One-group pre-post | Mobile phone application | Daily;4 (4) |
| Dale (2020) | MI-PrEP | Initiation/Uptake(self-report)Adherence(self-report) | Heterosexual Black women | 10One-group pre-post | Culturally tailored counseling | 2 times;2 weeks apart between session (2, 6) |
| Phillips (2020) | EB Trainings to Care Provider | Prescribing behavior (medical record review) | Primary care providers | 12One-group pre-post | Educational classroom training | Once;N/A (12) |
| Arnold(2021) | We Are Family | AdherenceUse | MSM | 118One-group pre-post | Mobile phone application | As much as they like (access to APP);24 (24) |
| Storholm(2021) | Project SLIP  | AdherenceScreening for eligibility and referring to service | Black, Hispanic/Latinx Men | 29,262One-group pre-post | Rapid screening and referral | Ongoing5 |
| Furukawa(2022) | PrEP Expansion in West Virginia | Screening for eligibility and referring to serviceInitiaiton/Uptake | PWID | 110 healthcare providers and 194 PWIDOne-group pre-post | Expanding PrEP capacity  | Ongoing5 |

1HIV incidence outcome was significant. To be considered as Best Practice, the other relevant positive outcomes need to be reported.

2Mean (Range)

3DBS were not utilized to estimate the adherence outcome measure because DBS were only able to be collected 35.9% (46 out of 128 participants) at 6 months follow up and 35.6% (47 out of 132) at 12 months follow up.

4Meeting frequency varied greatly depending on the preferences and availability of participants

5Structural Intervention

MSM: gay, bisexual and other men who have sex with men; PWID: persons who inject drugs; TFV: tenofovir (TFV > 52 ng/ml: daily use); TFV-DP: tenofovir diphosphate (TFV-DV > 1246 fmol/punch: 7 doses in the past week; >700 fmol/punch: 4 or more doses in the past week); TG: Transgender; TGW: Transgender women