Appendix I: PrEP search strategy for a two-step process

Step 1: Building a search strategy for the PRS Database:

* Search Development: 24 Citations used to develop the search
  1. Anderson PL, Glidden DV, Liu A, Buchbinder S, Lama JR, Guanira JV*, et al.* Emtricitabine-tenofovir concentrations and pre-exposure prophylaxis efficacy in men who have sex with men. *Sci Transl Med* 2012,4:151ra125.
  2. Baeten JM, Donnell D, Ndase P, Mugo NR, Campbell JD, Wangisi J*, et al.* Antiretroviral prophylaxis for HIV prevention in heterosexual men and women. *N Engl J Med* 2012,367:399-410.
  3. Flash C, Landovitz R, Giler RM, Ng L, Magnuson D, Wooley SB*, et al.* Two years of Truvada for pre-exposure prophylaxis utilization in the US. *J Int AIDS Soc* 2014,17:19730.
  4. Golub SA, Kowalczyk W, Weinberger CL, Parsons JT. Preexposure prophylaxis and predicted condom use among high-risk men who have sex with men. *J Acquir Immune Defic Syndr* 2010,54:548-555.
  5. Grant RM. Antiretroviral agents used by HIV-uninfected persons for prevention: pre- and postexposure prophylaxis. *Clin Infect Dis* 2010,50 Suppl 3:S96-101.
  6. Grant RM, Anderson PL, McMahan V, Liu A, Amico KR, Mehrotra M*, et al.* Uptake of pre-exposure prophylaxis, sexual practices, and HIV incidence in men and transgender women who have sex with men: a cohort study. *Lancet Infect Dis* 2014,14:820-829.
  7. Grant RM, Buchbinder S, Cates W, Jr., Clarke E, Coates T, Cohen MS*, et al.* AIDS. Promote HIV chemoprophylaxis research, don't prevent it. *Science* 2005,309:2170-2171.
  8. Hoots BE, Finlayson T, Nerlander L, Paz-Bailey G. Willingness to Take, Use of, and Indications for Pre-exposure Prophylaxis Among Men Who Have Sex With Men-20 US Cities, 2014. *Clin Infect Dis* 2016,63:672-677.
  9. Hosek SG, Siberry G, Bell M, Lally M, Kapogiannis B, Green K*, et al.* The acceptability and feasibility of an HIV preexposure prophylaxis (PrEP) trial with young men who have sex with men. *J Acquir Immune Defic Syndr* 2013,62:447-456.
  10. Kellerman SE, Hutchinson AB, Begley EB, Boyett BC, Clark HA, Sullivan P. Knowledge and use of HIV pre-exposure prophylaxis among attendees of minority gay pride events, 2004. *J Acquir Immune Defic Syndr* 2006,43:376-377.
  11. Khanna AS, Michaels S, Skaathun B, Morgan E, Green K, Young L*, et al.* Preexposure Prophylaxis Awareness and Use in a Population-Based Sample of Young Black Men Who Have Sex With Men. *JAMA Intern Med* 2016,176:136-138.
  12. Khawcharoenporn T, Kendrick S, Smith K. HIV risk perception and preexposure prophylaxis interest among a heterosexual population visiting a sexually transmitted infection clinic. *AIDS Patient Care STDS* 2012,26:222-233.
  13. Kuo I, Olsen H, Patrick R, Phillips G, 2nd, Magnus M, Opoku J*, et al.* Willingness to use HIV pre-exposure prophylaxis among community-recruited, older people who inject drugs in Washington, DC. *Drug Alcohol Depend* 2016,164:8-13.
  14. Kwakwa HA, Bessias S, Sturgis D, Mvula N, Wahome R, Coyle C*, et al.* Attitudes Toward HIV Pre-Exposure Prophylaxis in a United States Urban Clinic Population. *AIDS Behav* 2016,20:1443-1450.
  15. Liu A, Glidden DV, Anderson PL, Amico KR, McMahan V, Mehrotra M*, et al.* Patterns and correlates of PrEP drug detection among MSM and transgender women in the Global iPrEx Study. *J Acquir Immune Defic Syndr* 2014,67:528-537.
  16. Liu AY, Vittinghoff E, Chillag K, Mayer K, Thompson M, Grohskopf L*, et al.* Sexual risk behavior among HIV-uninfected men who have sex with men participating in a tenofovir preexposure prophylaxis randomized trial in the United States. *J Acquir Immune Defic Syndr* 2013,64:87-94.
  17. Marcus JL, Glidden DV, Mayer KH, Liu AY, Buchbinder SP, Amico KR*, et al.* No evidence of sexual risk compensation in the iPrEx trial of daily oral HIV preexposure prophylaxis. *PLoS One* 2013,8:e81997.
  18. Psaros C, Haberer JE, Katabira E, Ronald A, Tumwesigye E, Campbell JD*, et al.* An intervention to support HIV preexposure prophylaxis adherence in HIV-serodiscordant couples in Uganda. *J Acquir Immune Defic Syndr* 2014,66:522-529.
  19. Smith DK, Toledo L, Smith DJ, Adams MA, Rothenberg R. Attitudes and program preferences of African-American urban young adults about pre-exposure prophylaxis (PrEP). *AIDS Educ Prev* 2012,24:408-421.
  20. Snowden JM, Chen YH, McFarland W, Raymond HF. Prevalence and characteristics of users of pre-exposure prophylaxis (PrEP) among men who have sex with men, San Francisco, 2014 in a cross-sectional survey: implications for disparities. *Sex Transm Infect* 2017,93:52-55.
  21. Stirratt MJ, Gordon CM. Adherence to biomedical HIV prevention methods: considerations drawn from HIV treatment adherence research. *Curr HIV/AIDS Rep* 2008,5:186-192.
  22. Tangmunkongvorakul A, Chariyalertsak S, Amico KR, Saokhieo P, Wannalak V, Sangangamsakun T*, et al.* Facilitators and barriers to medication adherence in an HIV prevention study among men who have sex with men in the iPrEx study in Chiang Mai, Thailand. *AIDS Care* 2013,25:961-967.
  23. Whiteside YO, Harris T, Scanlon C, Clarkson S, Duffus W. Self-perceived risk of HIV infection and attitudes about preexposure prophylaxis among sexually transmitted disease clinic attendees in South Carolina. *AIDS Patient Care STDS* 2011,25:365-370.
  24. Wilson EC, Jin H, Liu A, Raymond HF. Knowledge, Indications and Willingness to Take Pre-Exposure Prophylaxis among Transwomen in San Francisco, 2013. *PLoS One* 2015,10:e0128971.
* Databases Searched (platform): Search years 2000 – 2017 run in the databases April 2018
  1. MEDLINE (OVID)\*
  2. EMBASE (OVID)
  3. PsycINFO (OVID)
  4. CINAHL (EBSCOhost)

\*Full electronic search strategy for MEDLINE, including any limits used, provided below. Please contact the corresponding author for the searches of EMBASE, PsycINFO and CINAHL.

**MEDLINE (OVID) PrEP Search strategy**

Symbol Key

/ = MeSH term

ti = title ab = abstract

$ = truncation

**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

**Pre Exposure 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

* Manual Search:
  1. Hand Search 52 Journals (Quarterly) January 2017 – December 2017
  2. Check reference list of included citations (ongoing)
  3. PubMed ad hoc keyword searches (ongoing)
  4. Table of contents alerts from journals (ongoing)

Step 2: Query of the PRS Database

* Query of the PRS Database: Last run April 2018
  + Years searched = 2000 to 2017
  + Citations previously tagged by PRS coders as the following
    - ( ( [Specify HIV/AIDS/STD/HBV/HCV prevention focus} = ( [PrEP/PEP] OR [PrEP] ) OR [Keywords= [PrEPCQ] ) ) AND [Specify HIV/AIDS/STD/HBV/HCV prevention focus} NOT [Policy / Commentary / Advocacy (non-behavioral)])

Appendix II: Supplemental Tables and Figures

Supplemental Table 1: Included studies' populations, proportions, and quality scores by study years (N=95)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study**  **yeara** | **First author, publication year** | **Key Populations** | | | | | | | **Sample size** | **Number of PrEP users** | **Proportion (%)** | **Recall periodb** | **Target population** | **Quality scorec** |
| MSM | Black | Hispanic/Latino | PWID | Youth | So | TGW |
| MSM only or focused (n=78) | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2004 | Chen, 20161 d | √ |  |  |  |  |  |  | 1,211 | 0 | 0.0 | 12 mo | MSM [NHBS] | 3 |
|  |  | √ |  |  |  |  |  | 77 | 0 | 0 |  |  |  |
|  |  |  | √ |  |  |  |  | 227 | 0 | 0 |  |  |  |
|  |  |  |  |  | √ |  |  | 151 | 0 | 0 |  |  |  |
| 2004 | Kellerman, 20062 | (√) |  |  |  |  |  |  | 1,041 | 50 | 4.8 | Ever | Minority Gay Pride attendees | 3 |
|  |  |  |  |  |  |  | √ |  | 88 | 6 | 6.8 |  |  |  |
| 2005 | Voetsch, 20073 | (√) |  |  |  |  |  |  | 397 | 1 | 0.3 | Ever | Latinx or non-white men who attended Minority Gay Pride | 3 |
| 2006 | Koblin, 20114 | √ |  |  |  | ` |  |  | 645 | 15 | 2.3 | Ever | Substance using MSM | 3 |
| 2007 | Mansergh, 20105 | √ |  |  |  |  |  |  | 454 | 9 | 2.0 | 6 mo | MSM | 3 |
| 2008 | Chen, 20161 d | √ |  |  |  |  |  |  | 407 | 0 | 0.0 | --- | --- | --- |
|  |  | √ |  |  |  |  |  | 27 | 0 | 0 |  |  |  |
|  |  |  | √ |  |  |  |  | 96 | 0 | 0 |  |  |  |
|  |  |  |  |  | √ |  |  | 62 | 0 | 0 |  |  |  |
| 2008 | Golub, 20106 | √ |  |  |  |  |  |  | 180 | 3 | 1.7 | Ever | MSM | 3 |
| 2009 | Barash, 20107 | √ |  |  |  |  |  |  | 215 | 5 | 2.3 | Ever | MSM | 4 |
| 2010 | Hood, 20168 | √ |  |  |  |  |  |  | 681 | 5 | 0.7 | Ever | MSM | 2 |
| 2010 | Krakower, 20129 | √ |  |  |  |  |  |  | 289 | 2 | 0.7 | Ever | MSM | 3 |
| 2011 | Chen, 20161 d | √ |  |  |  |  |  |  | 371 | 0 | 0.0 | --- | --- | --- |
|  |  | √ |  |  |  |  |  | 23 | 0 | 0 |  |  |  |
|  |  |  | √ |  |  |  |  | 75 | 0 | 0 |  |  |  |
|  |  |  |  |  | √ |  |  | 60 | 0 | 0 |  |  |  |
| 2011 | Dolezal, 201510 | √ |  |  |  |  |  |  | 228 | 0 | 0 | Ever | MSM (18-30 years old) | 4 |
|  |  | √ |  |  |  |  |  | 21 | 0 | 0 |  |  |  |
|  |  |  | √ |  |  |  |  | 100 | 0 | 0 |  |  |  |
| 2011 | Fallon, 201711 | √ |  |  |  |  | √ |  | 399 | 0 | 0.0 | 12 mo | MSM [NHBS] | 4 |
|  |  | √ |  |  |  |  | 301 | 0 | 0 |  |  |  |
|  |  |  | √ |  |  |  | 9 | 0 | 0 |  |  |  |
|  |  |  |  | √ |  |  | 12 | 0 | 0 |  |  |  |
|  |  |  |  |  | √ |  | 137 | 0 | 0 |  |  |  |
| 2011 | Krakower, 20129 | √ |  |  |  |  |  |  | 3,385 | 29 | 0.9 | --- | --- | --- |
| 2011 | Patrick, 201712 | √ |  |  |  |  | √ |  | 602 | 1 | 0.2 | 12 mo | MSM [NHBS] | 3 |
| 2011 | Rucinski, 201313 | √ |  |  |  |  |  |  | 329 | 2 | 0.6 | 6 mo | MSM (18-40) | 3 |
|  |  | √ |  |  |  |  |  | 60 | 0 | 0 |  |  |
|  |  |  | √ |  |  |  |  | 49 | 0 | 0 |  |  |  |
| 2011 | Saberi, 201214 | √ |  |  |  |  |  |  | 212 | 10 | 4.7 | Ever | MSM | 4 |
| 2012 | Bauermeister, 201315 | √ |  |  |  | √ |  |  | 1,507 | 11 | 0.7 | Ever | Youth (18-24) MSM | 4 |
| 2012 | Brooks, 201516 | √ | √ |  |  |  |  |  | 224 | 0 | 0 | Ever | Low socioeconomic status black MSM | 4 |
| 2012 | Hoff, 201517 | √ |  |  |  |  |  |  | 340 | 33 | 9.6 | Ever | MSM HIV-serodiscordant/  HIV-concordant couple | 4 |
| 2012 | Mimiaga, 201418 | √ |  |  |  |  |  |  | 40 | 4 | 10.0 | Ever | Substance using MSM | 3 |
| 2013 | Chan, 201519 | √ |  |  |  |  |  |  | 538 | 10 | 1.9 | Ever | MSM | 2 |
| 2013 | Cohen, 201520 | √ |  |  |  |  |  |  | 557 | 17 | 3.1 | Ever | MSM/TGW | 3 |
| 2013 | Eaton, 201521 | √ | √ |  |  |  | √ |  | 436 | 6 | 1.4 | Ever | Black MSM | 4 |
| 2013 | Garnett, 201822 | √ | √ |  |  |  |  |  | 1,739 | 33 | 1.9 | Ever | Black substance using MSM/TGW | 4 |
| 2013 | Giguere, 201623 | √ |  |  |  |  |  |  | 12 | 0 | 0 | Ever | Young (18-30) MSM/TGW sex workers | 2 |
|  |  |  |  |  |  |  |  | √ | 8 | 0 | 0 |  |  |
| 2013 | Golub, 201724 | √ |  |  |  |  |  |  | 160 | 5 | 3.1 | Current | MSM | 3 |
| 2013 | Gupta, 201725 | √ |  |  |  |  |  |  | 270 | 6 | 2.2 | Ever | MSM | 4 |
| 2013 | Khanna, 201626 | √ | √ |  |  |  |  |  | 266 | 10 | 3.8 | Ever | Young (16-29) black MSM | 3 |
| 2013 | Lancki, 201827 e | √ | √ |  |  |  |  |  | 300 | 12 | 4.0 | Ever | Young (16-29) black MSM | 4 |
| 2013 | Mayer, 201628 | √ |  |  |  |  |  |  | 4,043 | 61 | 1.5 | Ever | MSM | 4 |
| 2013 | Oldenburg, 201629 | √ |  |  |  |  |  |  | 254 | 13 | 5.1 | Ever | Substance using MSM | 4 |
| 2013 | Raifman, 201830 g | √ | √ |  |  |  |  |  | 34 | 0 | 0 | Ever | MSM | 2 |
|  |  | √ |  |  |  |  | 50 | 2 | 4.0 |  |  |  |
|  |  |  |  | √ |  |  | 101 | 0 | 0 |  |  |  |
| 2014 | Adams, 201631 f | √ |  |  |  |  |  |  | 537 | 35 | 6.5 | 12 mo | MSM [NHBS] | 3 |
| 2014 | Eaton, 201732 | √ | √ |  |  |  |  |  | 1,274 | 58 | 4.6 | Current | Black MSM/TGW | 4 |
|  |  |  |  |  | √ |  | 923 | 52 | 5.6 |  |  |  |
| 2014 | Hoots, 201633 | √ |  |  |  |  |  |  | 6,483 | 237 | 3.7 | 12 mo | MSM [NHBS] | 3 |
|  |  | √ |  |  |  |  |  | 1,458 | 36 | 2.5 |  |  |  |
|  |  |  | √ |  |  |  |  | 1,812 | 47 | 2.6 |  |  |  |
|  |  |  |  |  | √ |  |  | 1,492 | 40 | 2.7 |  |  |  |
| 2014 | Khanna, 201626 | √ | √ |  |  |  |  |  | 622 | 22 | 3.5 | --- | --- | --- |
| 2014 | Klevens, 201834 f | √ | √ |  |  |  |  |  | 33 | 4 | 12.1 | 12 mo | MSM [NHBS] | 2 |
|  |  |  | √ |  |  |  |  | 54 | 0 | 0 |  |  |  |
|  |  |  |  |  | √ |  |  | 52 | 1 | 1.9 |  |  |  |
| 2014 | Kurtz, 201635 | √ |  |  |  |  | √ |  | 31 | 1 | 3.2 | Ever | MSM | 2 |
| 2014 | Levy, 2017 36 f | √ |  |  |  |  | √ |  | 314 | 28 | 8.9 | 12 mo | MSM [NHBS] | 4 |
| 2014 | Marks, 201737 | √ |  |  |  | √ |  |  | 2,347 | 80 | 3.4 | Ever | Youth (18-24) MSM | 4 |
|  |  | √ |  |  |  |  | 452 | 12 | 2.7 |  |  |
|  |  |  | √ |  |  |  | 859 | 29 | 3.4 |  |  |  |
|  |  |  |  |  | √ |  | 993 | 39 | 3.9 |  |  |  |
| 2014 | Mayer, 201628 | √ |  |  |  |  |  |  | 2,737 | 62 | 2.3 | --- | --- | --- |
| 2014 | Merchant, 201638 | √ |  |  |  |  |  |  | 184 | 6 | 3.3 | Ever | MSM | 3 |
| 2014 | Parsons, 201639 | √ |  |  |  |  |  |  | 948 | 68 | 7.2 | Ever | MSM, MSM/W | 4 |
|  |  |  |  |  |  |  |  |  |  | 56 | 5.9 | Current |  |  |
| 2014 | Patrick, 201712 f | √ |  |  |  |  | √ |  | 744 | 30 | 4.0 | --- | --- | --- |
| 2014 | Snowden, 201740 f | √ | √ |  |  |  |  |  | 13 | 1 | 7.7 | 12 mo | MSM [NHBS] | 3 |
|  |  | √ |  |  |  |  | 47 | 2 | 4.3 |  |  |  |
|  |  |  |  | √ |  |  | 24 | 0 | 0 |  |  |  |
| 2014 | Strauss, 201741 | √ |  |  |  |  |  |  | 759 | 66 | 8.7 | Ever | MSM | 4 |
|  | √ |  |  |  |  |  | 146 | 15 | 10.3 |  |  |  |
|  |  |  | √ |  |  |  |  | 212 | 12 | 5.7 |  |  |  |
| 2015 | Arrington-Sanders, 201642 | √ | √ |  |  | √ |  |  | 147 | 12 | 8.2 | Current | Youth (15-24) black MSM | 3 |
| 2015 | Beymer, 201843 | √ |  |  |  |  |  |  | 761 | 74 | 9.7 | Ever | Young (18-29) MSM | 3 |
| 2015 | Eaton, 201744 | √ |  |  |  |  | √ |  | 285 | 21 | 7.4 | Current | Black/White MSM, Black/White TGW | 4 |
| 2015 | Friedman, 201945 | √ | √ |  |  |  |  |  | 2398 | 189 | 7.9 | Current | Black MSM | 4 |
| 2015 | Goedel, 201646 | √ |  |  |  |  | √ |  | 84 | 10 | 11.9 | Current | MSM who use Grindr | 3 |
| 2015 | Grov, 201647 | √ |  |  |  |  |  |  | 2,902 | 461 | 15.9 | Ever | MSM, MSM/W | 3 |
| 2015 | Holloway, 201748 | √ |  |  |  |  |  |  | 761 | 74 | 9.7 | Ever | Young (18-29) MSM | 4 |
|  |  | √ |  |  |  |  |  | 193 | 19 | 9.7 |  |  |
|  |  |  | √ |  |  |  |  | 243 | 16 | 6.6 |  |  |
|  |  |  |  |  | √ |  |  | 470 | 36 | 7.7 |  |  |  |
| 2015 | Jaiswal, 201849 | √ |  |  |  | √ |  |  | 492 | 71 | 14.4 | Ever | Young (22&23) sexual minority men | 4 |
|  |  |  | √ |  |  |  |  |  | 129 | 17 | 13.2 |  |  |
|  |  |  |  | √ |  |  |  |  | 153 | 28 | 18.3 |  |  |
| 2015 | Kahle, 201850 | √ |  |  |  |  |  |  | 524 | 11 | 2.1 | Current | MSM | 2 |
| 2015 | Kalichman, 201751 | √ |  |  |  |  | √ |  | 272 | 24 | 8.8 | Current | MSM | 2 |
| 2015 | Kuhns, 201752 | √ |  |  |  |  |  |  | 394 | 48 | 12.2 | Ever | Young (18-29) MSM | 4 |
|  |  | √ |  |  |  |  |  | 193 | 9 | 4.9 |  |  |
|  |  |  | √ |  |  |  |  | 77 | 9 | 11.7 |  |  |
|  |  |  |  |  |  | √ |  | 156 | 11 | 7.1 |  |  |  |
| 2015 | Li, 201853 | √ |  |  |  |  |  |  | 4,013 | 301 | 7.5 | 12 mo | MSM (15 and up) | 2 |
|  |  |  | √ |  |  |  |  |  | 147 | 11 | 7.5 |  |  |  |
|  |  |  |  | √ |  |  |  |  | 566 | 43 | 7.6 |  |  |  |
|  |  |  |  |  |  | √ |  |  | 600 | 21 | 3.5 |  |  |  |
| 2015 | Parsons, 201754 | √ |  |  |  |  |  |  | 1,013 | 100 | 9.9 | Ever | MSM, MSM/W | 4 |
|  |  |  |  |  |  |  |  |  |  | 82 | 8.1 | Current |  |  |
| 2015 | Patel, 201855 | √ |  |  |  |  |  |  | 45 | 6 | 13.3 | Current | Black/White MSM | 2 |
| 2015 | Patel, 201856 | √ | √ |  |  |  |  |  | 26 | 4 | 15.4 | Current | Young (18-35) black MSM | 3 |
| 2015 | Pawson, 201857 | √ |  |  |  |  |  |  | 19 | 2 | 10.5 | Current | MSM, MSM/W | 2 |
| 2015 | Whitfield, 201858 | √ |  |  |  |  |  |  | 985 | 203 | 20.6 | Ever | MSM | 3 |
|  |  |  |  |  |  |  |  |  |  | 172 | 17.5 | Current |  |  |
| 2016 | Biello, 201859 | √ |  |  |  |  |  |  | 4,630 | 689 | 14.9 | Ever | MSM, Trans | 2 |
| 2016 | Biello, 201760 | (√) |  |  |  |  |  |  | 36 | 13 | 36.1 | Ever | Young (15-29) MSM or Trans who have sex with men | 3 |
| 2016 | Garcia, 201761 | √ |  | √ |  |  | √ |  | 159 | 64 | 40.3 | Current | Latino MSM | 3 |
| 2016 | Grov, 201862 i | √ |  |  |  |  |  |  | 4,187 | 495 | 11.8 | Current | MSM | 4 |
| 2016 | Hammack, 201863 | √ |  |  |  |  |  |  | 470 | 21 | 4.5 | Current | MSM (18-25, 34-41, and 52-59) | 3 |
| 2016 | Hubach, 201764 | √ |  |  |  |  | √ |  | 20 | 3 | 15.0 | Current | MSM | 3 |
| 2016 | Morgan, 201865 | √ |  |  |  |  |  |  | 885 | 76 | 8.6 | Ever | Young (16-29 ) MSM/TGW | 4 |
|  |  |  | √ |  |  |  |  |  | 19 | 259 | 7.3 |  |  |  |
|  |  |  |  | √ |  |  |  |  | 12 | 273 | 4.4 |  |  |  |
| 2016 | Newcomb, 201866 | √ |  |  |  |  |  |  | 4,002 | 372 | 9.3 | 6 mo | Young (16-29) MSM HIV-seroconcordant couple | 4 |
| 2016 | Okafor, 201767 | √ |  |  |  |  |  |  | 185 | 37 | 20.0 | 6 mo | MSM | 3 |
|  |  | √ |  |  |  |  |  | 75 | 16 | 21.3 |  |  |  |
|  |  |  | √ |  |  |  |  | 76 | 13 | 17.1 |  |  |  |
|  |  |  |  |  | √ |  |  | 48 | 7 | 14.6 |  |  |  |
| 2016 | Phillips, 201968 | √ |  |  |  |  |  |  | 906 | 63 | 7.0 | 6 mo | Young (16-29) MSM/TGW | 4 |
|  |  |  | √ |  |  |  |  |  | 257 | 20 | 7.8 |  |  |
|  |  |  |  | √ |  |  |  |  | 280 | 13 | 4.6 |  |  |  |
|  |  |  |  |  |  |  |  | √ | 42 | 6 | 14.3 |  |  |  |
| 2016 | Rolle, 201769 | √ | √ |  |  |  | √ |  | 192 | 8 | 4.2 | Ever | Young (16-29) black MSM | 3 |
| 2016 | Sang, 201870 | √ | √ |  |  |  |  |  | 772 | 79 | 10.2 | Ever | Black MSM | 4 |
| 2016 | Shover, 201871 | (√) |  |  |  |  |  |  | 19,587 | 2,613 | 13.3 | Ever | Men, TGW/TGM or gender queer person visited a LGBT center | 3 |
|  |  | √ |  |  |  |  |  |  | 18,954 | 1,868 | 9.9 | Current |  |
|  |  | (√) | √ |  |  |  |  |  | 1,375 | 119 | 8.7 |  |  |
|  |  |  |  | √ |  |  |  |  | 6,365 | 410 | 6.4 |  |  |  |
|  |  |  |  |  | √ |  |  |  | 330 | 32 | 9.7 |  |  |  |
|  |  |  |  |  |  | √ |  |  | 189 | 4,182 | 4.5 |  |  |  |
|  |  |  |  |  |  |  |  | √ | 389 | 20 | 5.1 |  |  |  |
| 2016 | Young, 201872 | √ |  |  |  |  |  |  | 406 | 40 | 9.9 | Ever | Young (18-35) non-white MSM | 3 |
| 2017 | Brinkley-Rubinstein, 201873 | √ |  |  |  |  |  |  | 26 | 0 | 0 | Ever | Incarcerated MSM | 2 |
| 2017 | Chen, 201874 h | √ |  |  |  |  |  |  | 392 | 176 | 4439 | 12 mo | MSM [NHBS] | 3 |
| 2017 | Eaton, 201875 | √ | √ |  |  |  |  |  | 498 | 77 | 15.5 | Current | Black MSM/TGW | 4 |
| 2017 | John, 2019\*76 | √ |  |  |  |  |  |  | 3125 | 350 | 11.2 | Current | MSM | 3 |
| 2017 | Meunier, 201777 | √ |  |  |  |  |  |  | 191 | 78 | 40.9 | Ever | MSM, Trans who have sex with men | 3 |
|  |  | √ |  |  |  |  |  | 14 | 3 | 21.4 | Current |  |
|  |  |  | √ |  |  |  |  | 42 | 12 | 28.6 |  |  |
| 2017 | Quinn, 201878 | √ | √ |  |  |  |  |  | 44 | 10 | 22.7 | Ever | Young (16-25) black MSM | 3 |
| Non- or not focusing MSM (n=17) | | |  |  |  |  |  |  |  |  |  |  |  |  |
| 2012 | Kuo, 201679 |  |  |  | √ |  |  |  | 304 | 0 | 0 | 12 mo | Older PWID [NHBS] | 3 |
|  |  |  | √ |  |  |  |  | 294 | 0 | 0 |  |  |
| 2013 | Kuhns, 201680 |  |  |  |  |  |  | √ | 180 | 9 | 5.0 | Ever | Young (16-29) TGW | 3 |
| 2013 | Rodriguez, 201781 |  |  |  |  |  | √ |  | 12 | 0 | 0 | Ever | HIV-negative Men in HIV-serodiscordant heterosexual couples | 2 |
| 2014 | Calabrese, 201682 |  |  |  |  |  |  |  | 154 | 0 | 0 | Ever | Adults in general | 3 |
|  |  |  | √ |  |  |  |  |  | 9 | 0 | 0 |  |  |  |
|  |  |  |  | √ |  |  |  |  | 17 | 0 | 0 |  |  |  |
| 2014 | Patel, 201983 |  |  |  |  |  | √ |  | 225 | 1 | 0.4 | Ever | High-risk Women | 4 |
| 2014 | Raifman, 201984 |  |  |  |  |  |  |  | 1431 | 6 | 0.4 | Ever | Women | 2 |
| 2014 | Sevelius, 201685 |  |  |  |  |  |  | √ | 30 | 0 | 0 | Ever | TGW | 3 |
|  |  |  | √ |  |  |  |  | 5 | 0 | 0 |  |  |  |
|  |  |  |  | √ |  |  |  | 6 | 0 | 0 |  |  |  |
| 2014 | Wilson, 201686 |  |  |  |  | √ |  | √ | 67 | 1 | 1.5 | Ever | Youth (16-24) TGW | 1 |
| 2015 | Reisner, 201787 |  |  |  |  | √ |  |  | 121 | 10 | 8.3 | Ever | Youth (16-24) Trans | 2 |
|  |  |  |  |  |  |  | √ | 79 | 10 | 12.7 |  |  |
| 2015 | Schueler, 201988 |  |  |  |  |  |  |  | 218 | 13 | 6.0 | Ever | MSM/Trans and those in their transmission network | 4 |
|  |  | √ |  |  |  |  |  |  | 111 | 10 | 9.1 |  |  |
|  |  |  | √ |  |  |  |  |  | 190 | 11 | 5.8 |  |  |
|  |  |  |  | √ |  |  |  |  | 20 | 1 | 5.0 |  |  |
|  |  |  |  |  |  |  |  | √ | 6 | 0 | 0 |  |  |
| 2015 | Walters, 201789 |  |  |  | √ |  |  |  | 118 | 1 | 0.8 | 12 mo | Women WID [NHBS] | 2 |
| 2016 | Misra, 201790 |  |  |  |  |  |  |  | 621 | 87 | 14.0 | Ever | HIV-serodiscordant couple | 4 |
|  |  | √ |  |  |  |  |  |  | 251 | 27 | 10.7 |  |  |
|  |  |  | √ |  |  |  |  |  | 177 | 22 | 12.4 |  |  |
|  |  |  |  | √ |  |  |  |  | 193 | 30 | 15.5 |  |  |
|  |  |  |  |  | √ |  |  |  | 1 | 0 | 0 |  |  |  |
| 2016 | Rael, 201891 |  |  |  |  |  |  | √ | 27 | 6 | 22.2 | Ever | TGW | 3 |
| 2016 | Shrestha, 201792 |  |  |  |  |  |  |  | 400 | 7 | 1.8 | Ever | Substance users | 3 |
| 2017 | Bazzi, 201893 |  |  |  | √ |  |  |  | 33 | 1 | 3.0 | Ever | PWID | 3 |
| 2017 | Chandran, 201994 |  |  |  |  | √ | √ |  | 168 | 8 | 4.8 | Current | Youth (15-24) men | 3 |
| 2017 | Willie, 201895 |  |  |  |  |  |  |  | 191 | 5 | 2.4 | Ever | High-risk women (18-35) | 1 |

Black: African American/ black; HIV: Human immunodeficiency virus, LGBT: lesbian, gay, bisexual, and transgender; MSM: men who have sex with men, MSM/W: men who have sex with men and women; NHBS: CDC National HIV Behavioral Surveillance; PWID: persons who inject drugs; So: people in the Southern United States; TGM: transgender men; TGW: transgender women; Trans: transgender persons; WID: who inject drugs; Youth: youth aged 13 to 24 years old

\*Online publication year. Study was available electronically before it was published in print.

aMidpoint of study years if the study were conducted over multiple years.

bDuration of recall period for PrEP use: ever used, current use, or have used in the last 6 or 12 months.

cRisk of bias was assessed by using the Modified Newcastle-Ottawa scoring guide that was adapted for this review. The study quality tool has possible scores from 0 to 5 and classifies studies as having low risk of bias (≥3 points) or high risk of bias (<3 points). The questions include: [1) Were participants recruited from multiple locations? 2) Was the sample size equal or greater than 200 participants? 3) Did all participants answer the question on PrEP uptake? 4) Was the PrEP uptake validated by such as medical record? 5) Does the study report descriptive statistics with proper measure of dispersion?]

dOnly data for 2004, 2008 and 2011 were used for this review. Data for 2014 were duplicates of another study (Hoots, 2016)

eOnly data for baseline of this cohort study were included in this review.

f2014 data on Adams (non-Southern US), Klevens (black, Latino, youth), Levy (South), Patrick (South), and Snowden (black, Latino, Youth, non-Southern US) are used as a subgroup of Hoots (2016) study. Overall prevalence was not included in this review.

gRaifman (black, Latino, youth) is used as a subgroup study of Chan (2015). Overall prevalence was not included in this review.

hChen (2015) reported data from 2004, 2008, 2011, 2014, and 2017. The previously published study (Chen, 2016) included 2004-2011 data. 2014 data were included a part of Hoots (2016). Thus, only 2017 data were included in this review.

iData from *One Thousand Strong* cohort were omitted from this review due to the possible duplication of data reported in Whitfield (2018).

Supplemental Table 2: Heterogeneity\* by study year and key population subgroups in US study participants

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Overall  I2 (k) | 2004-2012  I2 (k) | 2013, 2014  I2 (k) | 2015-2017  I2 (k) |
| Overall | 97.05% (95) | 89.74% (22) | 88.03% (27) | 95.75% (46) |
| MSM | 97.21% (80) | 90.04% (21) | 89.44% (20) | 96.43 (39) |
| Black | 88.1% (40) | 13.27% (8) | 75.77% (14) | 76.61% (18) |
| Hispanic/Latino | 93.1% (26) | 0% (6) | 8.70% (8) | 95.65% (12) |
| PWID | 74.66% (5) | - | 59.95% (2) | 72.91% (3) |
| Youth | 90.8% (19) | 0% (5) | 0% (6) | 92.24% (8) |
| Southern US | 93.28% (19) | 88.76% (3) | 77.44% (8) | 94.32% (8) |
| Transgender women | 63.24% (9) | - | 0% (4) | 72.99% (5) |
| Non-MSM | 79.81% (20) | (1) | 73.88% (8) | 73.10% (11) |
| Black | 69.92% (5) | (1) | 0% (2) | 78.82% (2) |
| Hispanic/Latino | 9.08% (4) | - | 0% (2) | 30.31% (2) |
| PWID | 31.31% (3) | - | (1) | 0% (2) |
| Youth | 44.14% (3) | - | (1) | 30.70% (2) |
| Southern US | 61.09% (3) | - | 35.85% (2) | (1) |

MSM: men who have sex with men, Southern US: people in the Southern United States, PWID: persons who inject drugs

No study (-), I2: heterogeneity, k: number of surveys

\*Heterogeneity greater than or equal to 75% is considered high

Supplemental Table 3: Fixed effects pooled proportion of PrEP uptake by recall period in US study participants overall and in MSM and non-MSM participants

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Recall period | Overall | | MSM | | Non-MSM | |
| k | % (95% CI) | k | % (95% CI) | k | % (95% CI) |
| Ever | 62 | 11.4 (11.1-11.7) | 48 | 11.5 (11.2-11.8) | 14 | 8.1 (6.9-9.4) |
| Current | 26 | 10.3 (10.0-10.6) | 25 | 10.3 (10.0-10.6) | 1 | 4.8 (2.4-9.2) |
| Past 6 months | 6 | 8.8 (8.1-9.5) | 6 | 8.8 (8.1-9.5) | 0 | - |
| Past 12 months | 10 | 7.9 (7.3-8.5) | 8 | 7.9 (7.4-8.5) | 2 | 0.5 (0.1-2.4) |
| Overall | 104 | 10.6 (10.4-10.8) | 87 | 10.6 (10.5-10.8) | 17 | 7.6 (6.5-18.9) |

MSM: men who have sex with men, k: number of surveys

Appendix III. List of Included Studies (N=95)

1. Chen YH, Snowden JM, McFarland W, Raymond HF. Pre-exposure prophylaxis (PrEP) use, seroadaptation, and sexual behavior among men who have sex with men, San Francisco, 2004-2014. *AIDS Behav* 2016; **20**(12): 2791-7.

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