SUPPLEMENTARY DATA

SUPPLEMENTARY TABLE 1: Prevalence of any HPV or quadrivalent vaccine-type HPV in anal specimens, by characteristics of participating transgender women and gay, bisexual, and other men who have sex with men

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristic | Total | Any HPV type | ≥1 4vHPV type |
| N | n (%) | p | n (%) | P\* |
| Total | 1767 | 1236 (100) | - | 465 (100) | - |
| City Chicago Los Angeles Seattle | 617446704 | 398 (64.5)314 (70.4)524 (74.4) | **<0.001** | 146 (23.7)119 (26.7)200 (28.4) | 0.14 |
| Age, years 18–21 22–26 | 6281139 | 386 (61.5)850 (74.6) | **<0.001** | 110 (17.5)355 (31.2) | **<0.001** |
| Gender identity Male Female/transgender female Other/unknown | 16715343 | 1166 (69.8) 43 (81.1) 27 (62.8) | 0.11 | 439 (26.3) 14 (26.4) 12 (27.9) | 0.98 |
| Race/ethnicity Non-Hispanic White Non-Hispanic Black Asian/Pacific Islander Hispanic Other/unknown | 545261136557268 | 361 (66.2)186 (71.3)102 (75.0)393 (70.6)194 (72.4) | 0.18 | 142 (26.1) 75 (28.7) 34 (25.0)149 (26.8)65 (24.0) | 0.81 |
| Sexual orientation Gay/homosexual Straight/heterosexual Other/unknown | 1295 29443 | 933 (72.1) 19 (65.5)284 (64.1) | **0.006** | 350 (27.0) 6 (20.7)109 (24.7) | 0.51 |
| Lifetime number of sex partners of any sex ≤5 6–10 11–20 >20 Other/unknown | 247276388801 55 | 115 (46.6)176 (63.8)254 (65.5)649 (81.0) 42 (76.4) | **<0.001** |  28 (11.3) 54 (19.6) 83 (21.4)276 (34.5) 24 (43.7) | **<0.001** |
| Most recent HIV test result Positive Negative or unknown | 1391628 | 124 (89.2)1112 (68.3) | **<0.0001** |  69 (49.6)396 (24.3) | **<0.001** |
| Ever received any HPV vaccine No, none Yes, any Other/unknown\* | 687704376 | 465 (67.7)506 (71.9)265 (70.5) | 0.23 | 215 (31.3)160 (22.7) 97 (25.8) | **0.001** |

HIV, human immunodeficiency virus; HPV, human papillomavirus; 4vHPV, quadrivalent HPV vaccine.

NOTE: Bold font indicates significance of χ 2 analysis at *P* < .05.

\* Includes participants who were unsure of their HPV vaccination history or did not respond.

SUPPLEMENTARY TABLE 2: Prevalence of any HPV and vaccine-type HPV in anal specimens, by HPV vaccination history among participating transgender women and gay, bisexual, and other men who have sex with men

|  |  |  |  |
| --- | --- | --- | --- |
|  | Total | Any HPV type | ≥1 4vHPV type  |
| HPV vaccination history  | N | n (%) | PR (95% CI) | aPR\* (95% CI) | n (%) | PR (95% CI) | aPR\* (95% CI) |
|  No HPV vaccine doses ≥1 HPV vaccine dose First dose at age ≤18 years First dose at age >18 years | 687704289366 | 465 (67.7)506 (71.9)167 (57.8)304 (83.1) | Ref1.06 (0.86, 1.25)**0.85 (0.76, 0.95)****1.23 (1.14, 1.31)** | Ref1.00 (0.82, 1.18)0.90 (0.79, 1.01)1.12 (1.00, 1.24) | 211 (30.7)158 (22.4) 32 (11.1)115 (31.4) | Ref**0.72 (0.34, 1.1)****0.35 (0.23, 0.48)**1.02 (0.83, 1.21) | Ref0.69 (0.33, 1.05)**0.40 (0.24, 0.56)****0.82 (0.66, 0.98)** |

aPR, adjusted prevalence ratio; CI, confidence interval; HPV, human papillomavirus; PR, prevalence ratio; 4vHPV, quadrivalent HPV vaccine.

NOTE: Bold font indicates significance of χ 2 analysis at *P* < .05.

\* Adjusted for age, race/ethnicity, city, number of sex partners, and HIV status.

SUPPLEMENTARY TABLE 3: Prevalence of any HPV or quadrivalent vaccine-type HPV in oral specimens, by characteristics of participating transgender women and gay, bisexual, and other men who have sex with men

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristic | Total | Any HPV type | ≥1 4vHPV type |
| N | n (%) | p | n (%) | P\* |
| Total | 1767 | 133 (100) | - | 33 (100) | - |
| City Chicago Los Angeles Seattle | 617446704 |  55 (8.9) 42 (9.4) 36 (5.1) | **0.005** |  17 (2.8) 8 (1.8) 8 (1.1) | 0.1 |
| Age, years 18–21 22–26 | 6281139 |  37 (5.9) 96 (8.4) | 0.06 |  9 (2.4) 24 (2.1) | 0.36 |
| Gender identity Male Female/Transgender female Other/unknown | 16715343 | 125 (7.5) 5 (9.4) 3 (7.0) | 0.74+ |  21 (1.9) 0 (0) 1 (2.3) | 0.54+ |
| Race Non-Hispanic White Non-Hispanic Black Asian/Pacific Islander Hispanic Other/unknown | 545261136557268 |  30 (5.5) 29 (11.1) 6 (4.4) 45 (8.1) 23 (8.6) | **0.03** |  10 (1.8) 8 (3.1) 1 (0.74) 11 (2.0) 3 (1.1) | 0.5+ |
| Sexual orientation Gay/homosexual Straight/heterosexual Other/unknown | 129529443 |  92 (7.1) 4 (13.8) 37 (8.6) | 0.23+ |  23 (1.8) 0 (0.0) 10 (2.3) | 0.74+ |
| Lifetime number of sex partners of any sex ≤5 6–10 11–20 >20 Other/unknown | 24727638880155 |  11 (4.5) 13 (4.7) 27 (7.0) 76 (9.5) 6 (10.9) | **0.01** |  2 (0.8) 3 (1.1) 6 (1.6) 21 (2.6) 1 (1.8) | 0.3+ |
| Most recent HIV test result Positive Negative or unknown | 1391628 |  24 (17.3)109 (6.7) | **<0.001** |  6 (4.3) 27 (1.7) | **<0.04** |
| Ever received any HPV vaccine No, none Yes, any Other/unknown\* | 687704376 |  61 (8.9) 46 (6.5) 26 (6.9) | 0.23 |  23 (3.4) 8 (1.1) 2 (0.5) | **0.001+** |

HIV, human immunodeficiency virus; HPV, human papillomavirus; 4vHPV, quadrivalent HPV vaccine.

NOTE: Bold font indicates significance of χ 2 analysis at *P* < .05.

\* Includes participants who were unsure of their HPV vaccination history or did not respond.

+ Not enough data for statistical validity.

SUPPLEMENTARY TABLE 4: Prevalence of any HPV and vaccine-type HPV in oral specimens, by HPV vaccination history among participating transgender women and gay, bisexual, and other men who have sex with men

|  |  |  |  |
| --- | --- | --- | --- |
|  | Total | Any HPV type\* | ≥1 4vHPV type\*\*  |
| HPV vaccination history  | N | n (%) | PR (95% CI) | aPR\* (95% CI) | n (%) | PR (95% CI) | aPR\* (95% CI) |
|  No HPV vaccine doses ≥1 HPV vaccine dose  First dose at age ≤18 years First dose at age >18 years | 687704289366 |  61 (8.9) 46 (0.1) 9 (3.1) 34 (9.3) | Ref0.69 (-0.84, 1.46)**0.35 (0.11, 0.59)**1.05 (0.63, 1.46) | Ref1.04 (-0.16, 2.24)**0.32 (0.09, 0.55)**1.07 (0.60, 1.54) |  23 (3.4) 8 (0.01) 1 (0.35) 7 (1.9) | Ref0.35 (-0.34, 1.04)0.12 (-0.05, 0.29)0.89 (0.41, 1.36) | Ref0.57 (-0.56, 1.70)0.13 (-0.06, 0.31)0.87 (0.37, 1.39) |

4vHPV, quadrivalent HPV vaccine; PR, prevalence ratio; aPR, adjusted prevalence ratio.

NOTE: Bold font indicates significance at *P* < .05.

\*\*\* Adjusted for age, race/ethnicity, city, number of sex partners, and HIV status.