**Table 7. Prospective associations between hormonal contraceptive use and *Neisseria gonorrhoeae* (NG) (N=7).**

| **Study** | **N, study sample** | **Length of follow-up; frequency STI assessment** | **STI diagnostic test** | **Covariates** | **Reference group** | **OCP**a | **Injectable** | **Implant** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Borgdorff, 2015 [37] | 381, HIV-negative sex workers in Kigali, Rwanda ages 18 to 49, *N=42 incident cases b,d* | 12M; 0M, 6M, 12M | Endocervical swab via Amplicor CT/NG PCR test (Roche Diagnostics) | Age, education, years worked as sex worker, breast-feeding,consistent condom use, antibiotic use past 14 d, ever used antibiotics, time duration between assessments | Non-pregnant non-hormonal user | OCP aOR: 2.57 (0.78, 8.45) | Injectable (type not specifiedc) aOR: 0.80 (0.28, 2.31) | NA |
| Baeten, 2001 [21] | 948, HIV-1 negative sex workers in Mombasa, Kenya ages 16-48; N=272 incident cases (16.5/100 PY) | Range 15 to 2366 days (median: 421 days); median time b/w visits: 35 days | Culture on Thayer-Martin media | Age, years of education, years of prostitution, parity, number of sexual partners, place of work (ie, bar vs. nightclub), number of sexual contacts per week, and condom usage | No contraception or tubal ligation | OCP aHR: 1.4 (0.9, 2.1) | DMPA aHR: 1.1 (0.8, 1.6) | NA |
| Louv 1989 [23] | 818, U.S. women ages 19 to 29 attending a STI clinic in Birmingham Alabama; *N=155 incident cases* b | 6M; Monthly | Gram stain or oxidase reagent (Marion Scientific), confirmation by Rapid NH system (Innovative Diagnostic Systems) | Age, mean number of sex acts per month, mean number of partners during follow-up period, parity, gravidity | Tubal ligation or IUD user | COC: aHR: 1.70 (1.05, 2.76)\* | NA | NA |
| Lavreys 2004 [22] | 242, HIV-1 positive commercial sex workers attending STI clinic in Mombasa, Kenya; *N=119 incident cases, incidence rate: 14.9/100 PY* | Median follow-up 35M (IQR: 11-62M); Every 1M | Antigen test by ELISA (Microtrak, Syva) | Age, years of education, years of sex work, parity, workplace, number of sexual partners per week, condom use | No contraception or tubal ligation | OCP: aHR 0.6 (0.3, 1.3) | DMPA: 1.0 (0.6, 1.7) | NA |
| Kapiga, 2009 [47] | 958, HIV negative women ages 16 to 62 in Lusaka, Zambia (ZA), Moshi Tanzania (TZ) and Durban/Hlabisa, South Africa (SA), *Incidence ratea: 16.5/100 PYAR (SA); 5.3/100 PYAR (TZ, ZA)* | 12M; every 3M | TZ and ZA: culture methods used. SA: urine sample via BD Probe Tec ET assay | Age, site, partner earns income, # sex partners, frequency vaginal sex past 1W, anal sex past 3M, other STIs, BV, candida, abnormal vaginal discharge on exam, abnormal cervical discharge on exam, incident HIVFinal model (empirical approach): site and incident HIV infection (SA model); age (TZ/ZA model) | Not specified | OCP SA site: aOR: NR (ns); TZ ZA site aOR: NR (ns) | DMPA SA site: aOR: NR (ns); Moshi TZ/ ZA site aOR: NR (ns) | Norplant SA site: aOR: NR (ns); TZ/ ZA site aOR: 4.7 (1.3, 16.5)\* |
| Pettifor, 2009 [48] | 567, HIV-negative women ages 18 to 40 recruited from family planning clinics in Orange Farm, South Africa; *N=45 incident cases b incident rate: 9.9 per 100 PY* | 1Y; 0M, 2M, 6M, 8M and 12M (NET-EN users) or 0M, 3M, 6M, 9M and12M (DMPA users and controls)  | Urine sample vialigase chain reaction (LCx®; Abbot Laboratories) | Age, relationship status, education, frequency of sex past 3M, # sex partners past 3M, condom use past 3M, vagina douching past 3M, age of first sex Final model (empirical and theoretical approach): Age, education and condom use consistency in past 3M | Non-pregnant non-hormonal user | NA | DMPA aIRR: 1.30 (0.58, 2.98); NET-EN aIRR: 1.11 (0.55, 2.25) | NA |
| Romer, 2013 [50] | 342, adolescent girls ages 14-17 attending clinics in inner-city areas of Indianapolis, USA; *N=65 incident cases b* | Originally 27M, extended to 5Y for some participants; every 3M | Nucleic acid amplification tests (Amplicor CT/NG PCR; Roche Diagnostics). Positive results confirmed by Gen-Probe | Age, positive STI test at start of period, # of sexual partners in past 3M, # of lifetime sexual partners, # of sexual events in last 3M (diary period), # of unprotected sexual events in last 3M (diary period) | Non-hormonal user  | NA | DMPA use in current 3M period aOR: 1.19 (0.57, 2.48); DMPA use in prior 3M aOR: 1.12 (0.54, 2.32) | NA |

Notes: PY: person-years at risk. \* Statistically significant at p<0.05.

a OCP type was unspecified unless COC (combined oral contraception) or POP (progestin-only pill) is noted.

bMultiple incident cases per woman were allowed, i.e., incident cases defined as a positive test following a negative test.

c Injectable type not reported but authors note most commonly DMPA in setting with occasional norethisterone enanthate use.

d Excludes cases among pregnant women.