**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 HIV  Final 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 and  12M (DMPA users and controls) | Urine sample via  ligase 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.