

Supplemental Table 1: Summary of study population characteristics.

| Study [Ref. number] | Year of pub. | Time period of study | Exposures measured | Exposure measurement method | HIV method | State | Population type | Design | Risk group | HIV inc or prev | Sex specific estimates available? | Prev. of exposure | Overall prev. of HIV | Study sample size | Notes on exposure measurement |
|---------------------------|--------------|----------------------|--|--|--------------------------|----------|-----------------|--------|------------|-----------------|-----------------------------------|----------------------------------|----------------------|-------------------|--|
| Becker ML [71] 2010 | | 2004-2006 | GUD HSV-2 Syphilis | Self-report multiplex PCR if GUD; IgG ELISA RPR + TPHA | 2 ELISAs | KN | STI | CS | H | P | Y | 34.4% 7.7% 5.3% | 7.9% | 813 | Current GUD Ever infection Active infection |
| Becker ML [13] 2007 | | 2003 | Circ./Muslim HSV-2 Sexual partners Paid for sex | Self-report IgG ELISA Self-report Self-report | 2 ELISAs | KN | General | CS | L | P | Y | 15.9% 18.9% 7.3% 2.0% | 2.9% | 4,008 | Religion Ever infection >1 in last 3 months, 12 months & lifetime Ever paid or received money for sex |
| Brahme R [72] 2006 | | 1993-2002 | Gonorrhea GUD Sexual partners Syphilis | Gram stain + culture physical exam; Self-report Self-report RPR + TPHA | ELISA + Rapid test | MH | FSW | CS | H | P | Y | 11.4% 13.1% | 54.0% | 1,359 | Active infection Diagnosis of genital ulcer; Hx of genital ulcers Lifetime number of partners (1-100, 101-1000, >1000) |
| Brahme RG. [73] 2005 | | 1998-2000 | Sexual partners Paid for sex | Self-report | ELISA + Rapid test | MH | STI | CS | H | P | Y | 85.5% 9.6% | 22.2% | 1,872 | Lifetime number of partners (1, 2-3, 4-10, >10) |
| Dandona L [11] 2008 | | 2004-2005 | Circ./Muslim Sexual partners | Self-report Self-report | 1 ELISA or Rapid test | AP | General | CS | L | P | Y | 84.0% 29.7% | 1.9% | 12,378 | Circumcision Women: >1 in lifetime; men: either >1 in lifetime, or having visited a sex worker |
| Decker MR [74] 2009 | | 2006 | Circ./Muslim Sexual partners | Self-report Self-report | 2 ELISAs | INDIA | General | CS | L | P | Y | 11.7% 9.9% | 0.3% | 40,762 | Religion & circumcision >1 in lifetime |
| Gangakhedkar RR [75] 1997 | | 1993-1996 | Paid for sex | Self-report | ELISA, Rapid, + WB | MH | STI | CS | H | P | Y | 57.3% | 34.4% | 916 | Ever receiving money for sex, or identified occupation as SW or former SW |
| George S [76] 1997 | | 1986-1993 | GUD Paid for sex | Self-report Self-report | ELISA + WB | S. INDIA | STI | CCTRL | H | P | N | 40.0% 81.0% | 50.0% | 210 | Hx of GU Sexual exposure to a CSW |
| Kumar R [4] 2006 | | 2000-2004 | Syphilis | VDRL | 2 ELISAs | INDIA | ANC | CS | L | P | Y | 1.6% | 0.9% | 213,689 | VDRL reactive |
| Kumarasamy N [77] 2010 | | 2006-2008 | Sexual partners | Self-report | Rapid + WB | AP | STI | CCTRL | H | I | N | 6.3% | 29.5% | 237 | >1 in past month |
| Kumta S [78] 2010 | | 2003-2004 | Sexual partners Syphilis | Self-report VDRL | 3 Rapid tests | MH | MSM | CS | H H | P | Y | 41.0% 6.5% | 12.5% | 831 | <5, >=5 partners in past 6 months VDRL reactive |
| Madhivanan P [79] 2005 | | 2002-2003 | Circ./Muslim Gonorrhea HSV-2 Paid for sex Syphilis | Self-report PCR; Gram stain + culture if genital ulcer physical exam; IgG ELISA; multiplex PCR if GUD Self-report physical exam; VDRL + TPHA; multiplex PCR if GUD | ELISA + WB | MH | FSW clients | CS | H | P | Y | 24.6% 7.3% 40.9% | 14.0% | 1,741 | Religion Gonococcal urethritis if any are + PCR, IgG ELISA and clinical diagnosis used to determine incident, chronic or recurrent infection Sex with an FSW in last 3 months, ever Clinical diagnosis, PCR, VDRL and TPHA all used to determine primary, secondary, or latent/treated |
| Manjunath JV [80] 2002 | | 1999-2001 | Circ./Muslim GUD Sexual partners Paid for sex Syphilis | Self-report Self-report; physical exam Self-report Self-report VDRL | ELISA + Rapid test | MH | Truckers | CS | H | P | Y | 24.3% 31.9% | 16.0% | 263 | Religion + circumcision Hx in last 5 years; clinical diagnosis of ulcerative STD >1 (time period not specified); median number of sex partners in past year given Sex with CSW (time period not specified) VDRL reactive |
| Mehendale SM [81] 1996 | | 1993-1995 | Circ./Muslim GUD Sexual partners Syphilis | Self-report physical exam + rapid lab Self-report physical exam + rapid lab | ELISA, Rapid, + WB | MH | STI | CHRT | H | P | Y | 93.6% 50.2% 84.0% 17.0% | 21.2% | 5,321 | Circumcised Presenting genital ulcer; Hx of genital ulcer lifetime partners (1, 2-9, 1-99, 100-999, >1000) VDRL reactive |
| Mehta SH [82] 2006 | | 1993-2002 | Circ./Muslim GUD Sexual partners Syphilis | Self-report Self-report; phys. Exam. + Gram stain, wet mount, dark ground micr. Self-report VDRL/RPR + TPHA | ELISA + Rapid test | MH | STI | CS | H | P | Y | 7.0% 25.0% | 21.0% | 1,020 | Hx of genital ulcer; genital ulcer on exam Lifetime partners (1, 2-9, >10) VDRL or RPR +, & TPHA + |
| Mishra S [5] 2009 | | 2004-2006 | gonorrhea GUD HSV-2 Syphilis | PCR Self-report 2 ELISAs (IgG) RPR + TPHA | ELISA + Rapid test | KN | FSW | CS | H | P | Y | 3.6% 7.7% 67.8% 25.3% | 18.2% | 2,208 | PCR + Genital ulcer within last 12 months Active if both +; lifetime if TPHA + |
| Mukhopadhyay S [83] 2010 | | 2005-2006 | Circ./Muslim | Self-report | 3 Rapid tests | WB | STI | CS | H | P | N | 26.3% | 13.9% | 1,151 | Religion |
| Munro HL [12] 2008 | | 2005-2006 | Circ./Muslim GUD Sexual partners Paid for sex | Self-report Self-report Self-report Self-report | 2 ELISA tests/ELISA + WB | KN | General | CS | L | P | Y | 10.1% 1.5% 4.3% 2.2% | 0.8% | 4,190 | Religion + circumcision Ever Hx of genital ulcer Lifetime partners (0, 1, >1) Paid for or received money for sex |

| Study [Ref. number] | Year of pub. | Time period of study | Exposures measured Syphilis | Exposure measurement method RPR + TPHA | HIV method | State | Population type | Design | Risk group | HIV inc or prev | Sex specific estimates available? | Prev. of exposure 1.5% | Overall prev. of HIV | Study sample size | Notes on exposure measurement Active infection (RPR+ & TPHA +) |
|---------------------|--------------|----------------------|---|---|--------------------------------------|---------|-----------------|--------|------------|-----------------|-----------------------------------|---------------------------------|----------------------|-------------------|---|
| Nag VL [84] | 2009 | 2004 | Syphilis | VDRL + TPHA | ELISA + Rapid test | UP | STI | CS | H | P | N | 3.2% | 22.3% | 220 | VDRL reactive; VDRL+ & TPHA+ reactive |
| Jindal N [85] | 2007 | 2005 | Sexual partners | Self-report | ELISA + Rapid test | PJ | STI | CS | H | P | Y | 93.2% | | 280 | Hx of multiple sex partners (lifetime) |
| NFHS-3 [64] | 2006 | 2006 | Circ./Muslim GUD Sexual partners Paid for sex | Self-report Self-report Self-report Self-report | 2 ELISAs | INDIA | General | CS | L | P | Y | 12.9% 8.7% 9.4% 1.1% | 0.3% | 99,838 | Religion Genital ulcer symptoms in past 12 months Lifetime sexual partners (1, 2-4, >5) |
| Panda S [86] | 2005 | 2003 | Paid for sex | Self-report | 2 ELISAs | TN | IDU | CS | H | P | Y | 60.6% | 30.1% | 226 | Ever had sex with FSW |
| Ramesh BM [87] | 2008 | 2003 | Sexual partners | Self-report | 2 ELISAs | S.INDIA | FSW | CS | H | P | Y | 33.1% | 14.6% | 10,096 | Client volume per week (<10, >=10) |
| Reynolds SJ [10] | 2003 | 1993-2000 | HSV-2 Paid for sex | IgG ELISA Self-report | ELISA + Rapid test | MH | STI | CHRT | H | I | N | 43.0% | 8.2% | 2,732 | Incident if enrolled sero- & sero+ at follow up CSW partners in past 3 mo.; FSW risk group |
| Reynolds SJ [7] | 2006 | 1993-2000 | Syphilis | RPR + TPHA; dark field microscopy if GUD | ELISA + Rapid test | MH | STI | CHRT | H | I | N | 14.8% | 8.2% | 2,729 | Incident if TPHA seroconversion, or GUD + (dark field microscopy/RPR seroconversion) |
| Rodrigues JJ [88] | 1995 | 1993-1994 | GUD | physical exam + Self-report | ELISA, Rapid, + WB | MH | STI | CS | H | P | N | 52.7% | 23.5% | 2,790 | Current genital ulcer; Hx of genital ulcer |
| Samuel NM [89] | 2007 | 2003-2004 | Circ./Muslim | Self-report | ELISA, Rapid, + WB | TN | ANC | CS | L | P | Y | 3.8% | 2.0% | 3,715 | Religion |
| Sarkar K [90] | 2006 | 2004 | Sexual partners syphilis | Self-report TPHA + VDRL | ELISA + Rapid test | WB | FSW | CS | H | P | Y | 18.8% 13.6% | 5.9% | 2,076 | >3 clients per day Recent infection if TPHA & VDRL + |
| Schneider JA [91] | 2010 | 2004-2005 | HSV-2 Syphilis | 2 ELISAs (IgG) 2 ELISAs (IgG) | ELISA, WB, p24 + pooled nucleic acid | AP | General | CS | L | P | Y | 7.5% 1.7% | 1.9% | 12,617 | Lifetime infection Lifetime infection |
| Shahmanesh M [92] | 2009 | 2004 | GUD HSV-2 Sexual partners Syphilis | Self-report IgG ELISA Self-report | 2 ELISAs | GOA | FSW | CS | H | P | Y | 7.4% 56.6% 62.2% 25.8% | 23.7% | 325 | GUD in last 3 months Lifetime infection Number of clients in past week (0, 1-7, 7+); number of intimate non-paying partners (0, 1, >1) |
| Shepherd ME [93] | 2003 | 1993-2000 | Sexual partners Paid for sex | Self-report Self-report | ELISA + Rapid | MH | STI | CHRT | H | I | Y | 14.0% 23.0% | 7.3% | 2,255 | Number of 'recent' partners (0, 1, >2) Recent CSW partner |
| Shethwala N [94] | 2009 | 2005-2006 | Syphilis | RPR + TPHA | ELISA + Rapid | GJ | FSW | CS | H | P | Y | 11.7% | 11.7% | 300 | RPR+ & TPHA+ |
| Solomon S [96] | 2010 | 2008 | HSV-2 Syphilis | IgG ELISA RPR + TPPA | 2 ELISAs | TN | MSM | CS | H | P | Y | 25.8% 8.0% | 9.0% | 721 | lifetime infection RPR & TPPA + |
| Solomon S [95] | 1998 | 1994-1995 | GUD Sexual partners Syphilis | Self-report Self-report VDRL | ELISA + WB | TN | General | CS | L | P | N | 34.7% 48.3% 5.1% | 7.3% | 2,063 | Hx of GUD single partner vs multipartner VDRL test |
| Talukdar A [16] | 2007 | 2006 | Circ./Muslim Sexual partners Paid for sex Syphilis | Self-report Self-report Self-report TRUST + TPHA | 3 Rapid ELISAs | WB | Homeless | CS | H | P | Y | 22.0% 90.3% 73.4% 7.1% | 3.5% | 485 | Religion multiple sexual partners (time period not specified) visited CSW in past 6 months TRUST (toluidine red unheated serum test) & TPHA+ |

Footnote:

Circ./Muslim=male circumcision or Muslim religion; HSV-2=Herpes Simplex Virus 2; State: KN=Karnataka, MH=Maharashtra, AP=Andhra Pradesh, S.India= South India; Population type: STI=Sexually transmitted infection clinic attendees; General=general population survey, FSW=female sex worker, MSM=Men who have sex with men, ANC=antenatal clinic attendees, IDU=injecting drug users; Design: CS=cross-sectional, CHRT=cohort, CTRL=Case-control; HIV risk group: H=high, L=low (see methods).