

Online only material

Table S1. Condom use assumptions. This table shows the condom use assumptions used in the default scenarios. Condoms use was assumed to prevent STI and HIV transmission in 90% of contacts.

		Ndola	Kisumu	Cotonou	Yaounde
In casual partnerships,%	Prior to 1990	0	0	0	0
	1990-4	10	10	10	10
	1995 and after	25	25	20	20
In commercial sex, %	Prior to 1990	0	0	0	0
	1990-2	10	10	10	10
	1993-4	20	20	25	20
	1995 and after	30	30	50	30

Table S2. Sensitivity of population attributable fraction, intervention impact and cost-effectiveness to assumed condom use trends (2000-1, adults 15-49 years). HIVp= HIV prevalence; HDp= chancroid prevalence; HIVi= HIV incidence; PAF= population attributable fraction; STI= sexually transmitted infection; HSV-2=Herpes Simplex Virus, Type 2.

	Condom use rate multiplier	HIVp %	HDp %	HIVi /100 pyrs	PAF, %			Impact		Number of HIV infections averted, /year *	Incremental cost of the intervention, US\$/ year †	Cost per HIV infection averted, US\$
					All STIs	Curable STIs	HSV -2	Relative %	Absolute /100 pyrs			
Ndola	0.0	45	6.3	10.1	70	45	14	13.4	1.35	557.6	195,191	350
	0.5 ‡	36	3.3	6.9	65	37	19	12.9	0.89	426.0	122,311	287
	1.0 (default) §	29	1.1	4.6	57	25	25	8.9	0.41	220.2	70,756	321
	1.5 **	23	0.1	3.0	46	10	34	1.3	0.04	22.0	37,927	1,727
Kisumu	0.0	50	3.5	11.3	63	31	21	10.9	1.24	466.5	127,690	274
	0.5 ‡	40	0.7	7.6	56	20	29	4.7	0.36	161.9	74,613	461
	1.0 (default) §	32	0.1	5.3	49	11	34	1.1	0.06	28.3	42,401	1,499
	1.5 **	27	0.0	3.8	44	6	37	0.7	0.03	14.1	27,068	1,919
Cotonou	0.0	7	0.1	1.4	66	26	32	2.8	0.04	26.6	44,347	1,668
	0.5 ††	5	0.0	0.9	63	24	35	1.8	0.02	11.2	35,251	3,151
	1.0 (default) §	4	0.0	0.5	58	19	37	1.5	0.01	5.5	27,414	4,976
	1.5 ††	2	0.0	0.2	46	5	41	0.4	0.00	0.8	20,550	25,097
Yaounde	0.0	28	2.7	8.1	78	50	18	17.6	1.44	771.6	160,507	208
	0.5 §§	16	0.5	3.9	74	41	27	9.2	0.36	229.0	112,579	492
	1.0 (default) §	9	0.0	2.0	70	33	33	3.6	0.07	49.2	81,965	1,665
	1.5 ***	6	0.0	1.1	66	27	37	3.6	0.04	28.2	54,216	1,926

* Assumes the same number (75,000) of sexually active adults in all populations, based on the estimate by *Gilson et al*(1) for the Mwanza intervention communities. This is adjusted by the HIV prevalence in each population to calculate the number of HIV-uninfected sexually active adults in each population.

† The costs for the simulated interventions ('Model') were based on *Gilson et al*(1) and adjusted for differences between the intervention timing, the per-capita GDP and the simulated number of STI episodes treated, and were updated for inflation to 2001 prices.

‡ Condoms used in 5% and 12.5% of casual contacts from 1990 and '95, respectively, and 5%, 10% and 15% of sex worker contacts from '90, '93 and '95.

§ See table S1

** Condoms used in 15% and 37.5% of casual contacts from 1990 and '95, respectively, and 15%, 30% and 45% of sex worker contacts from '90, '93 and '95

†† Condoms used in 5% and 10% of casual contacts from 1990 and '95, respectively, and 5%, 12.5% and 25% of sex worker contacts from '90, '93 and '95

‡‡ Condoms used in 15% and 30% of casual contacts from 1990 and '95, respectively, and 15%, 37.5% and 75% of sex worker contacts from '90, '93 and '95

§§ Condoms used in 5% and 10% of casual contacts from 1990 and '95, respectively, and 5%, 10% and 15% of sex worker contacts from '90, '93 and '95

*** Condoms used in 15% and 30% of casual contacts from 1990 and '95, respectively, and 15%, 30% and 45% of sex worker contacts from '90, '93 and '95

Table S3. Sensitivity of population attributable fraction, intervention impact and cost-effectiveness in Ndola to selected model assumptions (2000-1, adults 15-49 years). Data were not available for blank cells. HIVp= HIV prevalence; HDp= chancroid prevalence; HIVi= HIV incidence; PAF= population attributable fraction; STI= sexually transmitted infection; HSV-2=Herpes Simplex Virus, Type 2.

		Scenario with improved STI treatment services (fitted to observed HIV prevalence in 1997)		Scenario without improved STI treatment services (2000-1)										
		HIVp %	HDp %	HIVp %	HDp %	HIVi /100 pyrs	PAF, %			Impact		Number of HIV infections averted, /year *	Incremental cost of the intervention, US\$/ year †	Cost per HIV infection averted, US\$
							All STIs	Curable STIs	HSV -2	Relative %	Absolute /100 pyrs			
Data		26												
Default scenario		25	0.0	29	1.1	4.6	57	25	25	8.9	0.41	220.2	70,756	321
Baseline assumptions														
All STI cofactors ‡	↑	26	0.0	29	1.1	4.5	73	33	32	10	0.46	246.6	70,716	287
	↓	25	0.1	29	1.1	4.8	37	16	18	6.9	0.33	175.8	71,342	406
Ulcerative STI cofactors §	↑	25	0.0	28	1.1	4.3	71	27	36	11	0.46	245.6	71,041	289
	↓	26	0.1	30	1.1	5.2	43	23	15	6.0	0.31	163.7	70,782	432
Condom use rates **	↑	25	0.0	23	0.0	2.7	39	3.0	35	0.7	0.02	10.5	24,442	2,321
	↓	25	0.3	33	3.5	6.2	67	39	18	15	0.90	451.5	124,523	276
Intervention assumptions														
Proportion of symptomatic STI episodes cured, %	↑54	25	0.0	29	1.1	4.6	57	25	25	13	0.60	322.6	105,192	326
	↓13.5	25	0.0	29	1.1	4.6	57	25	25	5.4	0.25	132.6	49,344	372
Cost-effectiveness assumptions														
No adjustment for inflation		25	0.0	29	1.1	4.6	57	25	25	8.9	0.41	220.2	61,069	277
No adj. for other costs changes over time		25	0.0	29	1.1	4.6	57	25	25	8.9	0.41	220.2	57,723	262
No adj. for between-country differences		25	0.0	29	1.1	4.6	57	25	25	8.9	0.41	220.2	71,967	327

^{*} Assumes the same number (75,000) of sexually active adults in all populations, based on the estimate by *Gilson et al*¹ for the Mwanza intervention communities. This is adjusted by the HIV prevalence in each population to calculate the number of HIV-uninfected sexually active adults in each population.

[†] The costs for the simulated interventions ('Model') were based on *Gilson et al*¹ and adjusted for differences between the intervention timing, the per-capita GDP and the simulated number of STI episodes treated, and were updated for inflation to 2001 prices.

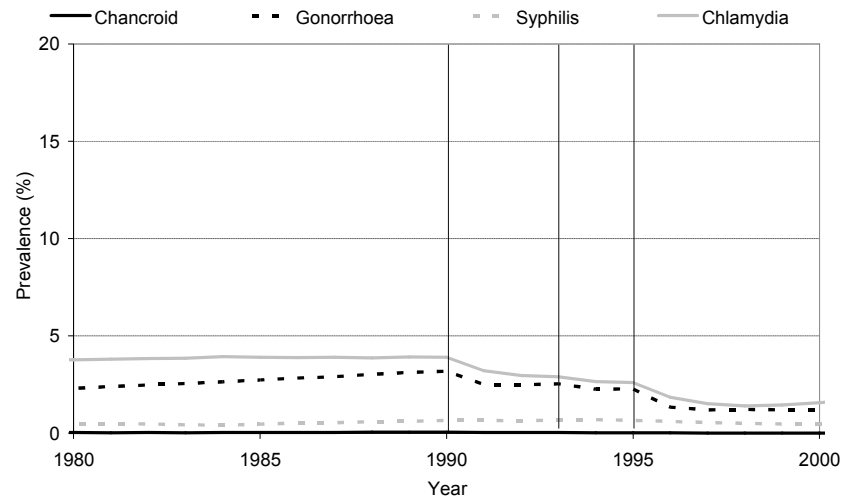
[‡] ↑= The assumed per-act cofactor effect on HIV susceptibility and infectivity for primary HSV-2, chancroid, recurrent HSV-2, primary syphilis, gonorrhoea and chlamydia were 50, 50, 20, 15, 6 and 6, respectively; ↓ = 12.5, 12.5, 5, 3.75, 1.5 and 1.5, respectively.

[§] ↑= The assumed per-act cofactor effect on HIV susceptibility and infectivity for primary HSV-2, chancroid, recurrent HSV-2, primary syphilis, gonorrhoea and chlamydia were 50, 50, 20, 15, 3 and 3, respectively; ↓ = 12.5, 12.5, 5, 3.75, 3 and 3, respectively.

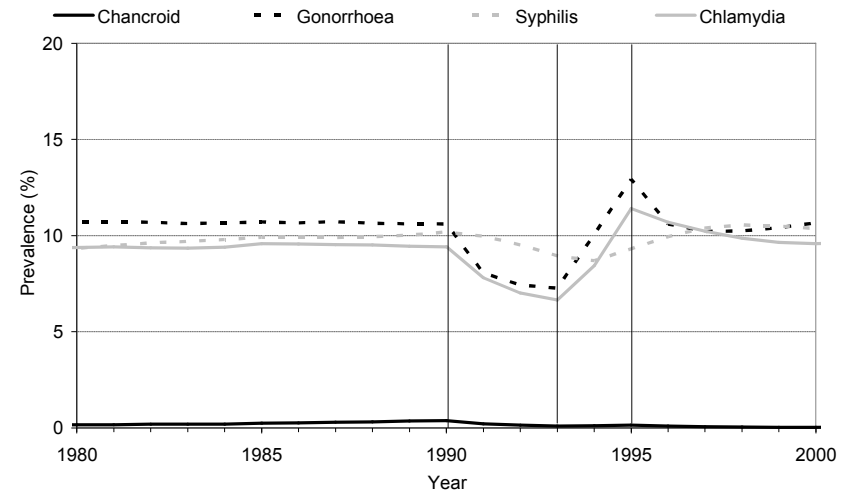
** ↑ = Condoms used in 20% and 50% of casual contacts from 1990 and 1995, respectively, and 20%, 40% and 60% of sex worker contacts from 1990, 1993 and 1995. ↓ = Condoms used in 5% and 12.5% of casual contacts from 1990 and 1995, respectively, and 5%, 10% and 15% of sex worker contacts from 1990, 1993 and 1995.

Figure S1: Simulated prevalence of curable STIs over time in the four cities (% , 15-49 years). Trends reflect increasing condom use in all sites and increased risk behaviour in Yaounde (the timing in 1990, 1993 and 1995 is highlighted with vertical lines).

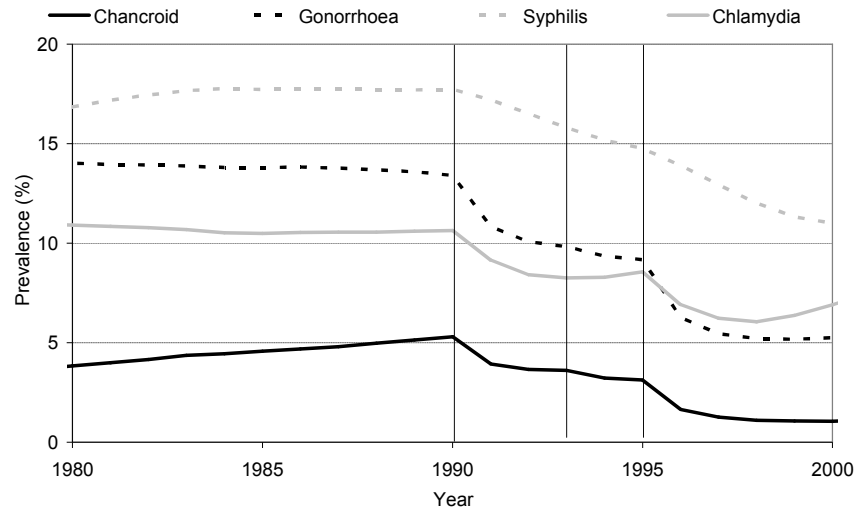
Cotonou



Yaounde



Ndola



Kisumu

