

Appendix:

Figure 1S. Locations of four Rakai Community Cohort Study (RCCS) fishing communities as designated by blue diamonds (RCCS agrarian communities are green triangles and trading communities are yellow circles).⁴

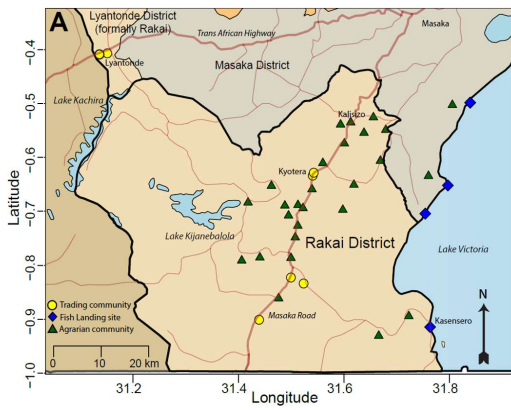


Figure 2S. Rakai Community Cohort Study (RCCS) fishing community survey participation over calendar time by participant sex.

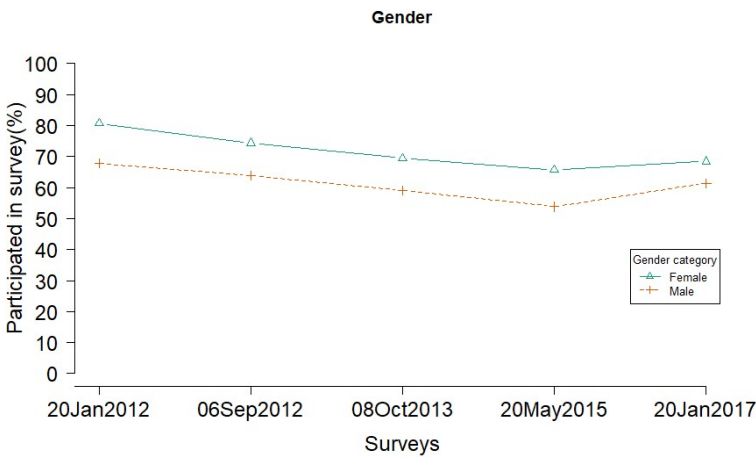


Figure 3S. Rakai Community Cohort Study (RCCS) fishing community survey participation over calendar time by participant age.

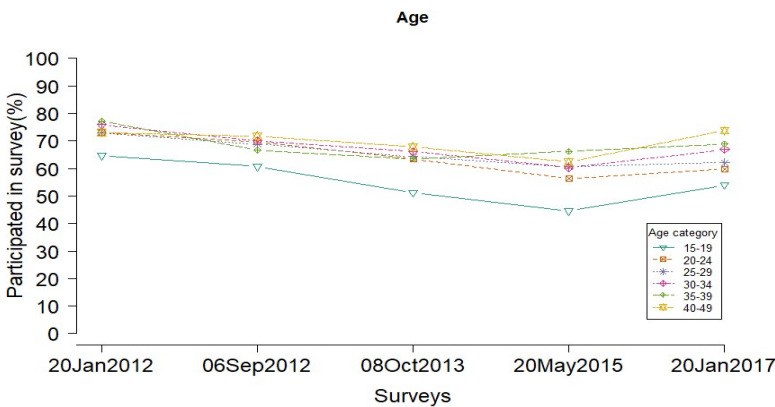


Table 1S. Participation and non-participation in the Rakai Community Cohort Study (RCCS) fishing community study (2011-2017) by survey round.

Survey	Participated (n)	Away for work or school* (n)	Refused (n)	Other** (n)
Overall				
Jan.2012 (1)	72.6% (3870)	26.6% (1417)	0.7% (37)	0.1% (6)
Sep.2012 (2)	67.1% (3965)	31.6% (1866)	1.2% (68)	0.2% (11)
Oct.2013 (3)	63.2% (3926)	36.5% (2267)	0.2% (13)	0.1% (8)
May.2015 (4)	58.7% (4222)	41.0% (2948)	0.0% (2)	0.3% (19)
Jan.2017 (5)	63.5% (4738)	35.6% (2656)	0.6% (45)	0.3% (23)
Female				
Jan.2012 (1)	79.6% (1859)	19.3% (450)	1.0% (24)	0.1% (2)
Sep.2012 (2)	72.7% (1839)	25.6% (647)	1.5% (38)	0.3% (7)
Oct.2013 (3)	68.9% (1863)	30.6% (827)	0.3% (8)	0.1% (4)
May.2015 (4)	65.4% (2068)	34.3% (1085)	-	0.3% (9)
Jan.2017 (5)	67.5% (2213)	31.6% (1038)	0.5% (17)	0.4% (12)
Male				
Jan.2012 (1)	67.1% (2011)	32.3% (967)	0.4% (13)	0.1% (4)
Sep.2012 (2)	62.9% (2126)	36.1% (1219)	0.9% (30)	0.1% (4)
Oct.2013 (3)	58.7% (2063)	41.0% (1440)	0.1% (5)	0.1% (4)
May.2015 (4)	53.5% (2154)	46.2% (1863)	0.0% (2)	0.2% (10)
Jan.2017 (5)	60.4% (2525)	38.6% (1618)	0.7% (28)	0.3% (11)

*These individuals were not present in the community at time of survey. Two attempts were made to locate these participants. **Includes individuals who lused to provide a blood sample for HIV serology but who responded to the questionnaire.

Table 2S. Reasons for loss to follow-up in the Rakai Community Cohort Study (RCCS) fishing communities among HIV-negative persons between the previous and listed survey visit.

Survey period	Away	Survey refusal	Blood Draw refusal	Already seen	Out-migrated	Dead	Ineligible	Others
Overall								
Sep.2012 (2)	332(49%)	8(1%)	9(1%)	0(0%)	314(46%)	5(1%)	1(0%)	8(1%)
Oct.2013 (3)	481(46%)	5(0%)	2(0%)	4(0%)	535(51%)	2(0%)	10(1%)	10(1%)
May.2015 (4)	561(50%)	0(0%)	10(1%)	5(0%)	516(46%)	9(1%)	14(1%)	9(1%)
Jan.2017 (5)	531(40%)	4(0%)	12(1%)	7(1%)	719(54%)	20(1%)	28(2%)	19(1%)
Female								
Sep.2012 (2)	131(47%)	2(1%)	4(1%)	0(0%)	138(50%)	0(0%)	0(0%)	1(0%)
Oct.2013 (3)	170(41%)	2(0%)	0(0%)	0(0%)	236(57%)	0(0%)	1(0%)	2(0%)
May.2015 (4)	192(42%)	0(0%)	6(1%)	0(0%)	248(55%)	4(1%)	2(0%)	1(0%)
Jan.2017 (5)	191(33%)	1(0%)	9(2%)	1(0%)	359(62%)	3(1%)	9(2%)	9(2%)
Male								
Sep.2012 (2)	201(50%)	6(1%)	5(1%)	0(0%)	176(44%)	5(1%)	1(0%)	7(2%)
Oct.2013 (3)	311(49%)	3(0%)	2(0%)	4(1%)	299(47%)	2(0%)	9(1%)	8(1%)
May.2015 (4)	369(55%)	0(0%)	4(1%)	5(1%)	268(40%)	5(1%)	12(2%)	8(1%)
Jan.2017 (5)	340(45%)	3(0%)	3(0%)	6(1%)	360(47%)	17(2%)	19(3%)	10(1%)

Table 3S. Proportion of Rakai Community Cohort Study (RCCS) fishing community study HIV-negative participants who ever initiated sex at each survey visit.

Visit	Female %(n/N)	Male %(n/N)	Female and Male %(n/N)*
Jan.2012 (1)	96.6(920/952)	95.8(1264/1320)	96.1(2184/2272)
Sep.2012 (2)	96.0(955/995)	95.7(1349/1409)	95.8(2304/2404)
Oct.2013 (3)	96.5(973/1008)	94.8(1324/1397)	95.5(2297/2405)
May.2015 (4)	96.3(1125/1168)	95.4(1399/1467)	95.8(2524/2635)
Jan.2017 (5)	95.4(1214/1273)	95.5(1648/1725)	95.5(2862/2998)

*p=0.28 test of trend

Table 4S. Proportion of Rakai Community Cohort Study (RCCS) fishing community study HIV-negative participants with multiple sex partnerships at each survey visit.

Visit	Female %(n/N)	Male %(n/N)	Female and Male %(n/N)*
Jan.2012 (1)	15.8(150/952)	55.2(728/1320)	38.6(878/2272)
Sep.2012 (2)	15.8(157/995)	52.8(744/1409)	37.5(901/2404)
Oct.2013 (3)	14.5(146/1008)	51.2(715/1397)	35.8(861/2405)
May.2015 (4)	16.7(195/1168)	52.4(768/1466)	36.6(963/2634)**
Jan.2017 (5)	17.5(223/1273)	57.5(992/1725)	40.5(1215/2998)

*p=0.21 test of trend; **one participant missing information

Table 5S. Proportion of Rakai Community Cohort Study (RCCS) fishing community study HIV-negative participants with consistent condom use in non-marital sex relationships at each survey visit.

Visit	Female %(n/N)	Male %(n/N)	Female and Male %(n/N)*
Jan.2012 (1)	49.4(122/247)	37.3(218/585)	40.9(340/832)
Sep.2012 (2)	46.4(122/263)	33.4(194/580)	37.5(316/843)
Oct.2013 (3)	44.9(118/263)	36.5(210/575)	39.1(328/838)
May.2015 (4)	44.4(131/295)	32.4(199/615)	36.3(330/910)
Jan.2017 (5)	41.4(150/362)	31.3(237/758)	34.6(387/1120)

*p=0.0048 test of trend

Table 6S. Proportion of Rakai Community Cohort Study (RCCS) fishing community study participants who reported ever HIV tested.

Visit	Female %(n/N)	Male %(n/N)	Female and Male %(n/N)*
Jan.2012 (1)	75.36(1401/1859)	60.27(1212/2011)	67.52(2613/3870)
Sep.2012 (2)	93.53(1720/1839)	85.42(1816/2126)	89.18(3536/3965)
Oct.2013 (3)	96.62(1800/1863)	91.81(1894/2063)	94.09(3694/3926)
May.2015 (4)	97.10(2008/2068)	93.64(2016/2153)	95.33(4024/4221)**
Jan.2017 (5)	97.92(2164/2210)	93.43(2359/2525)	95.53(4526/4738)

*p<0.0001 test of trend; **One participant missing HIV testing status

Table 7S. Proportion of Rakai Community Cohort Study (RCCS) fishing community study participants who self-reported ART use.

Visit	Female %(n/N)	Male %(n/N)	Female and Male %(n/N)*
Jan.2012 (1)	18.08(164/907)	13.02(90/691)	15.89(254/1598)
Sep.2012 (2)	30.69(259/844)	17.71(127/717)	24.73(386/1561)
Oct.2013 (3)	48.71(417/856)	34.23(228/666)	42.38(645/1522)
May.2015 (4)	72.00(648/900)	55.60(382/687)	64.90(1030/1587)
Jan.2017 (5)	84.79(797/940)	77.88(623/800)	81.61(1420/1740)

*p<0.0001 test of trend

Table 8S. Proportion of Rakai Community Cohort Study (RCCS) fishing community study participants with viral suppression (VL<1000 copies/ml=Suppressed).

Visit	Female %(n/N)	Male %(n/N)	Female and Male %(n/N)*
Jan.2012(1)	40.02(363/907)	26.56(183/689)	34.21(546/1596)**
May.2015 (4)	76.20(686/899)	57.37(393/685)	68.06(1078/1584)***
Jan.2017 (5)	84.63(793/937)	74.03(590/797)	79.78(1383/1734)****

*p<0.0001 test of trend; ** 2 viral load results missing; *** 3 viral load results missing; **** 4 viral load results missing

Table 9S. Proportion of Rakai Community Cohort Study (RCCS) fishing community study participants who self-reported male circumcision.

Visit	HIV-negative %(n/N)	HIV-positive %(n/N)	All Male %(n/N)*
Jan.2012 (1)	39.77(525/1320)	25.04(173/691)	34.71(698/2011)
Sep.2012 (2)	47.20(665/1409)	30.40(218/717)	41.53(883/2126)
Oct.2013 (3)	58.05(811/1397)	39.64(264/666)	52.11(1075/2063)
May.2015 (4)	64.42(945/1467)	44.25(304/687)	57.99(1249/2154)
Jan.2017 (5)	70.78(1221/1725)	51.13(409/800)	64.55(1630/2525)

*p<0.0001 test of trend

Table 10S. HIV incidence trends in Rakai Community Cohort Study (RCCS) fishing communities during scale-up of combination HIV interventions.

HIV incidence Cohort (N=3,222)							
<i>Survey(s)</i>	<i>Incident HIV cases</i>	<i>person-years</i>	<i>HIV incidence per 100 py (95%CI)</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjIRR (95% CI)</i>	<i>p-value</i>
Sep.2012 (2)	40	1,165.5	3.43(2.45-4.67)	1	-	1	-
Oct.2013 (3)	64	2,108.1	3.04(2.34-3.88)	0.88(0.60-1.31)	0.54	0.93(0.63-1.38)	0.72
May.2015 (4)	72	2,799.8	2.57(2.01-3.24)	0.75(0.51-1.10)	0.14	0.76(0.51-1.12)	0.16
Jan.2017 (5)	54	3,403.7	1.59(1.19-2.07)	0.46(0.31-0.69)	0.00021	0.52(0.34-0.79)	0.0021
Women (N=1,361)							
<i>Survey(s)</i>	<i>Incident HIV cases</i>	<i>person-years</i>	<i>HIV incidence per 100 py (95%CI)</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjIRR (95% CI)</i>	<i>p-value</i>
Sep.2012 (2)	18	495.9	3.63(2.15-5.74)	1	-	1	-
Oct.2013 (3)	29	870.7	3.33(2.23-4.78)	0.92(0.51-1.65)	0.77	0.95(0.52-1.73)	0.87
May.2015 (4)	35	1,147.6	3.05(2.12-4.24)	0.84(0.48-1.48)	0.54	0.83(0.46-1.49)	0.53
Jan.2017 (5)	26	1,401.2	1.86(1.21-2.72)	0.51(0.28-0.93)	0.028	0.51(0.27-0.96)	0.038
Men (N=1861)							
<i>Survey(s)</i>	<i>Incident HIV cases</i>	<i>person-years</i>	<i>HIV incidence per 100 py (95%CI)</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjIRR (95% CI)</i>	<i>p-value</i>
Sep.2012 (2)	22	669.5	3.29(2.06-4.97)	1	-	1	-
Oct.2013 (3)	35	1,237.3	2.83(1.97-3.93)	0.85(0.50-1.45)	0.55	0.91(0.53-1.55)	0.73
May.2015 (4)	37	1,652.2	2.24(1.58-3.09)	0.66(0.39-1.12)	0.13	0.71(0.42-1.20)	0.20
Jan.2017 (5)	28	2,002.5	1.40(0.93-2.02)	0.42(0.24-0.73)	0.0022	0.53(0.30-0.93)	0.027
Circumcised men only (N=1056)*							
<i>Survey(s)</i>	<i>Incident HIV cases</i>	<i>person-years</i>	<i>HIV incidence per 100 py (95%CI)</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjIRR (95% CI)</i>	<i>p-value</i>
Sep.2012 (2)	7	336.9	2.08(0.84-4.28)	1	-	1	-
Oct.2013 (3)	15	767.3	1.95(1.09-3.22)	0.95(0.39-2.31)	0.90	0.94(0.39-2.27)	0.89
May.2015 (4)	17	1,075.6	1.58(0.92-2.53)	0.75(0.31-1.81)	0.52	0.71(0.29-1.71)	0.44
Jan.2017 (5)	14	1,455.5	0.96(0.53-1.61)	0.47(0.19-1.15)	0.097	0.49(0.20-1.21)	0.12
Uncircumcised men only (N=805)*							
<i>Survey(s)</i>	<i>Incident HIV cases</i>	<i>person-years</i>	<i>HIV incidence per 100 py (95%CI)</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjIRR (95% CI)</i>	<i>p-value</i>
Sep.2012 (2)	15	332.6	4.51(2.52-7.44)	1	-	1	-
Oct.2013 (3)	20	470.0	4.25(2.60-6.57)	0.91(0.47-1.78)	0.79	0.88(0.44-1.74)	0.71
May.2015 (4)	20	576.6	3.47(2.12-5.36)	0.73(0.37-1.42)	0.36	0.71(0.36-1.39)	0.31
Jan.2017 (5)	14	547.0	2.56(1.40-4.29)	0.53(0.26-1.11)	0.092	0.56(0.27-1.19)	0.13

CI=Confidence Interval; IRR=Incidence Rate Ratio; adjIRR=Adjusted Incidence Rate Ratio; *Incidence rates include all males, while IRR and adjIRR exclude males aged 15-19 in whom zero HIV incidence cases were observed; Final adjusted model included age, sex, marital status, level of education, number of sexual partners in past year, sex with partners outside community, self-reported genital ulcer disease, and consistent condom use with non-marital partners.

Table 11S. HIV prevalence and associated factors among study participants in Rakai Community Cohort Study (RCCS) fishing communities.

<i>Variable</i>	<i>Prevalence(n/N)</i>	<i>PRR (95%CI)</i>	<i>p-value</i>	<i>adjPRR (95%CI)</i>	<i>p-value</i>
<i>Survey(s)</i>					
Jan.2012 (1)	41.3(1598/3870)	1	-	1	-
Sep.2012 (2)	39.4(1561/3965)	1.02(1.01-1.03)	0.0038	1.01(1.00-1.02)	0.16
Oct.2013 (3)	38.7(1521/3926)	1.07(1.05-1.09)	<0.0001	1.03(1.01-1.05)	<0.0001
May.2015 (4)	37.5(1585/4222)	1.12(1.09-1.14)	<0.0001	1.05(1.03-1.07)	<0.0001
Jan.2017 (5)	36.7(1740/4738)	1.15(1.13-1.18)	<0.0001	1.05(1.03-1.08)	<0.0001
Age (years)					
15-19	8.3(152/1836)	1	-	1	-
20-24	25.4(936/3690)	1.61(1.47-1.76)	<0.0001	1.48(1.36-1.61)	<0.0001
25-29	40.6(1901/4688)	2.10(1.92-2.31)	<0.0001	1.82(1.66-2.00)	<0.0001
30-34	47.9(2052/4284)	2.37(2.16-2.60)	<0.0001	1.98(1.81-2.18)	<0.0001
35-39	50.3(1620/3219)	2.53(2.30-2.78)	<0.0001	2.06(1.87-2.27)	<0.0001
>39 years	44.7(1343/3004)	2.64(2.40-2.91)	<0.0001	2.10(1.91-2.32)	<0.0001
Marital status					
Never married	12.0(349/2898)	1	-	1	-
Married	39.8(5075/12760)	1.26(1.20-1.33)	<0.0001	1.18(1.12-1.25)	<0.0001
Previously married	51.0(2582/5061)	1.31(1.24-1.38)	<0.0001	1.23(1.17-1.30)	<0.0001
Education					
None	54.0(969/1795)	1	-	1	-
Primary	40.8(6136/15052)	0.74(0.69-0.80)	<0.0001	0.81(0.75-0.87)	<0.0001
Secondary/Tertiary	23.2(900/3871)	0.40(0.36-0.44)	<0.0001	0.47(0.42-0.52)	<0.0001
Sex with partners outside of the community in last year					
None	40.5(5803/14342)	1	-	1	-
One or more	34.5(2203/6377)	0.98(0.96-0.99)	0.0096	0.97(0.95-0.99)	0.0016
Self-reported genital ulcer disease in the last year					
No	35.7(6241/17492)	1	-	1	-
Yes	54.7(1765/3227)	1.01(0.99-1.03)	0.30	1.05(1.03-1.07)	<0.0001
Number of sex partners in the last year					
None	25.9(449/1735)	1	-	1	-
One	39.6(4337/10946)	1.03(1.00-1.05)	0.033	1.04(1.01-1.07)	0.016
Two	39.8(1758/4415)	1.02(0.99-1.05)	0.18	1.05(1.01-1.09)	0.010
Three or more	40.3(1462/3623)	1.02(0.98-1.05)	0.30	1.05(1.01-1.09)	0.021
Condom use					
No sex partner/ uses with stable partners	39.0(5232/13403)	1	-	1	-
Non-stable partner, inconsistent use	37.5(1702/4544)	1.00(0.98-1.03)	0.84	1.00(0.97-1.02)	0.84
Non-stable partner, consistent use	38.7(1073/2774)	1.00(0.98-1.02)	0.97	1.00(0.98-1.03)	0.95

PRR=prevalence rate ratio, adjPRR=adjusted prevalence rate ratio

Table 12S. HIV prevalence and associated factors among Females in Rakai Community Cohort Study (RCCS) fishing communities.

<i>Variable</i>	<i>Prevalence(n/N)</i>	<i>PRR (95%CI)</i>	<i>p-value</i>	<i>adjPRR (95%CI)</i>	<i>p-value</i>
Survey(s)					
Jan.2012 (1)	48.8(907/1859)	1	-	1	-
Sep.2012 (2)	45.9(844/1839)	1.02(1.00-1.04)	0.018	1.01(1.00-1.03)	0.076
Oct.2013 (3)	45.9(856/1864)	1.05(1.03-1.07)	<0.0001	1.02(1.00-1.05)	0.036
May.2015 (4)	43.5(900/2068)	1.09(1.06-1.12)	<0.0001	1.04(1.01-1.07)	0.0027
Jan.2017 (5)	42.5(940/2213)	1.12(1.09-1.15)	<0.0001	1.04(1.01-1.08)	0.0053
Age (years)					
15-19	14.2(141/991)	1	-	1	-
20-24	34.5(692/2004)	1.50(1.36-1.65)	<0.0001	1.40(1.27-1.54)	<0.0001
25-29	49.0(1120/2287)	1.88(1.70-2.09)	<0.0001	1.66(1.50-1.84)	<0.0001
30-34	54.4(1080/1985)	2.03(1.83-2.26)	<0.0001	1.74(1.57-1.93)	<0.0001
35-39	60.3(857/1422)	2.17(1.95-2.41)	<0.0001	1.81(1.63-2.01)	<0.0001
>39 years	48.3(556/1152)	2.19(1.97-2.45)	<0.0001	1.81(1.62-2.02)	<0.0001
Marital status					
Never married	18.0(151/840)	1	-	1	-
Married	43.6(2719/6232)	1.20(1.11-1.30)	<0.0001	1.16(1.06-1.27)	0.0011
Previously married	56.9(1576/2769)	1.25(1.15-1.36)	<0.0001	1.17(1.07-1.27)	0.00058
Education					
None	57.4(558/972)	1	-	1	-
Primary	47.9(3293/6877)	0.82(0.75-0.89)	<0.0001	0.87(0.79-0.95)	0.0014
Secondary/Tertiary	29.8(593/1991)	0.45(0.40-0.52)	<0.0001	0.52(0.46-0.60)	<0.0001
Sex with partners outside of the community in last year					
None	44.9(3600/8026)	1	-	1	-
One or more	46.6(845/1815)	0.97(0.95-1.00)	0.073	0.97(0.95-1.00)	0.064
Self-reported genital ulcer disease in the last year					
No	42.3(3391/8023)	1	-	1	-
Yes	58.0(1054/1818)	1.01(0.98-1.03)	0.64	1.02(1.00-1.04)	0.028
Number of sex partners in the last year					
None	38.7(322/833)	1	-	1	-
One	43.4(3081/7095)	1.01(0.98-1.04)	0.50	1.00(0.97-1.03)	0.98
Two	52.0(724/1394)	0.99(0.95-1.04)	0.86	1.01(0.96-1.06)	0.75
Three or more	61.3(318/519)	1.02(0.95-1.10)	0.52	1.04(0.97-1.12)	0.27
Condom use					
No sex partner/ uses with stable partners	43.0(2988/6953)	1	-	1	-
Non-stable partner, inconsistent use	51.7(844/1631)	1.03(1.00-1.07)	0.034	1.04(1.01-1.08)	0.021
Non-stable partner, consistent use	48.9(616/1259)	1.02(0.99-1.05)	0.099	1.04(1.00-1.07)	0.039

CI=Confidence Interval; PRR=Prevalence Rate Ratio, adjPRR=adjusted Prevalence Rate Ratio

Table 13S. HIV prevalence and associated factors among Males in Rakai Community Cohort Study (RCCS) fishing communities.

<i>Variable</i>	<i>Prevalence(n/N)</i>	<i>PRR (95%CI)</i>	<i>p-value</i>	<i>adjPRR (95%CI)</i>	<i>p-value</i>
<i>Survey(s)</i>					
Jan.2012 (1)	34.4(691/2011)	1	-	1	-
Sep.2012 (2)	33.7(717/2126)	1.03(1.00-1.05)	0.037	1.01(0.99-1.04)	0.32
Oct.2013 (3)	32.3(666/2063)	1.09(1.06-1.13)	<0.0001	1.04(1.01-1.07)	0.0063
May.2015 (4)	31.9(687/2154)	1.16(1.11-1.20)	<0.0001	1.06(1.03-1.10)	0.00075
Jan.2017 (5)	31.7(800/2525)	1.18(1.14-1.23)	<0.0001	1.06(1.02-1.11)	0.0023
Age (years)					
15-19	1.3(11/845)	1	-	1	-
20-24	14.5(244/1685)	2.49(2.04-3.04)	<0.0001	2.43(1.97-3.00)	<0.0001
25-29	32.6(782/2402)	3.73(3.03-4.60)	<0.0001	3.42(2.77-4.24)	<0.0001
30-34	42.3(973/2299)	4.56(3.70-5.62)	<0.0001	4.05(3.28-5.00)	<0.0001
35-39	42.5(764/1797)	4.91(3.99-6.04)	<0.0001	4.22(3.42-5.22)	<0.0001
>39 years	42.5(787/1851)	5.39(4.38-6.64)	<0.0001	4.49(3.63-5.56)	<0.0001
Marital status					
Never married	9.6(198/2058)	1	-	1	-
Married	36.1(2357/6528)	1.38(1.28-1.48)	<0.0001	1.20(1.11-1.31)	<0.0001
Previously married	43.9(1006/2292)	1.41(1.31-1.52)	<0.0001	1.26(1.17-1.36)	<0.0001
Education					
None	49.9(411/823)	1	-	1	-
Primary	34.8(2843/8175)	0.67(0.60-0.75)	<0.0001	0.76(0.69-0.84)	<0.0001
Secondary/Tertiary	16.3(307/1880)	0.32(0.27-0.38)	<0.0001	0.41(0.35-0.49)	<0.0001
Circumcision status					
No	41.0(2193/5344)	1	-	1	-
Yes	24.7(1368/5535)	0.64(0.59-0.69)	<0.0001	0.67(0.62-0.73)	<0.0001
Sex with partners outside of the community in last year					
None	34.9(2203/6314)	1	-	1	-
One or more	29.8(1358/4562)	0.98(0.95-1.01)	0.15	0.97(0.94-0.99)	0.012
Self-reported genital ulcer disease in the last year					
No	30.1(2850/9469)	1	-	1	-
Yes	50.5(711/1409)	1.03(1.00-1.07)	0.079	1.09(1.05-1.12)	<0.0001
Number of sex partners in the last year					
None	14.1(127/902)	1	-	1	-
One	32.6(1256/3851)	1.08(1.03-1.14)	0.0063	1.09(1.03-1.15)	0.0050
Two	34.2(1034/3021)	1.09(1.04-1.15)	0.0057	1.12(1.05-1.19)	0.0004
Three or more	36.8(1144/3104)	1.09(1.03-1.15)	0.0018	1.13(1.06-1.21)	0.00035
Condom use					
No sex partner/ uses with stable partners	34.8(2246/6451)	1	-	1	-
Non-stable partner, inconsistent use	29.4(858/2913)	0.97(0.94-1.01)	0.15	0.96(0.92-1.00)	0.065
Non-stable partner, consistent use	30.2(457/1515)	0.97(0.94-1.01)	0.17	0.98(0.94-1.02)	0.28

CI=Confidence Interval; PRR=Prevalence Rate Ratio, adjPRR=adjusted Prevalence Rate Ratio

Table 14S. Factors associated with HIV incidence among Females in Rakai Community Cohort Study (RCCS) fishing communities.

<i>Variable</i>	<i>Incident cases</i>	<i>person-years</i>	<i>Incidence per 100 py (95%CI)</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjIRR (95%CI)</i>	<i>p-value</i>
Survey(s)							
Sep.2012 (2)	18	495.9	3.63(2.15-5.74)	1	-	1	-
Oct.2013 (3)	29	870.7	3.33(2.23-4.78)	0.92(0.51-1.65)	0.77	0.95(0.52-1.73)	0.87
May.2015 (4)	35	1,147.6	3.05(2.12-4.24)	0.84(0.48-1.48)	0.54	0.83(0.46-1.49)	0.53
Jan.2017 (5)	26	1,401.2	1.86(1.21-2.72)	0.51(0.28-0.93)	0.028	0.51(0.27-0.96)	0.038
Age (years)							
15-19	12	305.1	3.93(2.03-6.87)	1	-	1	-
20-24	37	840.4	4.40(3.10-6.07)	1.12(0.58-2.14)	0.73	0.99(0.51-1.91)	0.96
25-29	26	925.5	2.81(1.84-4.12)	0.72(0.36-1.42)	0.34	0.62(0.30-1.27)	0.19
30-34	11	758.6	1.45(0.72-2.59)	0.37(0.16-0.84)	0.017	0.30(0.13-0.71)	0.0059
35-39	14	531.5	2.63(1.44-4.42)	0.67(0.31-1.45)	0.31	0.56(0.26-1.22)	0.14
>39 years	8	554.2	1.44(0.62-2.84)	0.37(0.15-0.90)	0.028	0.36(0.14-0.94)	0.036
Marital status							
Never married	8	319.2	2.51(1.08-4.94)	1	-	1	-
Married	58	2,697.9	2.15(1.63-2.78)	0.86(0.41-1.80)	0.69	0.70(0.25-2.00)	0.51
Previously married	42	898.4	4.67(3.37-6.32)	1.87(0.88-3.98)	0.11	1.85(0.81-4.19)	0.14
Education							
None	9	315.5	2.85(1.30-5.42)	1	-	1	-
Primary	84	2,690.3	3.12(2.49-3.87)	1.10(0.55-2.17)	0.79	0.85(0.44-1.67)	0.64
Secondary/Tertiary	15	909.6	1.65(0.92-2.72)	0.58(0.25-1.32)	0.19	0.50(0.22-1.17)	0.11
Sex with partners outside of the community in last year							
None	85	3,393.7	2.51(2.00-3.10)	1	-	1	-
One or more	23	521.8	4.41(2.79-6.61)	1.76(1.10-2.81)	0.018	1.00(0.60-1.68)	0.99
Self-reported genital ulcer disease in the last year							
No	83	3,415.0	2.43(1.94-3.01)	1	-	1	-
Yes	25	500.4	5.00(3.23-7.38)	2.05(1.31-3.22)	0.0017	1.58(0.99-2.51)	0.055
# of sex partners in the last year							
None	2	305.0	0.66(0.08-2.37)	1	-	1	-
One	68	3,136.6	2.17(1.68-2.75)	3.31(0.80-13.61)	0.098	4.73(0.96-23.30)	0.056
Two	26	376.1	6.91(4.52-10.13)	10.55(2.48-44.78)	0.0014	11.59(2.11-63.77)	0.0049
Three or more	12	97.7	12.28(6.35-21.45)	18.74(4.15-84.72)	0.00014	15.33(2.50-94.09)	0.0032
Non-marital relationships and consistent condom use							
Stable partners only/no sex partners	62	2,970.6	2.09(1.60-2.68)	1	-	1	-
Non-stable partner, inconsistent use	29	502.5	5.77(3.87-8.29)	2.79(1.77-4.32)	<0.0001	0.87(0.39-1.96)	0.74
Non-stable partner, consistent use	17	442.3	3.84(2.24-6.15)	1.84(1.07-3.15)	0.026	0.79(0.33-1.90)	0.60

CI=Confidence Interval; IRR=Incidence Rate Ratio; adjIRR=Adjusted Incidence Rate Ratio

Table 15S. Factors associated with HIV incidence among Males in Rakai Community Cohort Study (RCCS) fishing communities.

<i>Variable</i>	<i>Incident cases</i>	<i>person-years</i>	<i>Incidence per 100 py (95%CI)</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjIRR (95%CI)</i>	<i>p-value</i>
Survey(s)							
Sep.2012 (2)	22	669.5	3.29(2.06-4.97)	1	-	1	-
Oct.2013 (3)	35	1,237.3	2.83(1.97-3.93)	0.85(0.50-1.45)	0.55	0.91(0.53-1.55)	0.73
May.2015 (4)	37	1,652.2	2.24(1.58-3.09)	0.66(0.39-1.12)	0.13	0.71(0.42-1.20)	0.20
Jan.2017 (5)	28	2,002.5	1.40(0.93-2.02)	0.42(0.24-0.73)	0.0022	0.53(0.30-0.93)	0.027
Age (years)							
15-19	0	368.1	-	-	-	-	-
20-24	27	990.8	2.73(1.80-3.96)	1	-	1	-
25-29	42	1,252.7	3.35(2.42-4.53)	1.23(0.76-2.00)	0.40	1.27(0.79-2.07)	0.33
30-34	21	1,083.8	1.94(1.20-2.96)	0.71(0.40-1.26)	0.24	0.72(0.41-1.28)	0.26
35-39	17	871.9	1.95(1.14-3.12)	0.72(0.39-1.32)	0.28	0.69(0.37-1.32)	0.26
>39 years	15	994.2	1.51(0.84-2.49)	0.55(0.29-1.04)	0.067	0.57(0.30-1.09)	0.090
Marital status							
Never married	16	1,010.6	1.58(0.90-2.57)	1	-	1	-
Married	68	3,387.7	2.01(1.56-2.54)	0.85(0.49-1.47)	0.56	1.06(0.48-2.32)	0.89
Previously married	38	1,163.2	3.27(2.31-4.48)	1.39(0.77-2.51)	0.27	1.40(0.77-2.58)	0.27
Education							
None	10	308.5	3.24(1.55-5.96)	1	-	1	-
Primary	98	4,152.1	2.36(1.92-2.88)	0.75(0.38-1.45)	0.39	0.77(0.40-1.47)	0.43
Secondary/Tertiary	14	1,100.9	1.27(0.70-2.13)	0.39(0.17-0.90)	0.027	0.48(0.21-1.07)	0.073
Circumcision status							
No	69	1,926.2	3.58(2.79-4.53)	1	-	1	-
Yes	53	3,635.3	1.46(1.09-1.91)	0.42(0.29-0.60)	<0.0001	0.46(0.32-0.67)	<0.0001
Sex with partners outside of the community in last year							
None	77	3,195.9	2.41(1.90-3.01)	1	-	1	-
One or more	45	2,365.7	1.90(1.39-2.55)	0.75(0.52-1.09)	0.13	0.71(0.47-1.08)	0.11
Self-reported genital ulcer disease in the last year							
No	96	5,116.8	1.88(1.52-2.29)	1	-	1	-
Yes	26	444.8	5.85(3.82-8.57)	2.98(1.93-4.60)	<0.0001	2.19(1.39-3.43)	0.00066
# of sex partners in the last year							
None	4	379.9	1.05(0.29-2.70)	1	-	1	-
One	35	2,006.1	1.74(1.22-2.43)	1.10(0.39-3.09)	0.86	1.21(0.37-3.93)	0.75
Two	36	1,631.3	2.21(1.55-3.06)	1.35(0.48-3.80)	0.57	1.62(0.48-5.43)	0.44
Three or more	47	1,544.3	3.04(2.24-4.05)	1.88(0.68-5.21)	0.23	2.09(0.59-7.37)	0.25
Non-marital relationships and consistent condom use							
Stable partners only/no sex partners	62	3,307.0	1.87(1.44-2.40)	1	-	1	-
Non-stable partner, inconsistent use	42	1,525.6	2.75(1.98-3.72)	1.53(1.03-2.26)	0.035	1.10(0.58-2.09)	0.77
Non-stable partner, consistent use	18	728.9	2.47(1.46-3.90)	1.43(0.85-2.42)	0.18	1.08(0.52-2.23)	0.84

CI=Confidence Interval; IRR=Incidence Rate Ratio; adjIRR=Adjusted Incidence Rate Ratio; Incidence rates include all males, while IRR and adjIRR exclude males aged 15-19 in whom zero HIV incidence cases were observed

Table 16S. Factors associated with HIV incidence among Circumcised Males in Rakai Community Cohort Study (RCCS) fishing communities.

<i>Variable</i>	<i>Incident cases</i>	<i>person-years</i>	<i>Incidence per 100 py (95%CI)</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjRR (95%CI)</i>	<i>p-value</i>
Survey(s)							
Sep.2012 (2)	7	336.9	2.08(0.84-4.28)	1	-	1	-
Oct.2013 (3)	15	767.3	1.95(1.09-3.22)	0.95(0.39-2.31)	0.90	0.94(0.39-2.27)	0.89
May.2015 (4)	17	1,075.6	1.58(0.92-2.53)	0.75(0.31-1.81)	0.52	0.71(0.29-1.71)	0.44
Jan.2017 (5)	14	1,455.5	0.96(0.53-1.61)	0.47(0.19-1.15)	0.097	0.49(0.20-1.21)	0.12
Age (years)							
15-19	0	268.6	0.00(0.00-1.37)	-	-	-	-
20-24	11	684.5	1.61(0.80-2.88)	1	-	1	-
25-29	20	857.2	2.33(1.43-3.60)	1.45(0.69-3.04)	0.32	1.55(0.74-3.23)	0.24
30-34	9	729.2	1.23(0.56-2.34)	0.77(0.32-1.86)	0.56	0.88(0.36-2.13)	0.78
35-39	7	511.4	1.37(0.55-2.82)	0.85(0.33-2.21)	0.74	0.98(0.35-2.70)	0.97
>39 years	6	584.4	1.03(0.38-2.23)	0.64(0.24-1.74)	0.38	0.76(0.27-2.13)	0.60
Marital status							
Never married	8	689.3	1.16(0.50-2.29)	1	-	1	-
Married	29	2,243.8	1.29(0.87-1.86)	0.73(0.33-1.59)	0.43	0.68(0.21-2.27)	0.53
Previously married	16	702.2	2.28(1.30-3.70)	1.29(0.55-3.03)	0.56	1.14(0.45-2.84)	0.78
Education							
None	2	188.4	1.06(0.13-3.83)	1	-	1	-
Primary	43	2,647.3	1.62(1.18-2.19)	1.57(0.37-6.61)	0.54	1.58(0.38-6.56)	0.53
Secondary/Tertiary	8	799.6	1.00(0.43-1.97)	0.94(0.20-4.53)	0.94	0.97(0.21-4.60)	0.97
Sex with partners outside of the community in last year							
None	33	1,996.4	1.65(1.14-2.32)	1	-	1	-
One or more	20	1,638.9	1.22(0.75-1.88)	0.70(0.40-1.22)	0.21	0.69(0.38-1.26)	0.23
Self-reported genital ulcer disease in the last year							
No	45	3,393.8	1.33(0.97-1.77)	1	-	1	-
Yes	8	241.5	3.31(1.43-6.53)	2.35(1.11-5.00)	0.026	1.86(0.84-4.10)	0.13
Number of sex partners in the last year							
None	3	256.8	1.17(0.24-3.41)	1	-	1	-
One	17	1,243.5	1.37(0.80-2.19)	0.73(0.21-2.49)	0.61	1.05(0.27-4.16)	0.94
Two	13	1,096.4	1.19(0.63-2.03)	0.60(0.17-2.13)	0.43	0.92(0.21-4.09)	0.92
Three or more	20	1,038.7	1.93(1.18-2.97)	1.00(0.30-3.35)	1.0	1.46(0.31-6.94)	0.64
Non-marital relationships and consistent condom use							
Stable partners only/no sex partners	28	2,165.2	1.29(0.86-1.87)	1	-	1	-
Non-stable partner, inconsistent use	18	1,005.8	1.79(1.06-2.83)	1.43(0.79-2.57)	0.24	0.94(0.34-2.61)	0.91
Non-stable partner, consistent use	7	464.2	1.51(0.61-3.11)	1.30(0.57-2.97)	0.54	0.93(0.30-2.88)	0.90

CI=Confidence Interval; IRR=Incidence Rate Ratio; adjIRR=Adjusted Incidence Rate Ratio; Incidence rates include all males, while IRR and adjIRR exclude males aged 15-19 in whom zero HIV incidence cases were observed

Table 17S. Factors associated with HIV incidence among Uncircumcised Males in Rakai Community Cohort Study (RCCS) fishing communities.

<i>Variable</i>	<i>Incident cases</i>	<i>person-years</i>	<i>Incidence per 100 py (95%CI)</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjIRR (95%CI)</i>	<i>p-value</i>
Survey(s)							
Sep.2012 (2)	15	332.6	4.51(2.52-7.44)	1	-	1	-
Oct.2013 (3)	20	470.0	4.25(2.60-6.57)	0.91(0.47-1.78)	0.79	0.88(0.44-1.74)	0.71
May.2015 (4)	20	576.6	3.47(2.12-5.36)	0.73(0.37-1.42)	0.36	0.71(0.36-1.39)	0.31
Jan.2017 (5)	14	547.0	2.56(1.40-4.29)	0.53(0.26-1.11)	0.092	0.56(0.27-1.19)	0.13
Age (years)							
15-19	0	99.5	-	-	-	-	-
20-24	16	306.3	5.22(2.99-8.48)	1	-	1	-
25-29	22	395.5	5.56(3.49-8.42)	1.06(0.55-2.05)	0.85	1.12(0.58-2.14)	0.74
30-34	12	354.6	3.38(1.75-5.91)	0.65(0.31-1.37)	0.26	0.65(0.31-1.38)	0.26
35-39	10	360.6	2.77(1.33-5.10)	0.53(0.24-1.18)	0.12	0.57(0.25-1.30)	0.18
>39 years	9	409.8	2.20(1.00-4.17)	0.42(0.19-0.95)	0.038	0.47(0.20-1.10)	0.082
Marital status							
Never married	8	321.3	2.49(1.07-4.91)	1	-	1	-
Married	39	1,143.9	3.41(2.42-4.66)	0.98(0.45-2.12)	0.95	1.43(0.50-4.09)	0.51
Previously married	22	461.0	4.77(2.99-7.22)	1.37(0.61-3.11)	0.45	1.67(0.73-3.79)	0.22
Education							
None	8	120.1	6.66(2.87-13.12)	1	-	1	-
Primary	55	1,504.8	3.65(2.75-4.76)	0.56(0.26-1.18)	0.13	0.58(0.26-1.28)	0.18
Secondary/Tertiary	6	301.3	1.99(0.73-4.33)	0.30(0.10-0.88)	0.029	0.35(0.11-1.05)	0.061
Sex with partners outside of the community in last year							
None	44	1,199.5	3.67(2.67-4.92)	1	-	1	-
One or more	25	726.7	3.44(2.23-5.08)	0.90(0.55-1.47)	0.66	0.74(0.42-1.32)	0.31
Self-reported genital ulcer disease in the last year							
No	51	1,723.0	2.96(2.20-3.89)	1	-	1	-
Yes	18	203.2	8.86(5.25-14.00)	2.93(1.72-5.01)	<0.0001	2.32(1.30-4.12)	0.0042
Number of sex partners in the last year							
None	1	123.2	0.81(0.02-4.52)	1	-	1	-
One	18	762.5	2.36(1.40-3.73)	2.17(0.29-16.18)	0.45	2.06(0.20-21.51)	0.55
Two	23	534.9	4.30(2.73-6.45)	3.94(0.53-29.11)	0.18	3.75(0.35-39.94)	0.27
Three or more	27	505.6	5.34(3.52-7.77)	4.87(0.66-35.71)	0.12	4.17(0.37-47.23)	0.25
Non-marital relationships and consistent condom use							
Stable partners only/no sex partners	34	1,141.8	2.98(2.06-4.16)	1	-	1	-
Non-stable partner, inconsistent use	24	519.8	4.62(2.96-6.87)	1.64(0.96-2.78)	0.068	1.20(0.52-2.76)	0.67
Non-stable partner, consistent use	11	264.7	4.16(2.07-7.44)	1.46(0.74-2.88)	0.28	1.16(0.44-3.06)	0.77

CI=Confidence Interval; IRR=Incidence Rate Ratio; adjIRR=Adjusted Incidence Rate Ratio; Incidence rates include all males, while IRR and adjIRR exclude males aged 15-19 in whom zero HIV incidence cases were observed

Sensitivity analysis methods to evaluate effect of potential bias in survey participation and censoring to follow-up at subsequent surveys (Table 17S)

We implemented inverse probability weighting for marginal structural models to estimate stabilized inverse probability weights to counter selective participation and censoring across surveys. We separately estimated the participation weight in a model including; age, sex, relationship to household head, and we estimated the censoring weight in a model including age, sex, relationship to household head, marital status, highest education level, number of sex partners, condom use practices with non-stable sex partners. The stabilized inverse probability weight was obtained as a ratio of the joint probability of the marginal distributions for participation and censoring, and the denominator as the joint probability for participation and contributing person time in the incidence cohort respectively. Weighted incidence rate ratios were estimated using Poisson regression assuming correlation within same participant observations and independence between participants.

Table 18S. Inverse probability weighted HIV incidence rate ratios in Rakai Community Cohort Study (RCCS) fishing communities.

<i>Variable</i>	<i>IRR (95%CI)</i>	<i>p-value</i>	<i>adjIRR (95%CI)</i>	<i>p-value</i>
<i>Survey(s)</i>				
Sep.2012 (2)	1	-	1	-
Oct.2013 (3)	0.89(0.60-1.32)	0.56	0.94(0.63-1.40)	0.77
May.2015 (4)	0.76(0.52-1.12)	0.17	0.78(0.53-1.15)	0.20
Jan.2017 (5)	0.47(0.31-0.71)	0.0028	0.53(0.35-0.81)	0.0030
Age (years)				
15-19	1	-	1	-
20-24	1.95(1.04-3.64)	0.036	1.34(0.69-2.59)	0.39
25-29	1.86(1.00-3.47)	0.051	1.23(0.63-2.43)	0.55
30-34	1.04(0.53-2.03)	0.92	0.65(0.32-1.34)	0.25
35-39	1.29(0.66-2.54)	0.46	0.81(0.39-1.69)	0.57
>39 years	0.86(0.43-1.75)	0.68	0.60(0.28-1.27)	0.18
Sex				
Women	1	-	1	-
Uncircumcised men	1.30(0.96-1.77)	0.09	0.96(0.66-1.38)	0.81
Circumcised men	0.52(0.37-0.72)	0.00011	0.42(0.28-0.63)	<0.0001
Marital status				
Never married	1	-	1	-
Married	1.21(0.78-1.89)	0.39	1.16(0.59-2.28)	0.66
Previously married	2.30(1.45-3.65)	0.00043	2.07(1.22-3.52)	0.0068
Education				
None	1	-	1	-
Primary	0.87(0.54-1.41)	0.57	0.83(0.52-1.31)	0.42
Secondary/Tertiary	0.46(0.26-0.82)	0.009	0.49(0.28-0.88)	0.016
Sex with partners outside of the community in last year				
None	1	-	1	-
One or more	0.95(0.71-1.26)	0.70	0.83(0.60-1.16)	0.28
Self-reported genital ulcer disease in the last year				
No	1	-	1	-
Yes	2.61(1.90-3.58)	<0.0001	1.89(1.37-2.62)	0.0012
Number of sex partners in the last year				
None	1	-	1	-
One	2.68(1.17-6.16)	0.020	2.38(0.90-6.27)	0.081
Two	4.19(1.79-9.79)	0.00093	4.56(1.60-12.98)	0.0045
Three or more	4.71(2.02-11.01)	0.00035	5.01(1.67-15.06)	0.0041
Non-marital relationships and consistent condom use				
Stable partners only/no sex partners	1	-	1	-
Non-stable partner, inconsistent use	1.83(1.36-2.46)	<0.0001	1.13(0.66-1.95)	0.65
Non-stable partner, consistent use	1.53(1.05-2.23)	0.028	1.01(0.56-1.82)	0.98

CI=Confidence Interval; IRR=Incidence Rate Ratio; adjIRR=Adjusted Incidence Rate Ratio