WAXING AND WANING HIV RISK: DYNAMICS OF PrEP ELIGIBILITY IN RAKAI, UGANDA

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BACKGROUND

- Pre-Exposure Prophylaixs (PrEP) eligibility is based on the presence of substantial HIV risk (SHR) behaviors making eligibility and retention dynamic.
- We used population-based data to describe longitudinal patterns of SHR and identify factors associated with incidence, persistence and recurrence of PrEP eligibility.

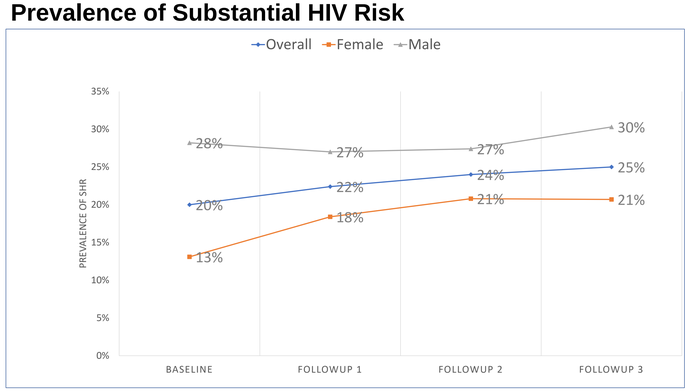
METHODS

- The Rakai Community Cohort Study (RCCS) conducted 4 surveys in participants aged 15-49 years between August 2011 – June 2018, and asked SHR-related questions,
- SHR, as defined by the Uganda national PrEP Program, includes reporting sexual intercourse with more than one partner of unknown HIV status, non-marital sex without a condom or having transactional sex.
- We estimated **Prevalence** (SHR at survey), **Incidence** (initiation of SHR), **Recurrence** (resumption of SHR after discontinuing SHR), **Discontinuation** of SHR (stopping of previous), and **Durability (**persistence of SHR).
- Poisson and log-binomial regressions with generalized estimating equations and robust variance estimators were used to estimate adjusted incidence rate ratios (aIRRs) and prevalence rate ratios (aPRRs) of SHR for PreP eligibility with 95%CIs.

RESULTS

- **Study population:** 25,695 HIV-negative individuals participated in the cohort, including 13,010 participants with SHR assessment data at ≥2 visits (24,132 person-intervals).
- **<u>Prevalence</u> of Substantial HIV Risk Behavior:**
  - Overall, increased from 20.1% to 25.2% (p<0.001).
  - Increased in both males and females.
  - Males had higher prevalence of SHR than females.

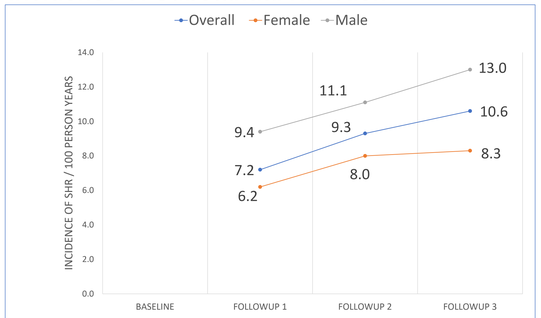
Prevalence of Substantial HIV Risk



PrEP eligibility fluctuates in males and females due to high rates of incidence, discontinuation and resumption of Substantial HIV Risk.

- **<u>Incidence</u> of Substantial HIV Risk Behavior:**
  - Overall, increased from 7.2 / 100 pys to 10.6 100pys (p<0.001).
  - Increased significantly in both males and females.
  - Males had 32% higher incidence of SHR than females.

Incidence of Substantial HIV Risk



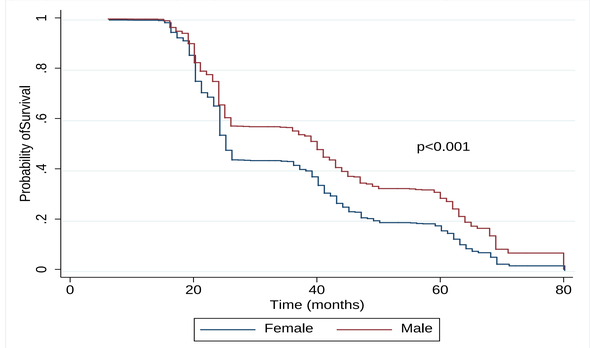
Incidence, Discontinuation and Recurrence of Sustantial HIV Risk behavior eligible for PrEP

	Incidence of SHR		Discontinuation of SHR at next survey		Recurrence of SHR after discontinuation	
Variable	*Incidence per 100 py (95%CI)*	*adjIRR (95%CI)*	*Discontinuation of SHR (%)*	*adjPRR (95%CI)*	*Recurrence of SHR after discontinuation (%)*	*adjPRR (95%CI)*
Survey(s)						
14July2014 (2)	7.20 (6.70-7.73)	Ref	51.2 (532/1039)	Ref	-	-
14Jan2016 (3)	9.34 (8.78-9.92)	**1.18 (1.08-1.29)**	47.5 (819/1723)	0.96 (0.90-1.03)	25.8 (101/391)	Ref
21Sep2017 (4)	10.33 (9.76-10.92)	**1.26 (1.16-1.38)**	49.0 (946/1932)	0.95 (0.89-1.02)	28.1 (222/789)	1.11 (0.93-1.33)
Gender						
Female	7.62 (7.23-8.02)	Ref	54.4 (1036/1905)	Ref	24.5 (109/444)	Ref
Male	11.30 (10.75-11.87)	**1.32 (1.23-1.42)**	45.2 (1261/2789)	**0.87 (0.82-0.92)**	29.1 (214/736)	**1.39 (1.14-1.71)**
Age (years)						
15-19	14.21 (13.08-15.41)	Ref	36.9 (152/412)	Ref	30.8 (4/13)	Ref
20-24	17.18 (15.98-18.44)	**2.00 (1.79-2.23)**	38.4 (511/1330)	0.87 (0.76-1.00)	34.3 (59/172)	1.44 (0.65-3.21)
25-29	8.20 (7.45-9.00)	**1.44 (1.24-1.67)**	55.4 (530/957)	1.00 (0.88-1.15)	21.2 (64/302)	1.09 (0.49-2.46)
30-34	7.48 (6.80-8.20)	**1.36 (1.16-1.59)**	55.2 (383/694)	0.94 (0.81-1.08)	25.4 (61/240)	1.46 (0.65-3.31)
35-39	6.15 (5.52-6.83)	1.04 (0.89-1.23)	55.8 (330/591)	0.97 (0.84-1.11)	27.4 (49/179)	1.48 (0.65-3.37)
40-49	6.04 (5.49-6.62)	0.87 (0.74-1.02)	55.1 (391/710)	0.98 (0.85-1.13)	31.4 (86/274)	1.54 (0.68-3.46)
Marital status						
Married	4.85 (4.57-5.14)	Ref	74.9 (1423/1899)	Ref	16.8 (130/772)	Ref
Never Married	19.02 (17.99-20.08)	**3.58 (3.19-4.01)**	26.6 (476/1791)	**1.00 (.-.)**	48.6 (90/185)	**2.97 (2.37-3.73)**
Previously married	20.90 (19.28-22.62)	**4.81 (4.34-5.34)**	39.6 (397/1003)	**0.52 (0.48-0.56)**	46.4 (103/222)	**2.81 (2.25-3.51)**
Education						
None	7.81 (6.19-9.72)	Ref	65.0 (76/117)	Ref	21.1 (8/38)	Ref
Primary	9.82 (9.39-10.28)	1.13 (0.89-1.43)	48.8 (1408/2883)	**0.81 (0.70-0.94)**	28.8 (216/749)	1.56 (0.81-2.99)
Secondary/Tertiary	8.33 (7.84-8.85)	0.93 (0.73-1.18)	48.0 (813/1694)	**0.84 (0.72-0.98)**	25.2 (99/393)	1.50 (0.77-2.93)

SHR=Substantial HIV Risk, adjIRR=adjusted incidence rate ratio, adjPRR=adjusted prevalence rate ratio

- **<u>Discontinuation</u> of Substantial HIV Risk Behavior:**
  - On overage 50% of participants with prior SHR history reported discontinuation of SHR at next survey.
  - Males were 13% less likely to discontinue SHR at next survey than females.
- **<u>Recurrence</u> of Substantial HIV Risk Behavior:**
  - On average 27% of participants who reported prior discontinuation of SHR, reported SHR resumption.
  - Males were 39% more likely to resume SHR than females.

Durability of Substantial Risk Behavior Eligible for PrEP (Adjusted Cox proportional hazards regression curves)



CONCLUSIONS

PrEP programs in similar settings should expect short and repeated PrEP eligibility periods with turnover due to incidence, discontinuation and resumption of Substantial HIV risk.

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