

The impact of DREAMS on  
HIV incidence among young  
women who sell sex in  
Zimbabwe: A non-  
randomised plausibility study

6 - 10 JULY 2020

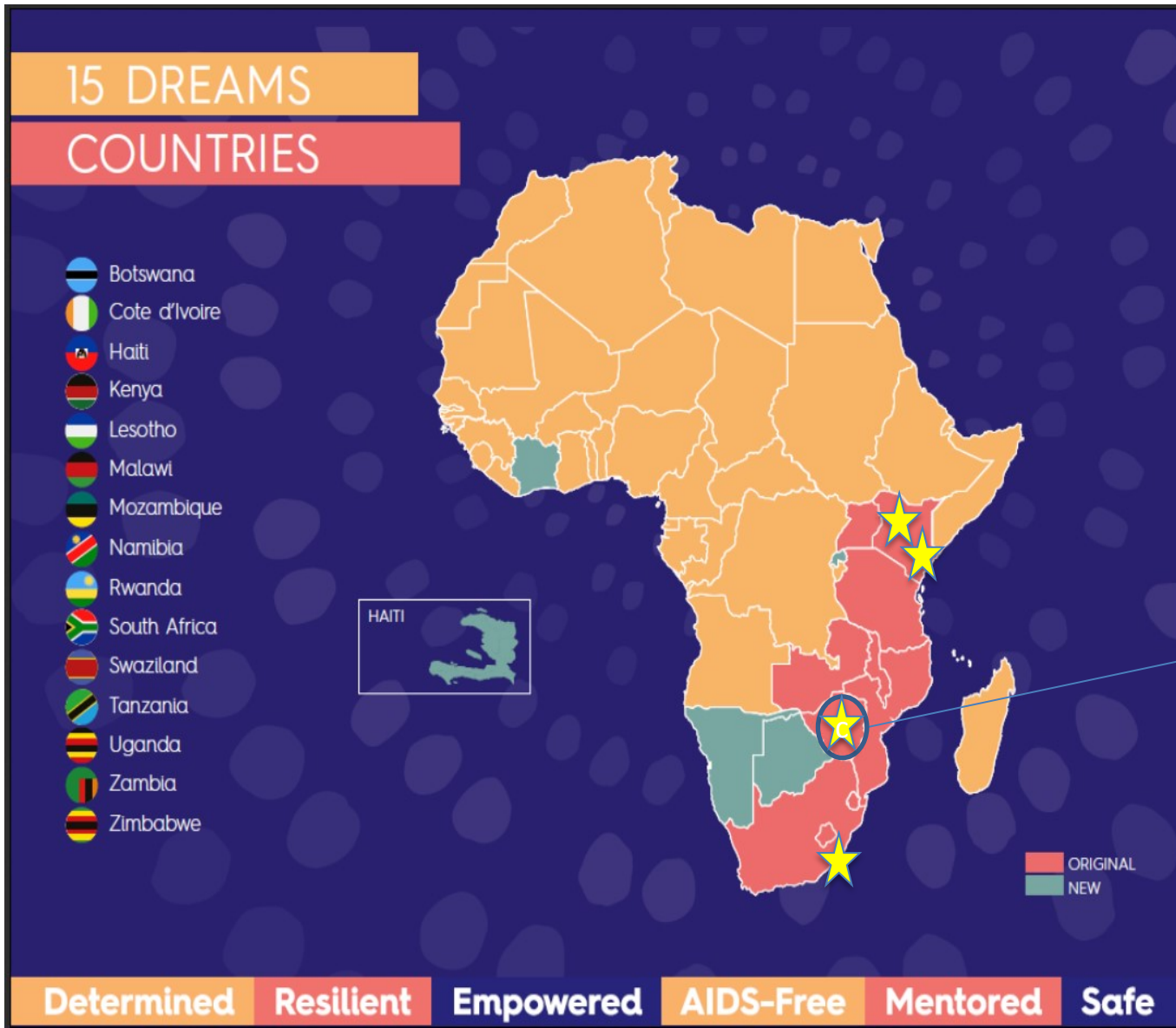
VIRTUAL

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# DREAMS Impact Evaluation Settings



## Nairobi, Kenya

- Two informal slum settlements in the Nairobi Urban HDSS with demographic & behavioural surveillance and nested DREAMS cohorts, including 10-14 yr cohort [Partner: APHRC]

## Gem, Kenya

- The KEMRI/CDC platform with HIV, demographic & behavioural surveillance and nested DREAMS cohorts [Partner: LSTM with KEMRI]

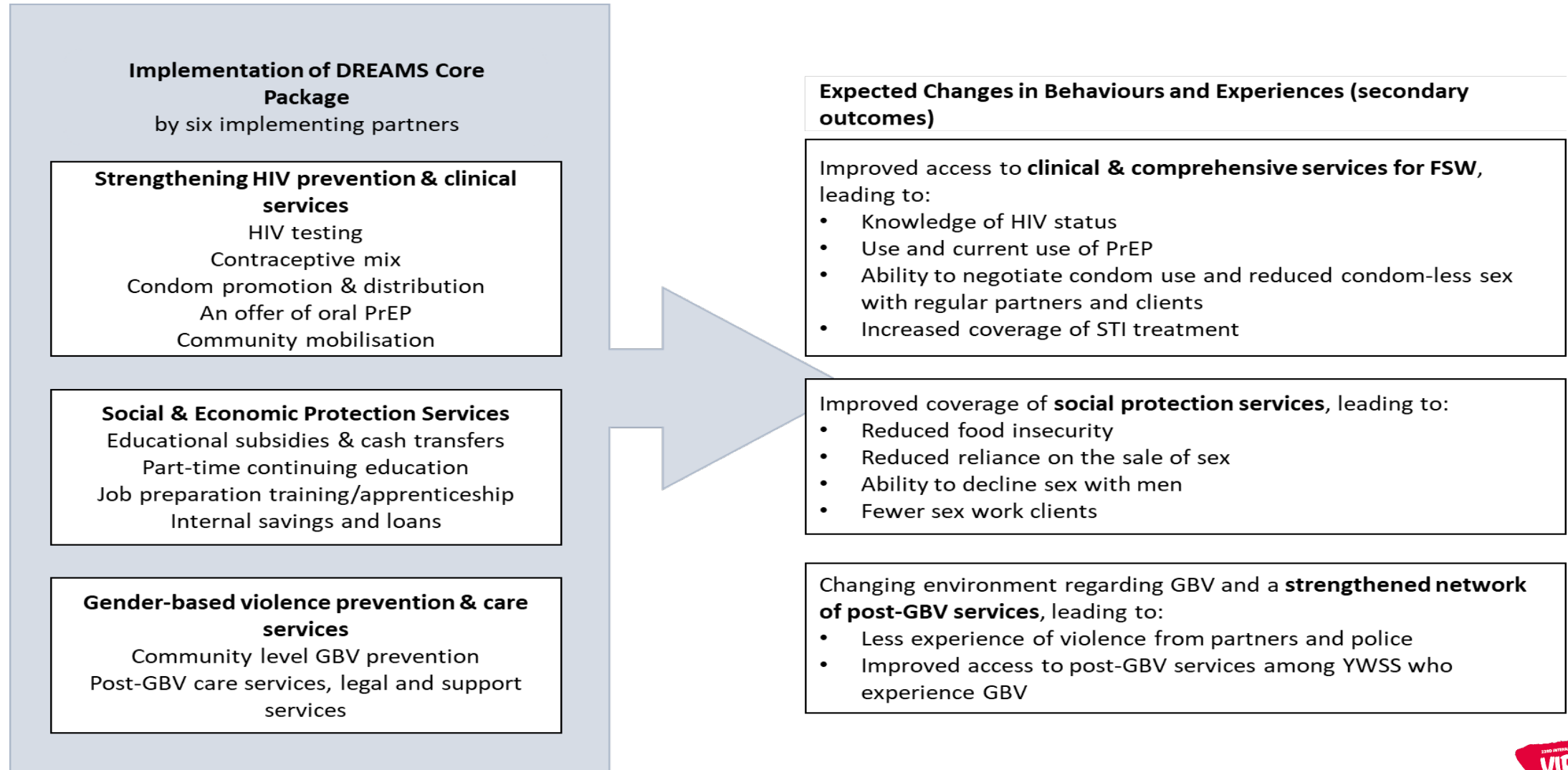
## Zimbabwe

- Evaluation of DREAMS+PrEP among most vulnerable AGYW, using the *Sisters* platform for cohorts of YWSS and HIV testing in 2 intervention & 4 comparison sites [Partner: LSTM with CeSHHAR]

## uMkhanyakude, South Africa

- The HDSS in KZN with HIV, HSV2, demographic, behavioural and phylogenetic surveillance and nested DREAMS cohorts [Partner: AHRI]

# DREAMS core package of interventions and the expected changes in behaviours and experiences (secondary outcomes)



# Context and Study Design

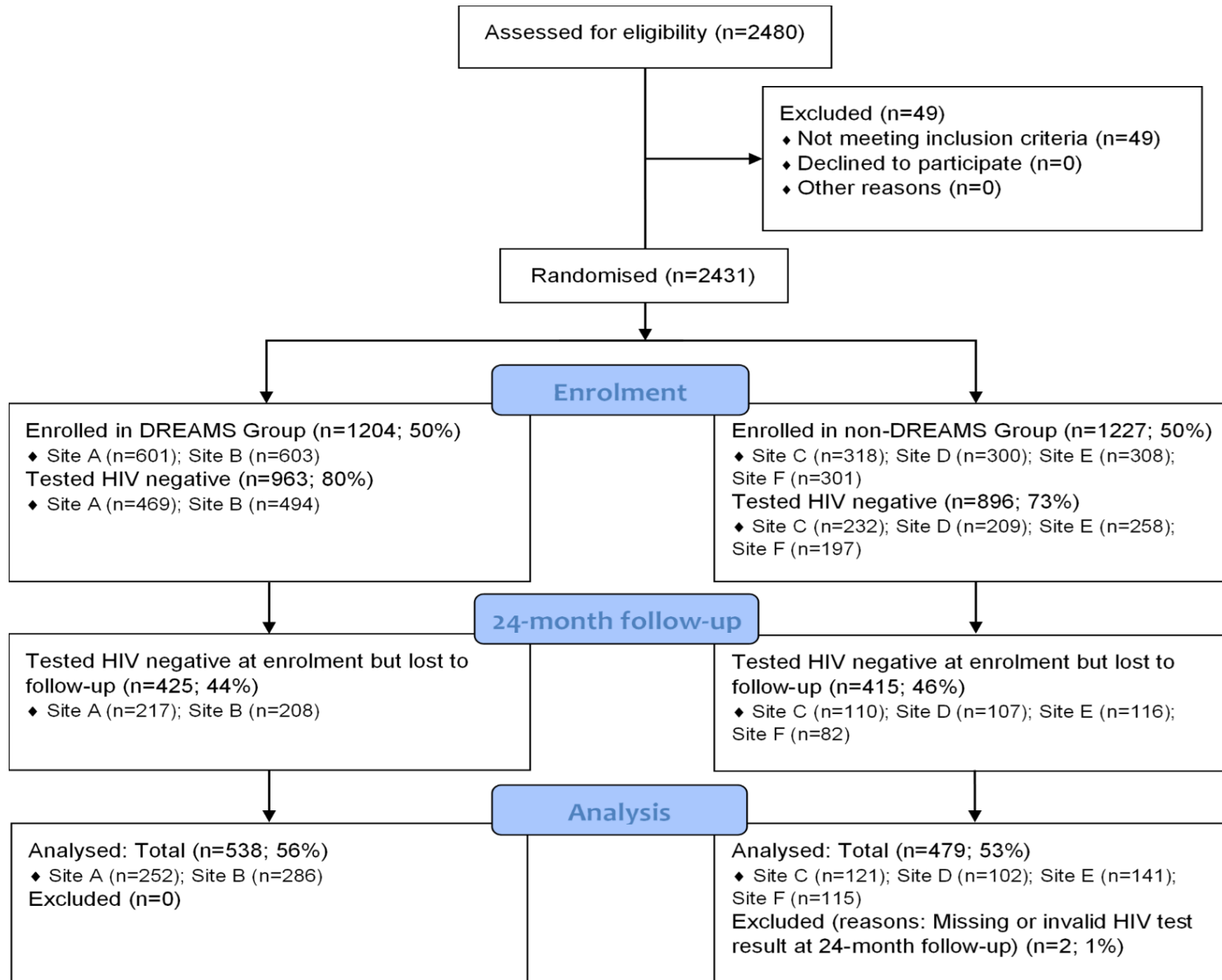
- DREAMS partnership aimed to reduce new HIV infections among AGYW including YWSS by 40% over two years
- In Zimbabwe, evaluation was done using a non-randomised plausibility design
- Seed-initiated network based recruitment of 18-24 year olds to a cohort in all sites (SW and AGYWSS)
- 12 and 24m follow up (later changed to 12m follow up in DREAMS sites only)
- Retention / follow up procedures
- Primary outcome: Incident HIV infection over the 24-month study period
- Secondary (multiple) outcomes informed by the theory of change

# Statistical analysis

- "Intention to treat" / whole population effect
- Individual-level rather than cluster level analysis
- Poisson regression for primary outcome, logistic for secondary outcomes
- Approach and justification for confounding adjustment
  - Selection of covariates for adjustment based on attenuation of HIV prevalence difference
  - Staged approach to analysis

Age, highest level of education attained, marital status, self-identification as FSW, STI symptoms, number of sexual partners in the past month + site-level HIV prevalence

# Baseline cohort recruitment and follow-up



- **1204** YWSS recruited in DREAMS and **1227** in non-DREAMS sites.
- HIV prevalence
  - **19.5%** in DREAMS sites
  - **26.3%** in non DREAMS sites
- 24-month follow-up rate
  - **56%** in DREAMS sites
  - **53%** in non-DREAMS sites

# Key demographic and behavioural characteristics at enrolment of YWSS testing HIV negative by group, 2017

	DREAMS cities (N=963)	Non-DREAMS towns (N=896)	Comparison P-value
	n/N (%)	n/N (%)	
<b>Age at recruitment</b>			0.076
18-19	361/963 (37.5)	372/896 (41.5)	
20-24	602/963 (62.5)	524/896 (58.5)	
<b>Highest level of education</b>			<0.001
None/ incomplete primary	28/963 (2.9)	77/896 (8.6)	
Complete primary	61/963 (6.3)	92/896 (10.3)	
Incomplete secondary	817/963 (84.8)	707/896 (78.9)	
Complete secondary or higher	57/963 (5.9)	20/896 (2.2)	
<b>Marital status</b>			<0.001
Single/ never married	668/963 (69.4)	497/896 (55.5)	
Married / living together as if married	21/963 (2.2)	16/896 (1.8)	
Divorced/ separated	270/963 (28.0)	379/896 (42.3)	
Widowed	4/963 (0.4)	4/896 (0.4)	
<b>Years selling sex</b>			0.001
0-2	508/962 (52.8)	538/893 (60.2)	
3+	454/962 (47.2)	355/893 (39.8)	
<b>Condom-less sex with regular partner in the past month</b>			0.478
No	415/740 (56.1)	379/699 (54.2)	
Yes	325/740 (43.9)	320/699 (45.8)	
<b>Condom-less sex with client in the past month</b>			0.001
No	611/745 (82.0)	555/628 (88.4)	
Yes	134/745 (18.0)	73/628 (11.6)	
<b>Risk of common mental disorder</b>			<0.001
No	595/963 (61.8)	624/896 (69.6)	
Yes	368/963 (38.2)	272/896 (30.4)	

# Uptake of services available through the DREAMS Partnership study group – 1

	DREAMS sites (N=538) n/N (%)	Non-DREAMS sites (N=481) n/N (%)	DREAMS vs non-DREAMS OR (95% CI)	P-value
<b>Direct HIV Prevention and Clinical services</b>				
<b>Recently HIV tested (within 6mths prior to the survey)</b>				0.237 <sup>‡</sup>
No	181/537 (33.7)	152/478 (31.8)		
Yes	356/537 (66.3)	326/478 (68.2)	1.32 (0.83-2.10)	
<b>Ever been offered PrEP</b>			–	<0.001 <sup>§</sup>
No	271/521 (52.0)	446/450 (99.1)		
Yes	250/521 (48.0)	4/450 (0.9)		
<b>Currently taking PrEP</b>			–	<0.001 <sup>§</sup>
No	459/521 (88.1)	450/450 (100.0)		
Yes	62/521 (11.9)	0/450 (0.0)		
<b>Current use of contraceptive methods</b>				0.343 <sup>‡</sup>
No	61/495 (12.3)	101/432 (23.4)		
Yes	434/495 (87.7)	331/432 (76.6)	1.37 (0.71-2.63)	
<b>Attendance to Sisters with a Voice Clinic in past 12 months</b>				<0.001 <sup>‡</sup>
No	221/538 (41.1)	344/480 (71.7)		
Yes	317/538 (58.9)	136/480 (28.3)	12.51 (6.90-22.69)	
<b>Attendance to Sisters with a Voice community mobilisation meeting in past 12 months</b>				0.002 <sup>‡</sup>
No	464/537 (86.4)	453/480 (94.4)		
Yes	73/537 (13.6)	27/480 (5.6)	22.76 (3.09-167.71)	

<sup>‡</sup>Age and site adjusted Wald test p-value; <sup>§</sup>Fisher's exact p-value



## Uptake of services available through the DREAMS Partnership study group – 2

	DREAMS sites (N=538) n/N (%)	Non-DREAMS sites (N=481) n/N (%)	DREAMS vs non-DREAMS	
			OR (95% CI)	P-value
<b><i>Social and Economic Protection Services</i></b>				
<b>Receipt of cash transfer or educational subsidy in past 12 months</b>			–	<0.001 <sup>§</sup>
No	516/538 (95.9)	480/480 (100.0)		
Yes	22/538 (4.1)	0/480 (0.0)		
<b>Participation in continuing education programme in past 12 months</b>			–	0.002 <sup>§</sup>
No	528/538 (98.1)	480/480 (100.0)		
Yes	10/538 (1.9)	0/480 (0.0)		
<b>Participation in job preparation training in past 12 months</b>			–	0.004 <sup>§</sup>
No	529/538 (98.3)	480/480 (100.0)		
Yes	9/538 (1.7)	0/480 (0.0)		
<b>Participation in internal savings &amp; loan group in past 12 months</b>			–	<0.001 <sup>§</sup>
No	514/537 (95.7)	479/479 (100.0)		
Yes	23/537 (4.3)	0/479 (0.0)		

<sup>§</sup>Fisher's exact p-value

# Comparison of HIV incidence between DREAMS and non-DREAMS communities

A. Comparison of HIV incidence among YWSS testing HIV negative at enrolment, by arm				
	Number of seroconversions/person-years of follow-up	Rate per 100 person-years	Age-adjusted rate ratio (95%CI) p-value	Fully adjusted rate ratio (95%CI) <sup>‡</sup> p-value
Non-DREAMS (N=479)	48/907.62	5.29	1.0	1.0
DREAMS (N=538)	31/988.14	3.14	0.59 (0.38-0.93) p=0.022	0.74 (0.43-1.29) p=0.287
B. Comparison of HIV incidence among YWSS testing HIV negative at enrolment, by site				
DREAMS Site A (n=252)	16/444.74	3.60	1.0	
DREAMS Site B (n=286)	15/543.40	2.76	0.75 (0.37-1.52) p=0.420	0.67 (0.32-1.42) p=0.299
Non-DREAMS Site C (n=121)	16/226.24	7.07	1.93 (0.96-3.88) p=0.063	1.42 (0.66-3.03) p=0.367
Non-DREAMS Site D (n=102)	11/192.90	5.70	1.57 (0.73-3.38) p=0.252	1.19 (0.52-2.74) p=0.677
Non-DREAMS Site E (n=141)	12/278.41	4.31	1.21 (0.57-2.56) p=0.617	0.97 (0.42-2.21) p=0.938
Non-DREAMS Site F (n=115)	9/210.07	4.28	1.16 (0.51-2.63) p=0.723	0.97 (0.40-2.34) p=0.952

<sup>‡</sup>Adjusted for age, highest level of education attained, marital status, self-identification as FSW, STI symptoms, number of sexual partners in the past month, HIV prevalence (measured at baseline)

## Comparison of DREAMS secondary outcomes between DREAMS and non-DREAMS communities

- Strong evidence of difference
  - Ever taken PrEP
  - Ability to negotiate condom use with any partner
  - Number of sex work clients in the past month
  - Experience of violence from partners in the past 12 months
- Some evidence of difference
  - Knowledge of the HIV status of at least one of their three most recent partners
  - Condom-less sex with regular partner in the past month
  - Condom-less sex with client in the past month
  - Accessed STI treatment services in the past 12 months
- No evidence of difference
  - Knowledge of HIV status
  - Food insecurity
  - Selling sex is the main way to support myself
  - Ever been unable to decline sex in the past month
  - Experience of violence from police in the past 12 months

**NB:** Adjusted for age, highest level of education attained, marital status, self-identification as FSW (measured at baseline), and for each respective secondary outcome measured at baseline

# Summary & Interpretation

- HIV incidence lower in DREAMS (3.14 per 100 pyars) vs non-DREAMS (5.29 per 100 pyars) sites: Rate ratio 0.74 (0.43-1.29)
- Plausible that DREAMS contributed to reduced HIV incidence but our evaluation finds little statistical evidence for an effect as large as the 40% target reduction
- Identified changes to some important “pathway to impact” outcomes
- YWSS in DREAMS cities used clinical services for YWSS more over time than those in the comparison towns but few accessed non-clinical DREAMS services
- Most YWSS in DREAMS cities were offered PrEP, and about 1/3 self-reported initiating it but retention was suboptimal and HIV incidence similar to those who never started PrEP
- Need remains for approaches that effectively strengthen sustained use of integrated social and clinical services targeting determinants of HIV among this vulnerable population

# Acknowledgements

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## DREAMS Impact Evaluation

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Partners:

