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Subsequent and Recurrent Sexually Transmitted Infection (STIs)

among Thai Men Who Have Sex with Men (MSM) and Transgender Women (TG) in Test and Treat Cohort.

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BACKGROUND

- Sexual transmitted infections (STIs) constitute a major public health problem and have an impact in facilitating human immunodeficiency virus (HIV) transmission.
- Men who have sex with men (MSM) and transgender women (TG) are at increased risk for STIs.
- The information on the incidence and characteristic of those who have subsequent and recurrent STIs are lacking.

OBJECTIVE

- To determine incidence and risk factors associated with subsequent and recurrent STIs among MSM and TG.

METHODS

- Test and Treat cohort enrolled Thai adult MSM and TG with previously unknown HIV-status.
- STIs assessment includes pharyngeal swab, urine and anal swab for gonorrhea and chlamydia using NAAT; and blood test for syphilis using either VDRL or RPR with TPHA confirmation.
- Definition

  Recurrent STIs:
  - participants with ≥1 STI at baseline who tested positive for any STI during 24-month period follow-up visit.
  - participants with baseline syphilis who had 1) a 4-fold increase after initial 4-fold decrease in titer or 2) reactive result after turning non-reactive during 24-month period follow-up visit.

  Subsequent STIs:
  - participants who tested positive for any STI during 24-month period regardless of their baseline STI profile.
- Recurrent STIs were analyzed in participants who had ≥1 STI at baseline.
- Incidence of recurrent STIs was calculated per person-time using time to first event approach. Cox proportional hazards regression with 95% confidence intervals was used to identify potential predictors of incident recurrent STI among baseline covariates. Statistical significance was defined as p<0.05.

TABLE 1 DEMOGRAPHIC CHARACTERISTICS OF 448 MSM AND TG ENROLLED IN THE TEST AND TREAT STUDY.

CHARACTERISTIC	SUBSEQUENT STI					
	No (n=260)		Yes (n=188)		Total (n=448)	
	No.	%	No.	%	No.	%
Gender MSM	234	90	167	88.8	401	89.5
Mean age (SD) years	26.2 (6.5)		24.7 (6.1)		25.6 (6.3)	
Education						
Secondary school or below	14/237	5.9	13/169	7.7	27/406	6.7
High school or vocational certification	72/237	30.4	70/169	41.4	142/406	35
High vocational certification	10/237	4.2	7/169	4.1	17/406	4.2
Bachelor degree or higher	141/237	59.5	79/169	46.7	220/406	54.2
Employment status						
Unemployed	14/237	5.9	13/169	7.7	27/406	6.7
Student	95/237	40.1	79/169	46.7	174/406	42.9
Employed	128/237	54	77/169	45.6	205/406	50.5
Family monthly income (Thai Baht)						
<10,000 (<$289USD)	25/232	10.8	22/163	13.5	47/395	11.9
10,000-29,999 ($289-866 USD)	47/232	20.3	57/163	35	104/395	26.3
30,000-49,999 ($867-1443 USD)	47/232	20.3	33/163	20.2	80/395	20.3
50,000 or more ($1444 or more USD)	113/232	48.7	51/163	31.3	164/395	41.5
Marital status						
Single	154/237	65	111/169	65.7	265/406	65.3
Live with a male partner	83/237	35	58/169	34.3	141/406	34.7
Circumcision	23/224	10.3	16/158	10.1	39/382	10.2
Site						
Bangkok	203	78.1	134	71.3	337	75.2
Ubonratchathani	47	18.1	30	16	77	17.2
Lampang	1	0.4	6	3.2	7	1.6
Mahasarakham	9	3.5	18	9.6	27	6
Self-reported risk for HIV infection						
No Risk	44/237	18.6	25/169	14.8	69/406	17
Mild	87/237	36.7	50/169	29.6	137/406	33.7
Mod/High	106/237	44.7	94/169	55.6	200/406	49.3
Number of sexual partners in the past month						
No sexual intercourse	41/237	17.3	24/169	14.2	65/406	16
1	8/237	32.9	47/169	27.8	125/406	30.8
2	47/237	19.8	27/169	16	74/406	18.2
3-4	41/237	17.3	50/169	29.6	91/406	22.4
5 or more	30/237	12.7	21/169	12.4	51/406	12.6
Condomless receptive anal sex in the past month	81/225	36	80/160	50	161/385	41.8
Substance use in the past month	70/237	26.9	60/168	31.9	130/405	29
Alcohol	51/237	21.5	36/168	21.4	87/405	21.5
Amphetamine	7/237	3	9/168	5.4	16/405	4
Popper	16/237	6.8	17/168	10.1	33/405	8.1
HIV-positive	27	10.4	53	28.2	80	17.9
Gonorrhea at any site	24/252	9.5	30/182	16.5	54/434	12.4
Pharyngeal gonorrhea	16/251	6.4	12/181	6.6	28/432	6.5
Anal gonorrhea	10/209	4.8	16/172	9.3	26/381	6.8
Urethral gonorrhea	3/247	1.2	7/182	3.8	10/429	2.3
Chlamydia at any site	33/252	13.1	60/182	33	93/434	21.4
Pharyngeal chlamydia	3/251	1.2	17/181	9.4	20/432	4.6
Anal chlamydia	25/209	12	47/172	27.3	72/381	18.9
Urethral chlamydia	8/247	3.2	13/182	7.1	21/429	4.9
Syphilis	14	5.4	32	17	46	10.3
Self-reported STI in the past month						
No	171/237	72.2	102/169	60.4	273/406	67.2
Yes/Unsure	66/237	27.8	67/169	39.6	133/406	32.8

TABLE 2 MULTIVARIATE ANALYSIS OF RISK FACTORS OF SUBSEQUENT STIS AMONG MSM AND TG (N = 448).

COVARIATE	MULTIVARIATE		
	HR	95% CI	P-Value
Age below 25 years	1.34	0.91-197	0.136
Education less than bachelor degree	0.86	0.60-1.24	0.421
Income less than 30000 baht/month	1.54	1.06-2.23	0.023*
Site Bangkok	0.56	0.36-0.86	0.008*
Self-reported risk for HIV infection			
No risk	1		
Mild	1.03	0.58-1.82	0.917
Moderate to high	0.94	0.52-1.69	0.844
Multiple sexual partners	1.13	0.78-1.63	0.528
Had condomless receptive anal sex	1.06	0.71-1.56	0.784
Use of popper	1.99	1.10-3.6	0.023*
HIV-positive	1.72	1.13-2.62	0.011*
Anal gonorrhea	0.96	0.54-1.72	0.901
Pharyngeal chlamydia	1.20	0.64-2.27	0.569
Anal chlamydia	2	1.29-3.09	0.002*
Syphilis	1.88	1.14-3.1	0.013*
Self-reported or unsure of STI in the past month	1.58	1.10-2.26	0.013*

TABLE 3 MULTIVARIATE ANALYSIS OF RISK FACTORS OF RECURRENT STIS AMONG MSM AND TG (N = 154).

COVARIATE	MULTIVARIATE		
	HR	95% CI	P-Value
Income less than 30000 baht/month	1.6	0.99-2.57	0.054
Circumcision	2.2	1.12-4.32	0.021*
HIV-positive	1.8	1.14-2.85	0.012*
Pharyngeal gonorrhea	0.65	0.33-1.28	0.211
Pharyngeal chlamydia	1.6	0.86-2.97	0.138
Syphilis	1.44	0.87-2.37	0.153

FIGURE 1 INCIDENCE OF SUBSEQUENT STI AMONG 448 MSM AND TG IN TEST AND TREAT STUDY DURING 24-MONTH PERIOD OF FOLLOW-UP.

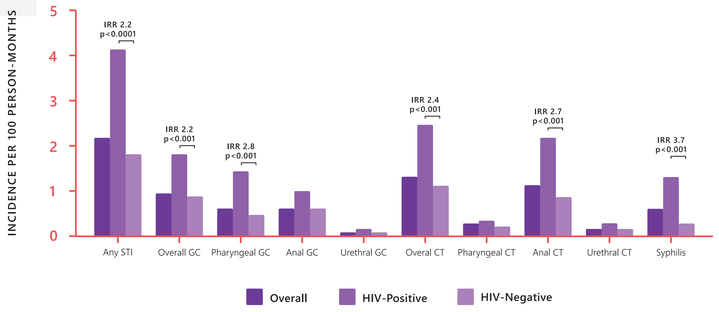
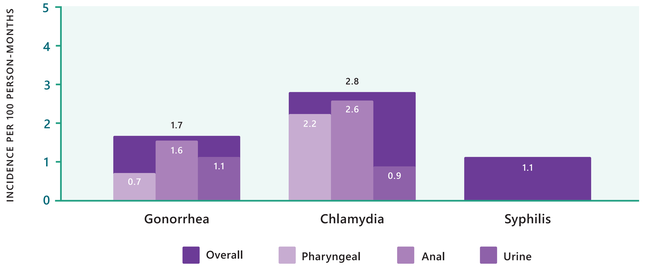


FIGURE 2 INCIDENCE OF REACQUIRING THE SAME STI AS PREVIOUSLY HAD AT BASELINE.



RESULTS

- Demographic characteristic of all participants is presented in Table 1.
- Among 448 participants, subsequent STIs incidence was 2.2 per 100 person-months, with anal chlamydia, pharyngeal and anal gonorrhea, and syphilis as the most common infections (Figure 1).
- Of 448 participants, 154 (34.4%) had baseline STI. Those with baseline anal chlamydia, pharyngeal chlamydia, and anal gonorrhea had the highest incidence of reacquiring the same STI (Figure 2).
- In multivariate analysis, baseline HIV-positive status is associated with increased risk of both subsequent and recurrent STIs (Table 2 and 3).

CONCLUSIONS

- HIV-positive status at first visit increased the risk by almost 2-fold for both subsequent and recurrent STIs over a 24-month period among Thai MSM and TG enrolled into the Test and Treat study.
- Targeted STIs educational campaigns and increased frequency of STI screening for earlier diagnosis and treatment are needed to improve STIs outcome among MSM and TG in both HIV prevention and treatment programs.

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