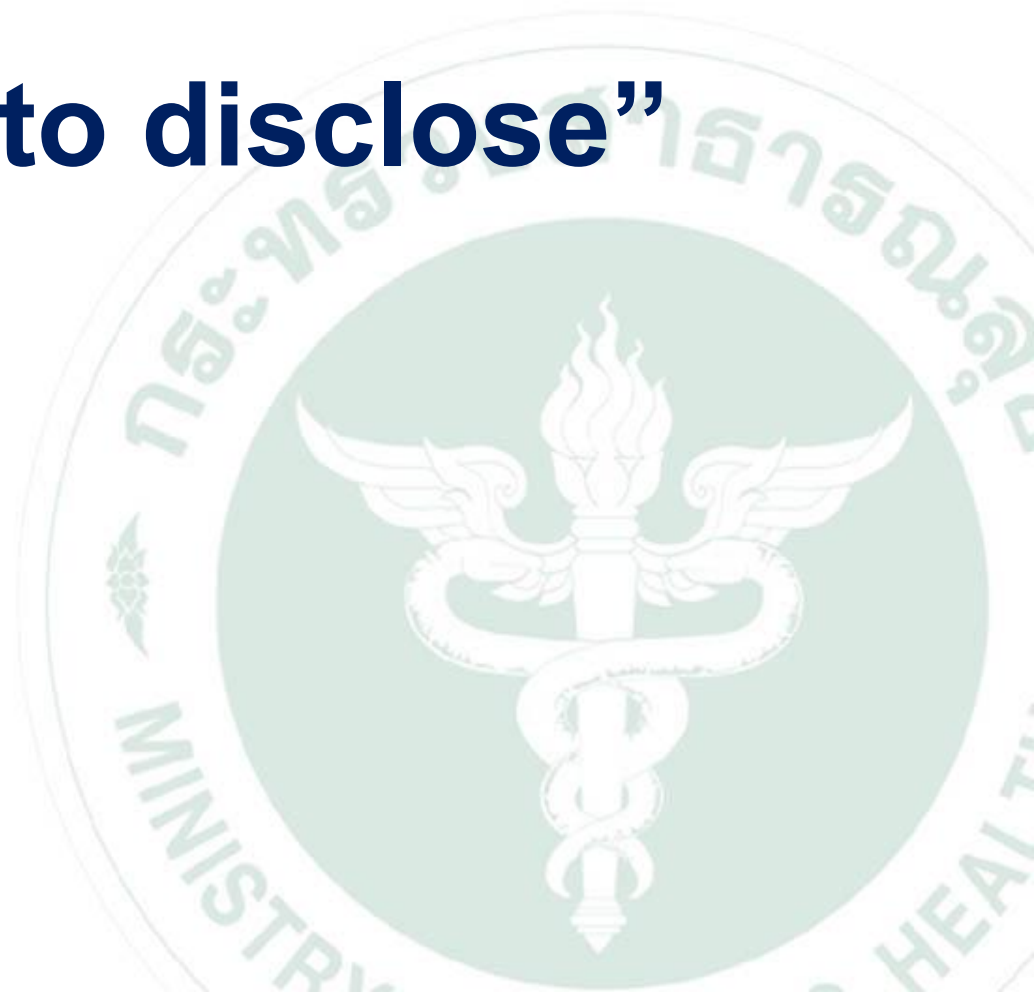


The effects of human papillomavirus (HPV) vaccination on the persistence of high-risk HPV infection and abnormal cervical cytology among sexually active female adolescents with and without perinatally acquired HIV

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“nothing to disclose”



Background

A study monitoring human papillomavirus (**HPV**) infection among sexually active females with and without perinatally acquired HIV (**PHIV**) was conducted between 2013-2017 in Thailand and Vietnam.

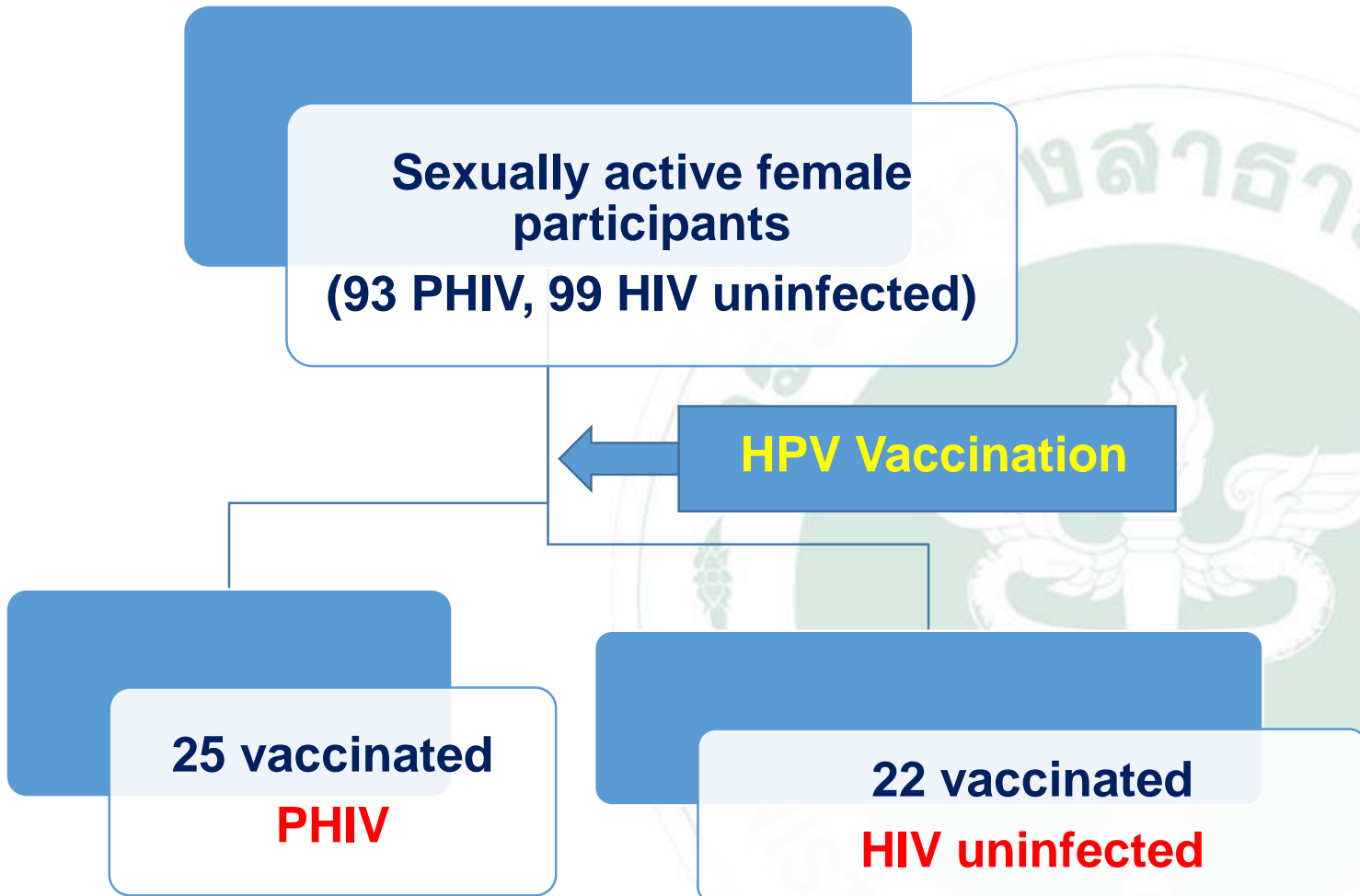
While all youth were **unvaccinated at enrollment**, some subsequently received HPV vaccine outside of the study.

This analysis examines the impact of HPV vaccination within our cohort.

Inclusion criteria

Female study participants between 12-24 years of age were matched by age and lifetime number of sexual partners

Material & Methods (1)



Material & Methods (2)

- All participants had **baseline** (enrolment) and **annual follow-up** visits
 - Assessments of sexual and other risk behaviors, blood and urine pregnancy testing, oral and anogenital HPV testing
- Infection with any high-risk (**HR**) HPV infection was defined as having **>1 HR-HPV genotype** detected in any anogenital site (anus, cervix, vagina)
 - HPV types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68

Material & Methods (3)

- **Persistence** was defined as detection of the same HR-HPV genotype(s) at any anogenital compartment over **≥ 2 consecutive visits**
- Factors associated with persistence were assessed using generalized estimating equations (GEE) with Poisson distribution and calculated prevalence ratio (PR)
- GEE with logistic function was used to calculate odds ratios (OR) for factors associated with **abnormal cervical cytology**
 - Ranging from atypical squamous cells of undetermined significance to high-grade squamous intraepithelial lesion

Results

- Of the **192** females (93 PHIV, 99 HU) enrolled, median age was 19 (interquartile range [IQR] 18-20) years.
 - 92% from Thailand, 8% from Vietnam.
- Among PHIV at enrollment, the median CD4 was 593 (IQR 392-808) cells/mm³ and 65% had HIV-RNA <50 copies/ml.
- The median pre-vaccination follow-up was 2.63 (IQR 1.04-2.74) years for 192 participants and post-vaccination follow-up was 2.74 (IQR 1.72-3.18) years **for 47 HPV-vaccinated participants.**

Table 1: Patient characteristics at enrolment

Baseline Characteristics	PHIV	HU	Total	P
	93	99	192	
HPV vaccination				
Non-vaccinated	68 (73)	77 (78)	145 (76)	0.45
Vaccinated	25 (27)	22 (22)	47 (24)	
Median (IQR) age, years	19 (18-20)	19 (17-20)	19 (18-20)	0.27
Pregnancy history, n (%)	31 (33)	44 (44)	75 (39)	0.115
Alcohol use, n (%)	72 (77)	90 (91)	162 (84)	0.01
Cigarette smoking, n (%)	27 (29)	44 (45)	71 (37)	0.02
Substance use, n (%)	7 (8)	19 (19)	26 (14)	0.02
Amphetamine-type stimulants	5 (5)	13 (13)	18 (9)	0.09
Median (IQR) number of lifetime sex partner	2 (1-3)	2 (1-3)	2 (1-3)	0.76
Median (IQR) number of sex partners, past 6 months	1 (1-1)	1 (1-1)	1 (1-1)	0.74
History of STIs, n (%)	24 (26)	16 (16)	40 (21)	0.10
STIs, laboratory-diagnosed, n (%)	26 (28)	25 (25)	51 (27)	0.67
Syphilis	2 (2)	2 (2)	4 (2)	0.99
Chlamydia	24 (26)	20 (20)	44 (23)	0.39
Gonorrhoea	5 (5)	0 (0)	5 (3)	0.03
Herpes simplex virus type 2	0 (0)	3 (3)	3 (2)	0.25
HPV genotype, n (%)				
Any High-risk HPV	56 (60)	45 (45)	101 (53)	0.04
7-HR-HPV of 9-valence vaccine	43 (46)	39 (39)	82 (43)	0.34
HPV 16 and/or 18	24 (26)	28 (28)	52 (27)	0.70
Cervical cytology, n (%)				0.001
Abnormal	31 (33)	16 (16)	47 (25)	
ASC-US	11 (12)	14 (14)	25 (13)	
ASC-H	1 (1)	0 (0)	1 (1)	
LSIL	18 (19)	1 (1)	19 (10)	
HSIL	1 (1)	1 (1)	2 (1)	
normal	62 (67)	83 (84)	145 (75)	

Figure 1: Probability of any HR-HPV incidence

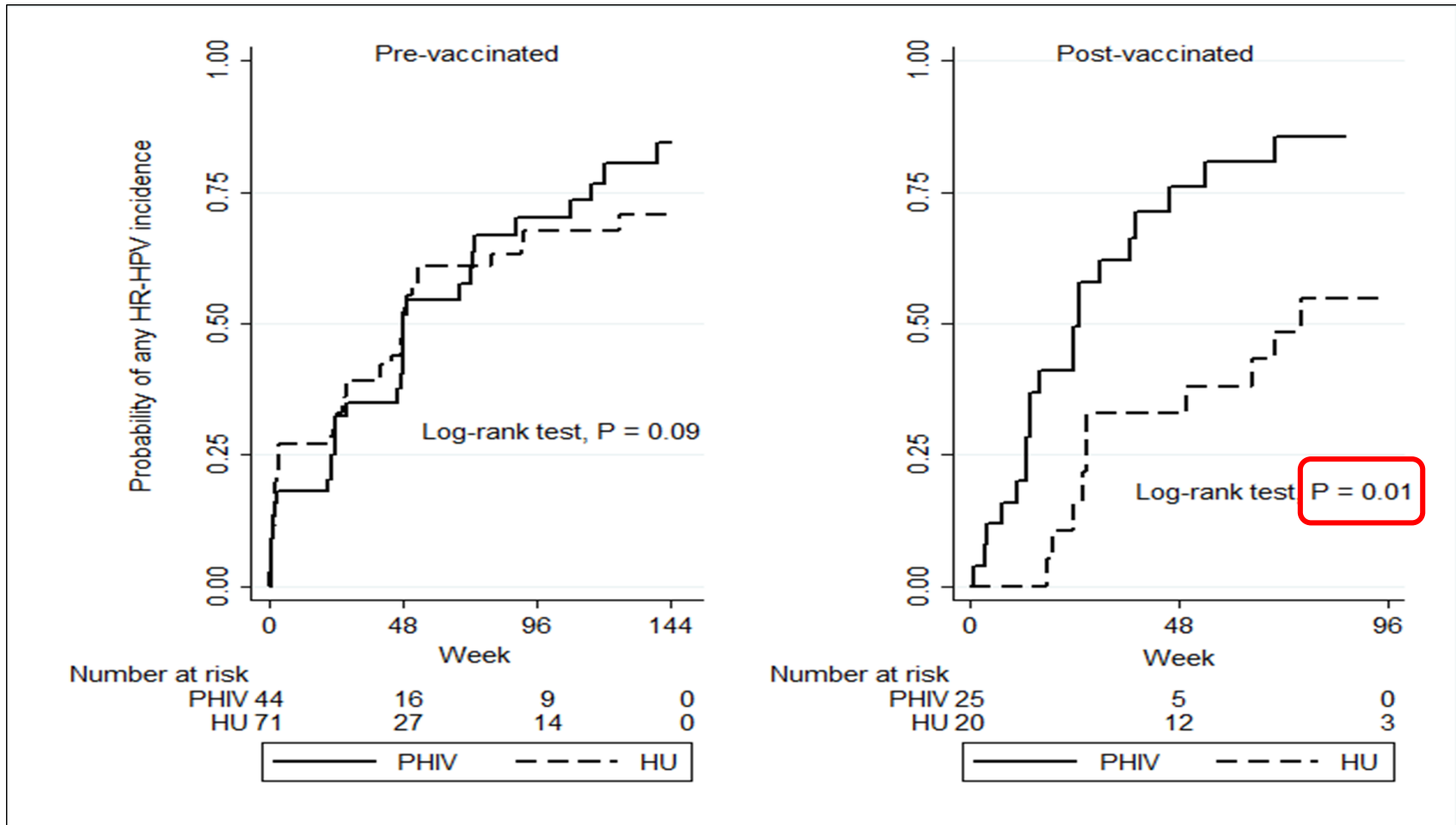


Figure 2: Probability of abnormal cervical cytology incidence

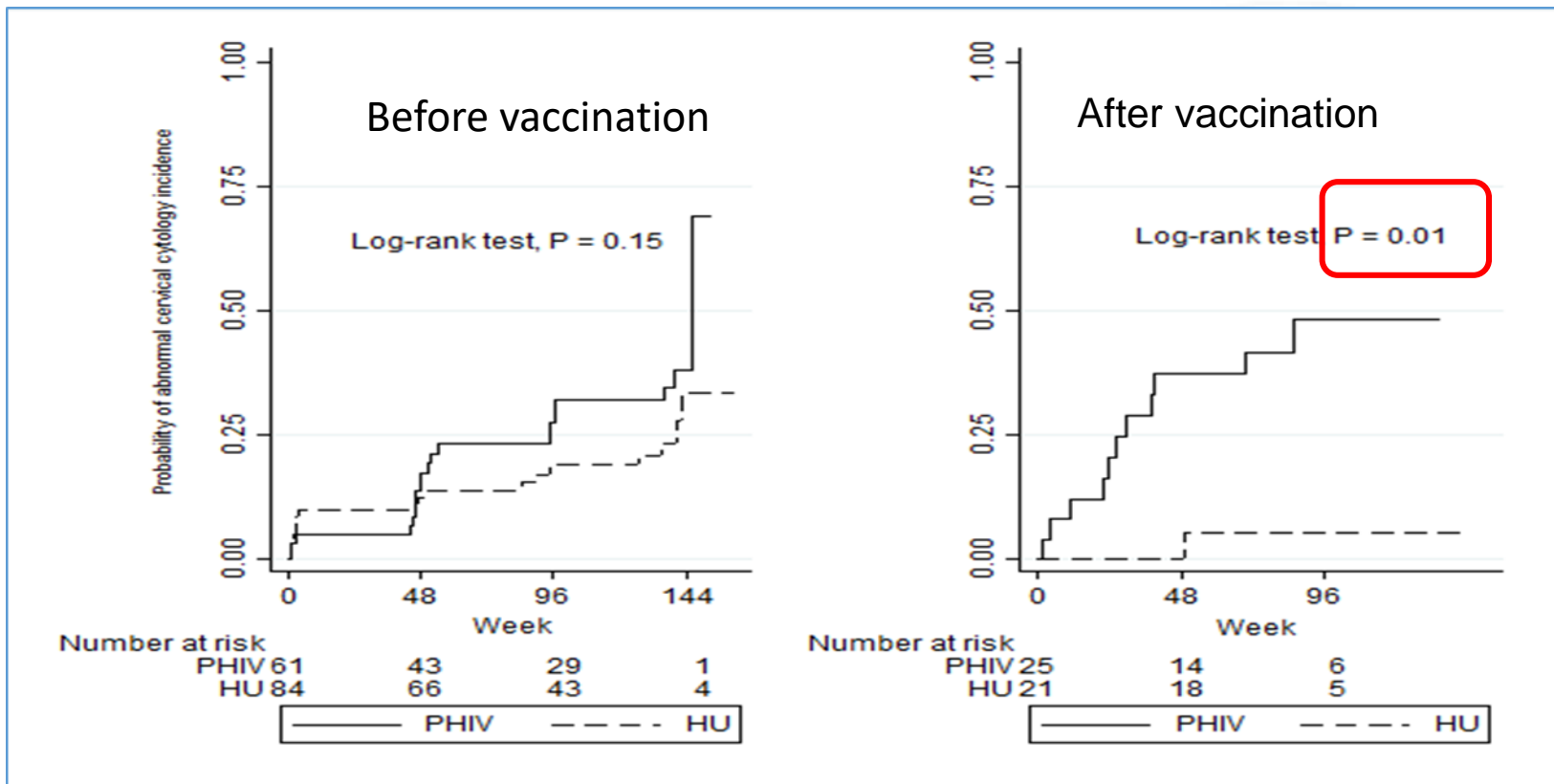


Table 2: Factors associated with persistence of any HR-HPV and abnormal cervical cytology

Characteristics	Multivariate (Persistence of any HR-HPV)		Multivariate (abnormal cervical cytology)	
	aPR (95%CI)	P	aOR (95%CI)	P
HIV status		<0.001		<0.001
HIV-uninfected	ref		ref	
Perinatally HIV-infected	2.31 (1.45-3.67)		2.95 (1.77-4.92)	
Vaccination		0.003		
Non-vaccinated	1.19 (1.06-1.33)		NA	
Vaccinated	ref		NA	
Any HR-HPV				<0.001
Yes	NA		2.59 (1.65-4.06)	
No	NA		ref	

Those who were **not vaccinated** were more likely to have **persistent** anogenital infection with any **HR-HPV** type.

Conclusions

- We observed higher **post-vaccination** rates of incident and persistent anogenital HR-HPV infection, as well as **abnormal and persistent** cervical cytology among **PHIV** than HU
- Despite **not** receiving HPV vaccination until after initiating sexual activity, vaccinated female youth in our study had **significantly** reduced persistent infection with HR-HPV genotypes.
- HPV vaccination should be promoted for all children and adolescents, and prioritized for those with **HIV**.



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“Thank you”

