

High HIV Incidence and HBV Vaccination Uptake in a Preparatory Cohort Study among Men Who Have Sex with Men in Bangkok, Thailand, 2006-2008

Timothy H. Holtz, MD, MPH

HIV/STD Research Program Director

Thailand MOPH – US CDC Collaboration

Bangkok, Thailand

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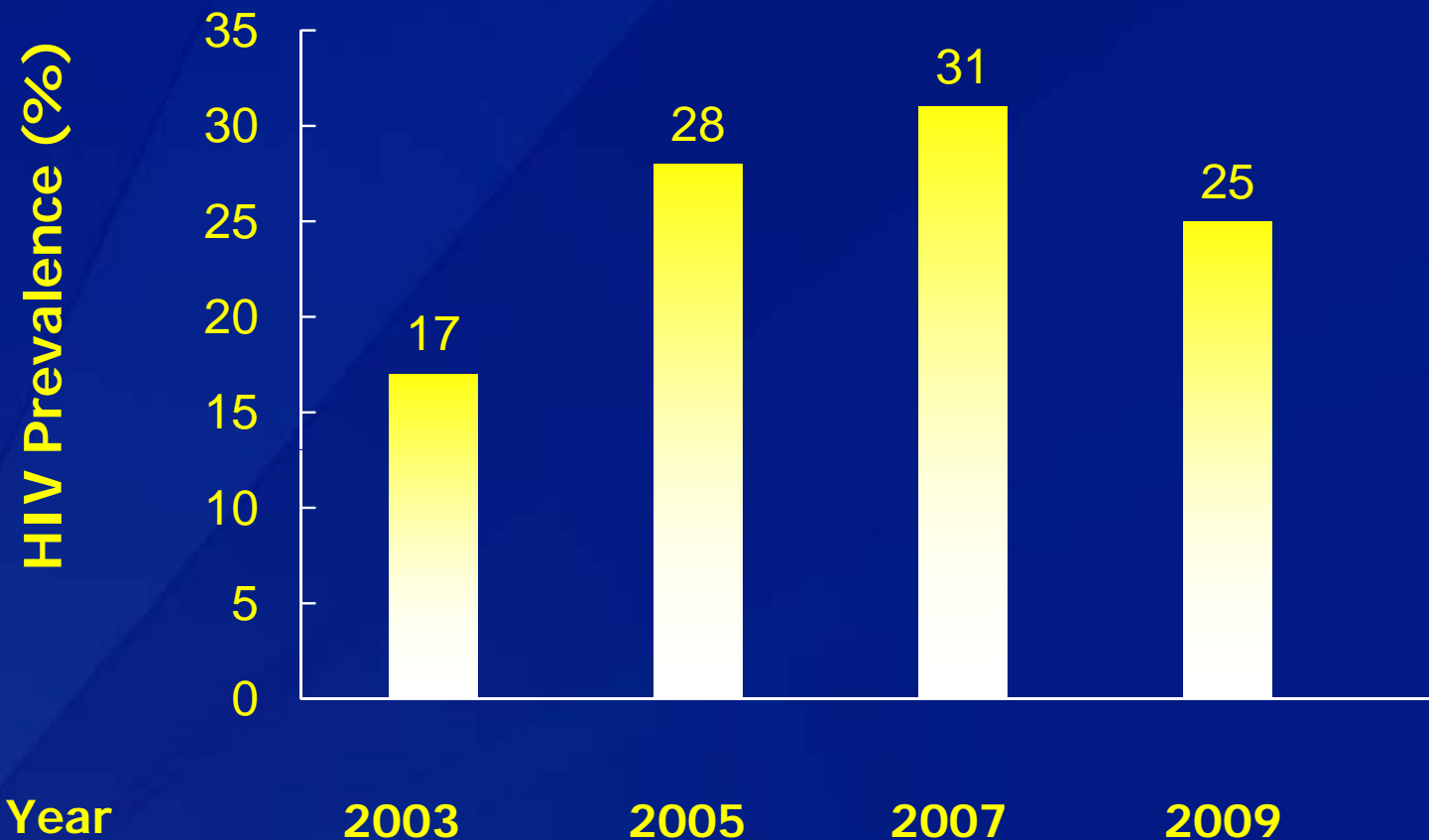
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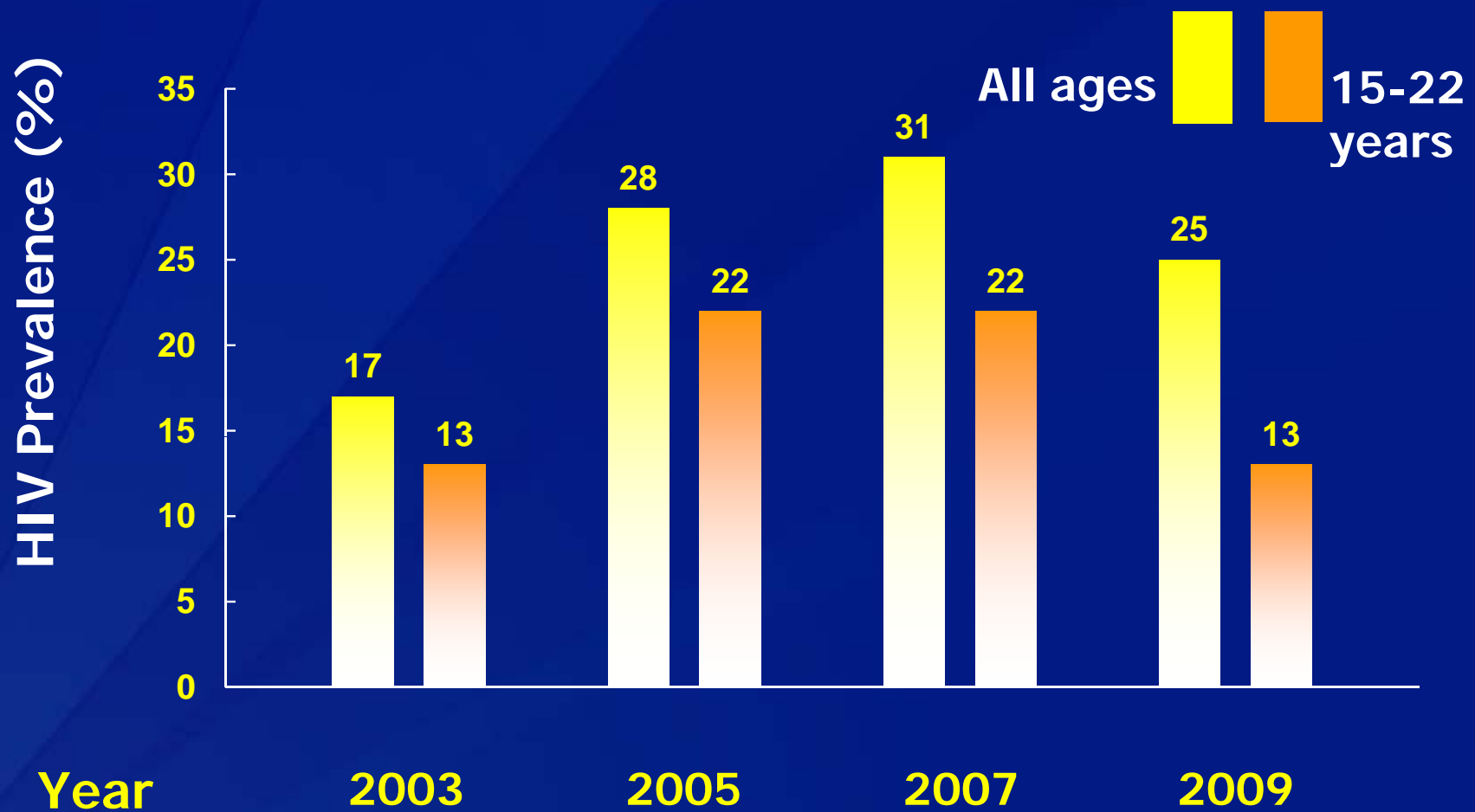
Division of HIV/AIDS Prevention



Background: HIV Prevalence Among MSM in Bangkok, 2003 - 2009



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THE COHORT STUDY



BANGKOK MEN WHO HAVE SEX WITH MEN



Objectives

- ❑ Assess prevalence of HIV and other STIs
- ❑ Assess incidence of HIV and other STIs
- ❑ Determine baseline and incident HIV-1 subtypes
- ❑ Assess Hepatitis B virus (HBV) prevalence
- ❑ Calculate HBV vaccination uptake
- ❑ Determine follow-up rates among Thai MSM cohort population

Study Design

- ❑ Longitudinal cohort study with 3-5 years of follow up at 4 monthly intervals
- ❑ 17% HIV prevalence, 3% incidence, 95% CI +/-1%
- ❑ Sample size of ~1,350 men
- ❑ Recruitment from community, MSM venues, and Internet
- ❑ Eligibility determined at first visit, followed by informed consent and baseline behavioral questionnaire using audio-computer-administered self-interview (ACASI)

Eligibility Criteria

- ❑ Thai National
- ❑ Male at birth
- ❑ Resident of Bangkok
- ❑ At least 18 years of age
- ❑ Anal or oral sex with another man in the preceding six months
- ❑ Availability and commitment for at least 36 months of follow-up at 4 month intervals

Methods - Testing

- ❑ **Prevalence of HIV and sexually transmitted infections**
 - Baseline HBV infection determined by serology
 - HIV-1 subtypes determined by MHA
- ❑ **At every study visit**
 - All men completed ACASI questionnaire and received risk reduction counseling
 - HIV negative men were tested for HIV infection using oral fluid, confirmed with three rapid tests. Some were tested for acute infection using nucleic acid and 4th generation EIA
 - HIV positive men underwent CD4 and viral load evaluation
- ❑ **Those who were susceptible to HBV were offered vaccine, free of charge**

Statistical Analysis

- ❑ HIV prevalence (number HIV positive / total number enrolled x 100)
- ❑ STI prevalence
- ❑ Kaplan-Meier analysis to estimate cumulative HIV incidence
- ❑ Multivariable analysis of factors associated with prevalent and incident HIV infection
- ❑ Descriptive data on HIV-1 subtyping
- ❑ Descriptive statistics on HBV prevalence, vaccination, and study follow up

Results



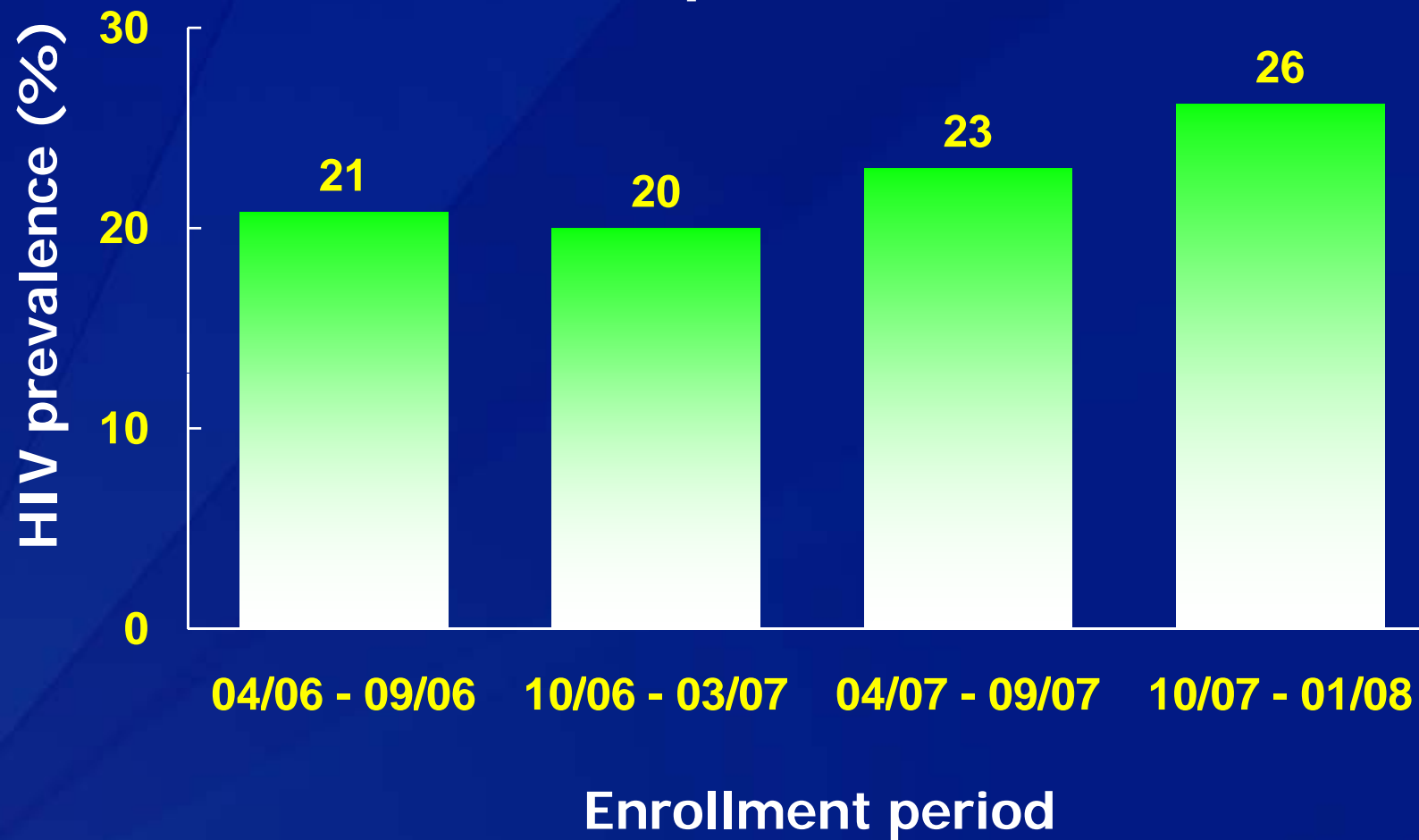
Baseline Demographic Characteristics

April 2006 – January 2008, N=1,292

Characteristic	%
Age group	
- 18-21	19
- 22-29	54
- 30 and over	27
- Mean age (SD)	27
Education	
- Primary or less	3
- Secondary - Vocational	43
- Technical - University	54
Living situation	
- With family	38
- Away from family	62
Employment status	
- Working only	57
- Studying	38
- Unemployed	5

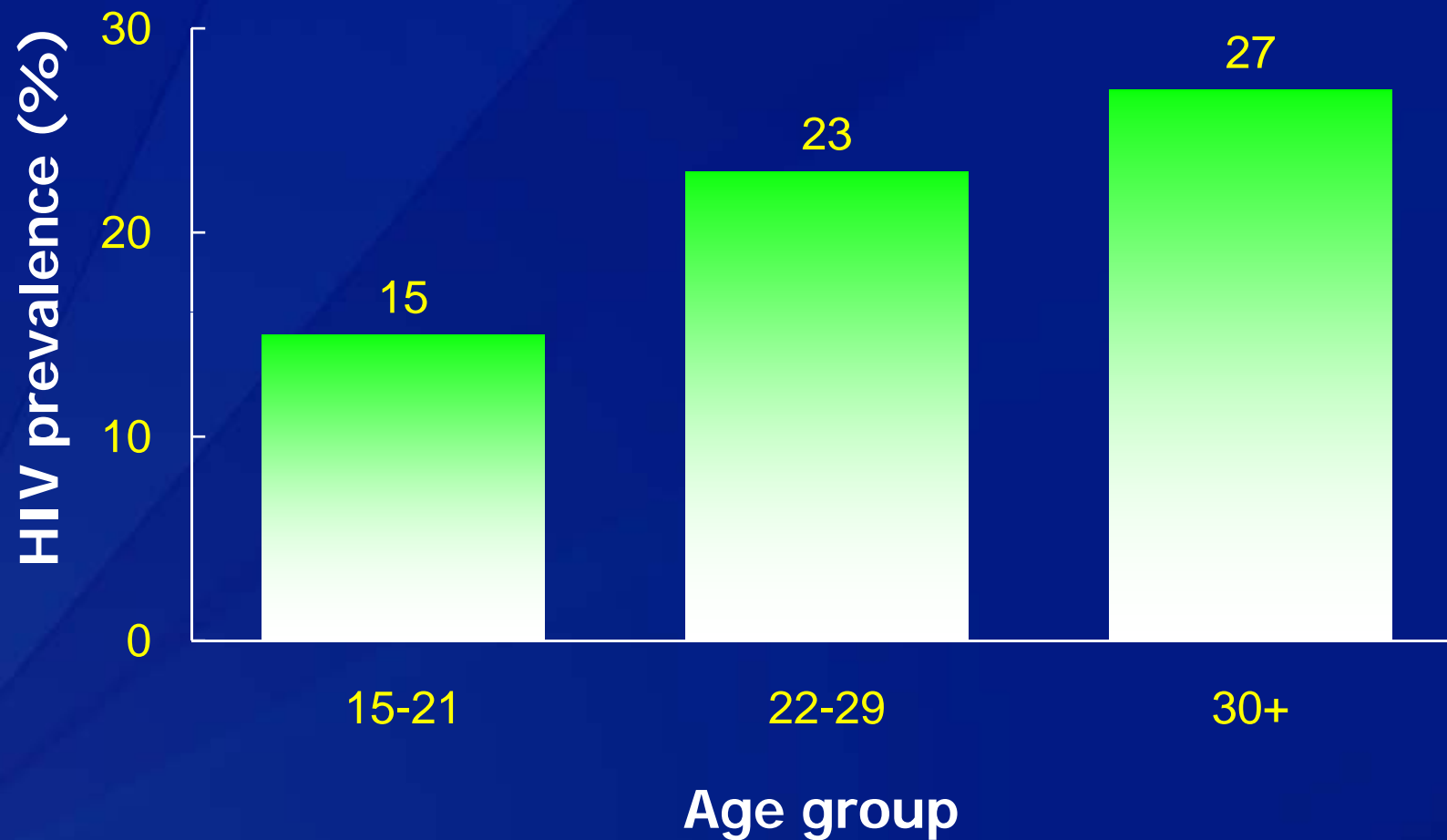
HIV Prevalence at Baseline by Enrollment Period

Overall HIV prevalence 22.4%



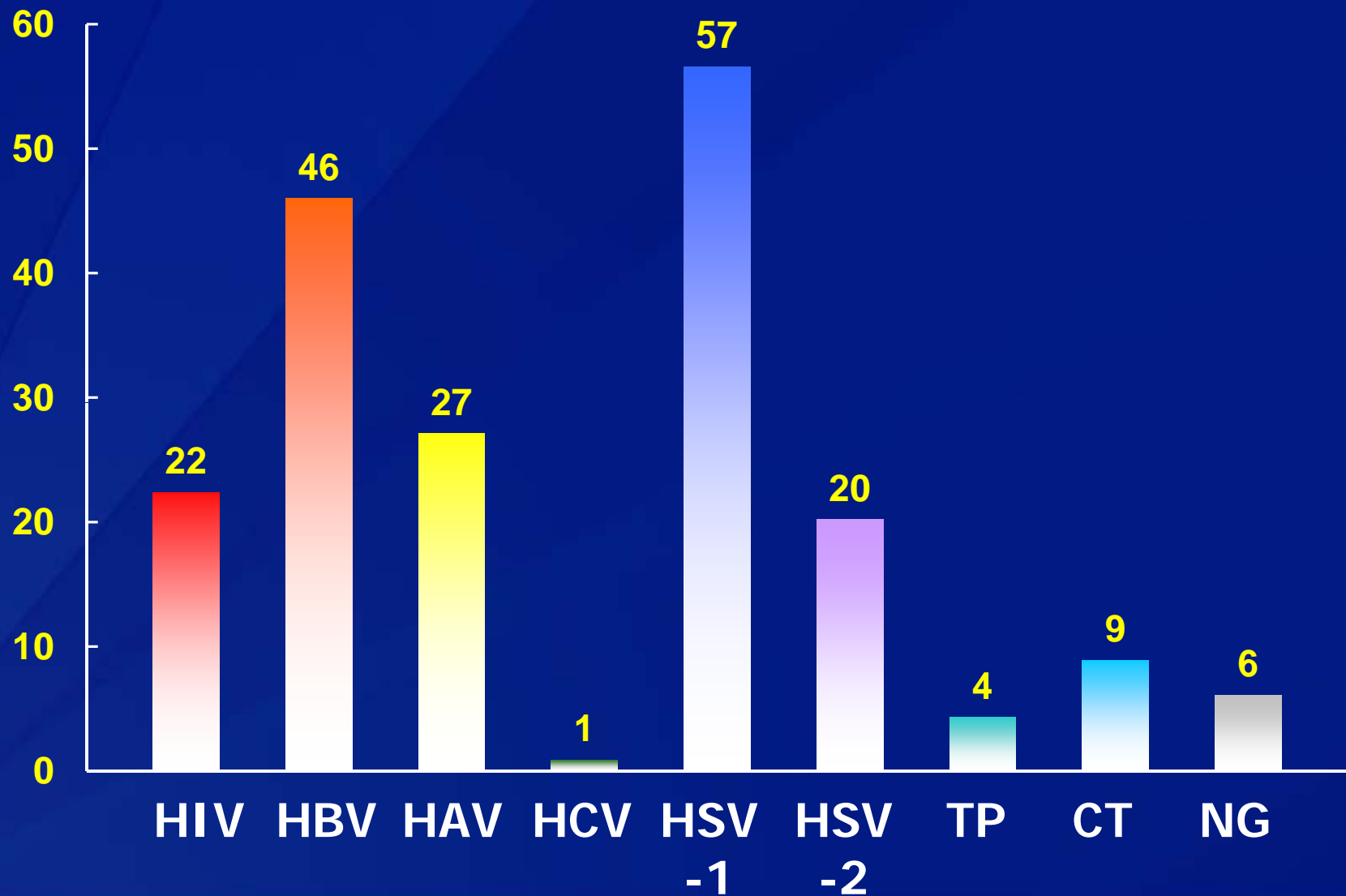
HIV Prevalence at Baseline by Age Group

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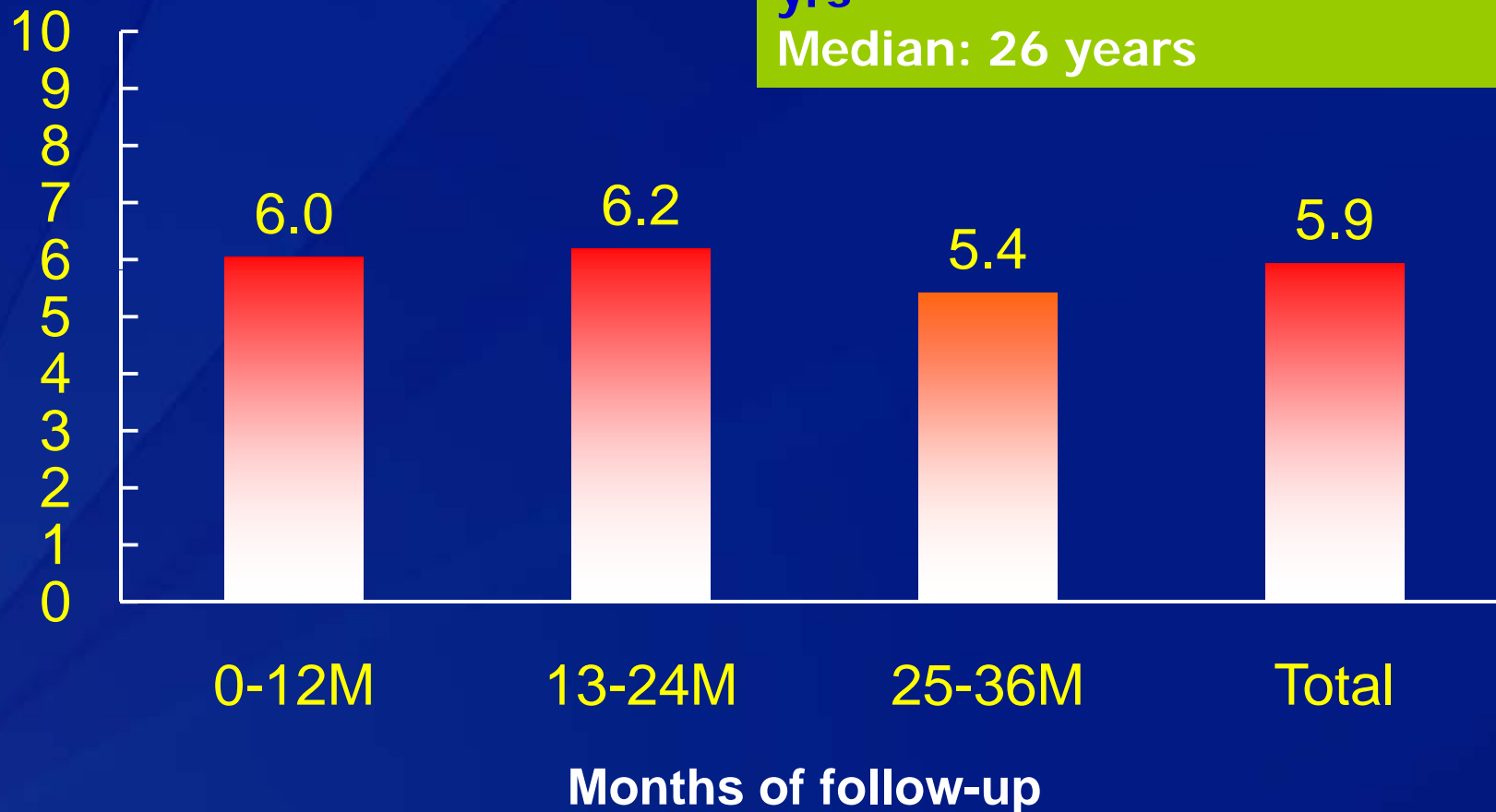
Prevalence of HIV and Sexually Transmitted Infections at Baseline

% infected



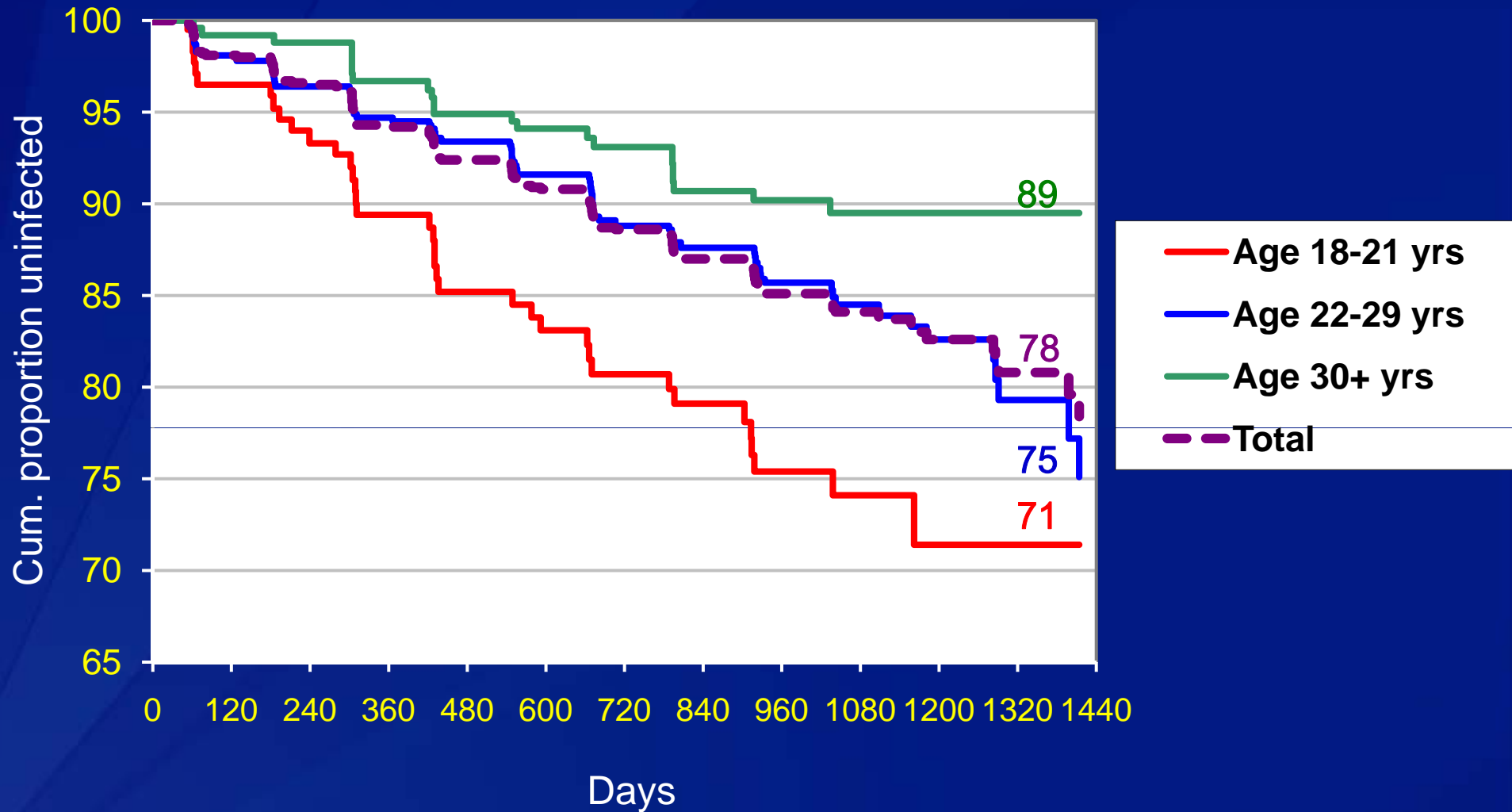
Yearly HIV Incidence Density in the HIV Negative Fraction of the Cohort

Per 100 person-years



Number of seroconversions: 135
Mean age at seroconversion: 26.4 yrs
Median: 26 years

Cumulative HIV Incidence (Kaplan-Meier) in the HIV Negative Fraction of the Cohort



Multivariable Analysis of Risk Factors for Prevalent and Incident HIV infection

	Prevalent HIV OR (95% CI)	Incident HIV HR (95% CI)
Age group (years)		
18-21	1.00	2.70 (1.58-4.62)
22-29	2.27 (1.42-3.63)	1.65 (1.02-2.66)
30+	3.24 (1.90-5.53)	1.00
Education		
Primary or lower	2.36 (1.05-5.33)	
Secondary - Vocational	1.94 (1.38-2.72)	
Technical - University	1.00	
Use drugs for sexual pleasure (4M)		
No	1.00	1.00
Yes	2.30 (1.58-3.35)	2.95 (1.78-4.88)
Anal sex position with male (usual)		
Insertive only	1.00	1.00
Receptive only or both	1.48 (1.05-2.08)	1.86 (1.24-2.78)
Condom use with male partners (4M)		
No anal sex partner		1.00
Not always		5.30 (1.29-21.77)
Always		2.76 (0.67-11.36)

Multivariable Analysis - Continued

	Prevalent HIV OR (95% CI)	Incident HIV HR (95% CI)
Coerced into sex		
Never	1.00	
Ever	1.52 (1.05-2.19)	
History of HIV test		
Ever	1.00	
Never	1.59 (1.16-2.19)	
Rectal N <i>gonorrhoea</i>*		
No	1.00	
Yes	2.36 (1.36-4.07)	
HSV-2 antibody*		
No	1.00	1.00
Yes	3.68 (2.63-5.15)	1.63 (1.06-2.49)
T pallidum antibody*		
No	1.00	1.00
Yes	2.34 (1.22-4.51)	2.50 (1.23-5.11)

*at baseline

Performance of HIV-1 Subtyping*

Characteristics	Seroprevalent cases†	Seroincident cases‡	Total
Samples tested	278/290	99	377
Amplifiable and typeable (%)	230/278 (82.7)	97*/99 (97.9)	327 (86.7)
Amplifiable but non-typeable (%)	34/278 (12.2)	0*/99 (0)	34 (10.4)
Non-amplifiable (%)	14/278 (5.0)	2/99 (2.0)	16 (4.2)

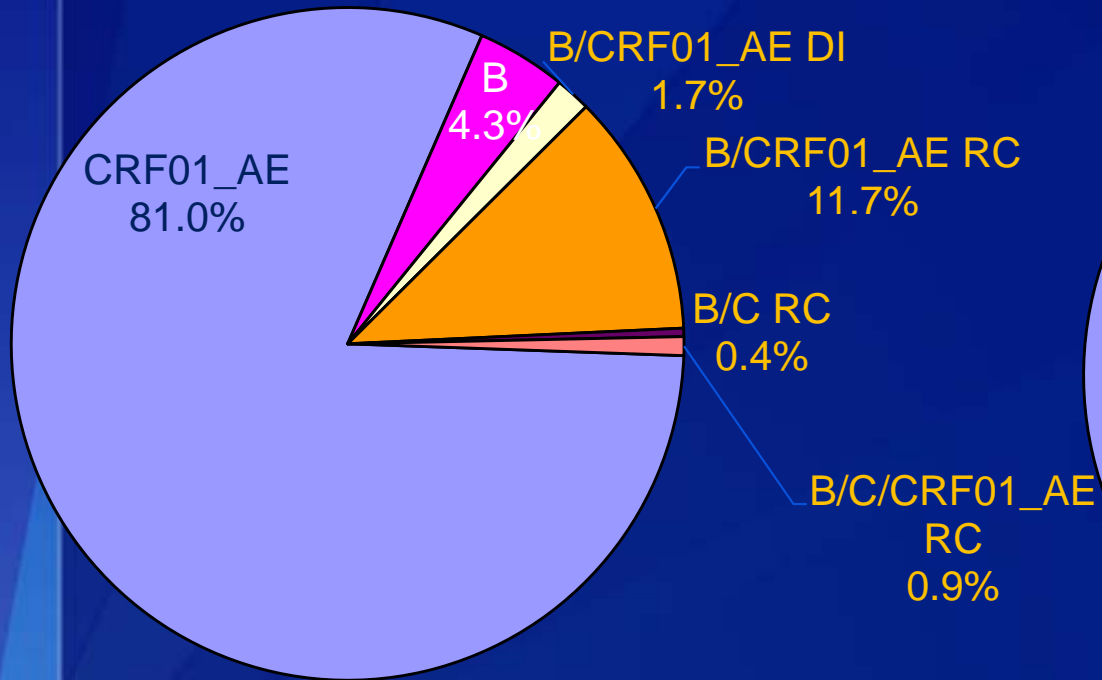
* All recombinant and non-typeable samples from seroincident cases were further characterized by regional sequencing

† Sufficient and stored specimens available and amplifiable

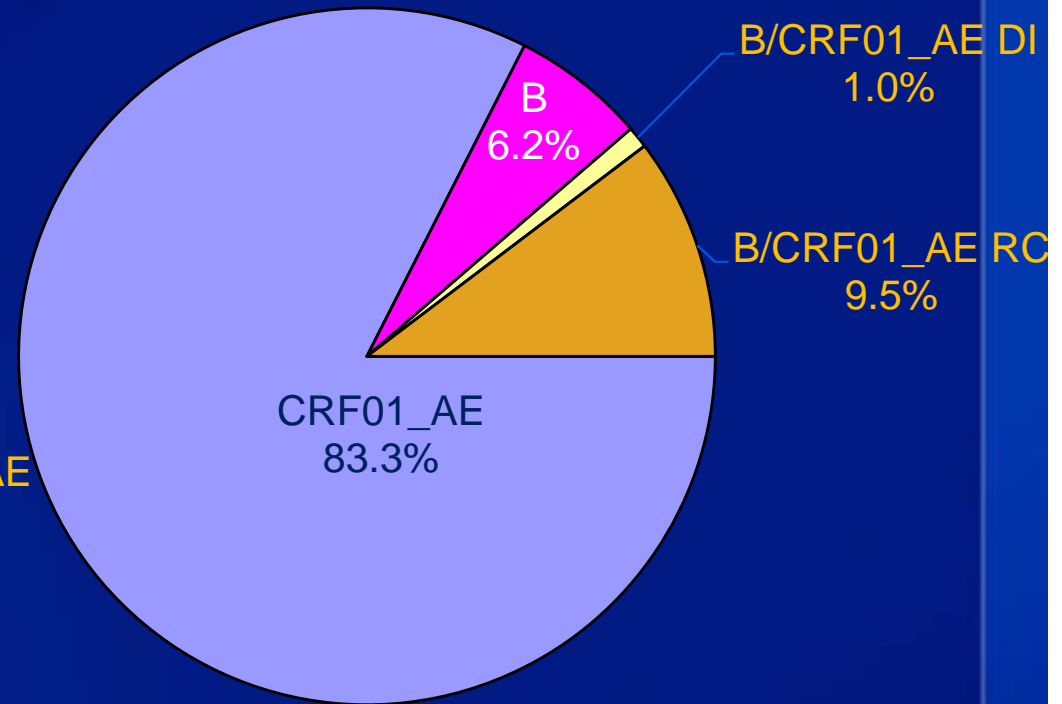
‡ New HIV infections were typed through January 2009

HIV-1 Subtypes

**Seroprevalent
(N = 230)**



**Seroincident
(N = 97)**



HBV Status

N = 1289*

Status	n	%
Evidence of past infection (presence of anti-HBc)	598	46.3
Evidence of prior vaccination (isolated anti-HBs)	103	8.0
Acute infection (HBsAg+)	15	1.2
Not determined	1	0.1
HBV susceptible	572	44.4

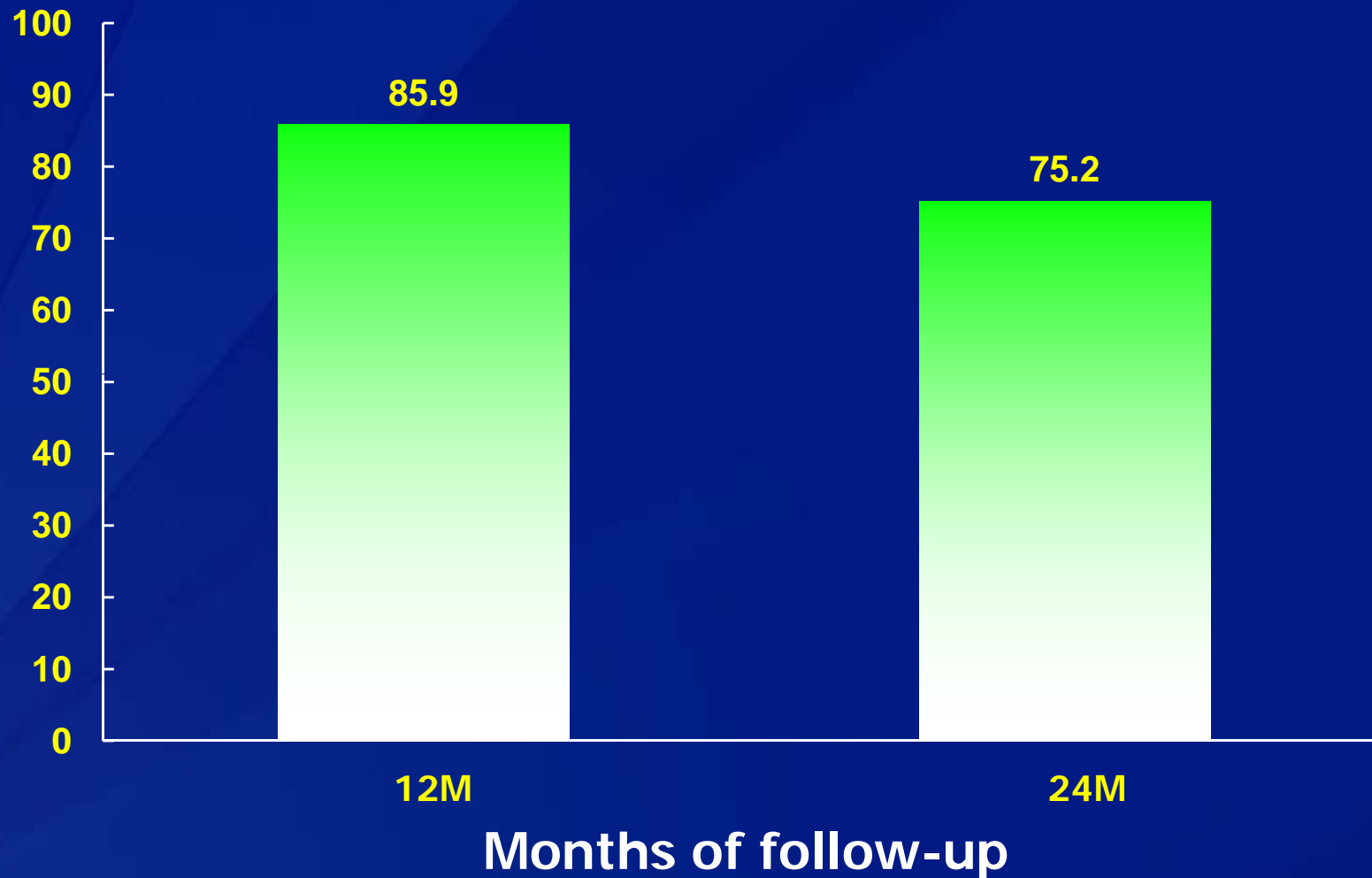
* No blood specimens available for 3 men at baseline

HBV Vaccination

- ❑ 572 men eligible for vaccination
- ❑ 506 (88.5%) received the 1st dose
- ❑ Among the 1st dose recipients
 - 488 (96.4%) received the 2nd dose
 - 470 (92.8%) received the 3rd dose

Follow-up Rates in the HIV Negative Fraction of the Cohort

Follow-up rate



Conclusions

- ❑ A preparatory HIV cohort study was successfully started among MSM in Bangkok
- ❑ High HIV prevalence and continuing high HIV incidence
- ❑ Older age, lower educational level, and concurrent STIs associated with prevalent HIV infection
- ❑ Younger age, lack of condom use associated with incident HIV infection
- ❑ Drug use, receptive anal intercourse (RAI), HSV-2, and *T. pallidum* associated with both incident and prevalent infection
- ❑ Known and stable subtypes circulating in the Thai MSM population, & very homogenous
- ❑ High HBV vaccination uptake
- ❑ High follow-up rates in the cohort

CDC Thailand Coauthors

- ❑ Frits van Griensven
- ❑ Wannee Chonwattana
- ❑ Warunee Thienkrua
- ❑ Janet McNicholl
- ❑ Wipas Wimonsate
- ❑ Supaporn Chaikummao
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