



Disease Burden of HPV & Vaccination in Hong Kong

Dr. Yu Chak-Man

Vice-chairman, The Hong Kong Paediatric Society

31 st January, 2008



香港兒科基金
The Hong Kong Paediatric Foundation

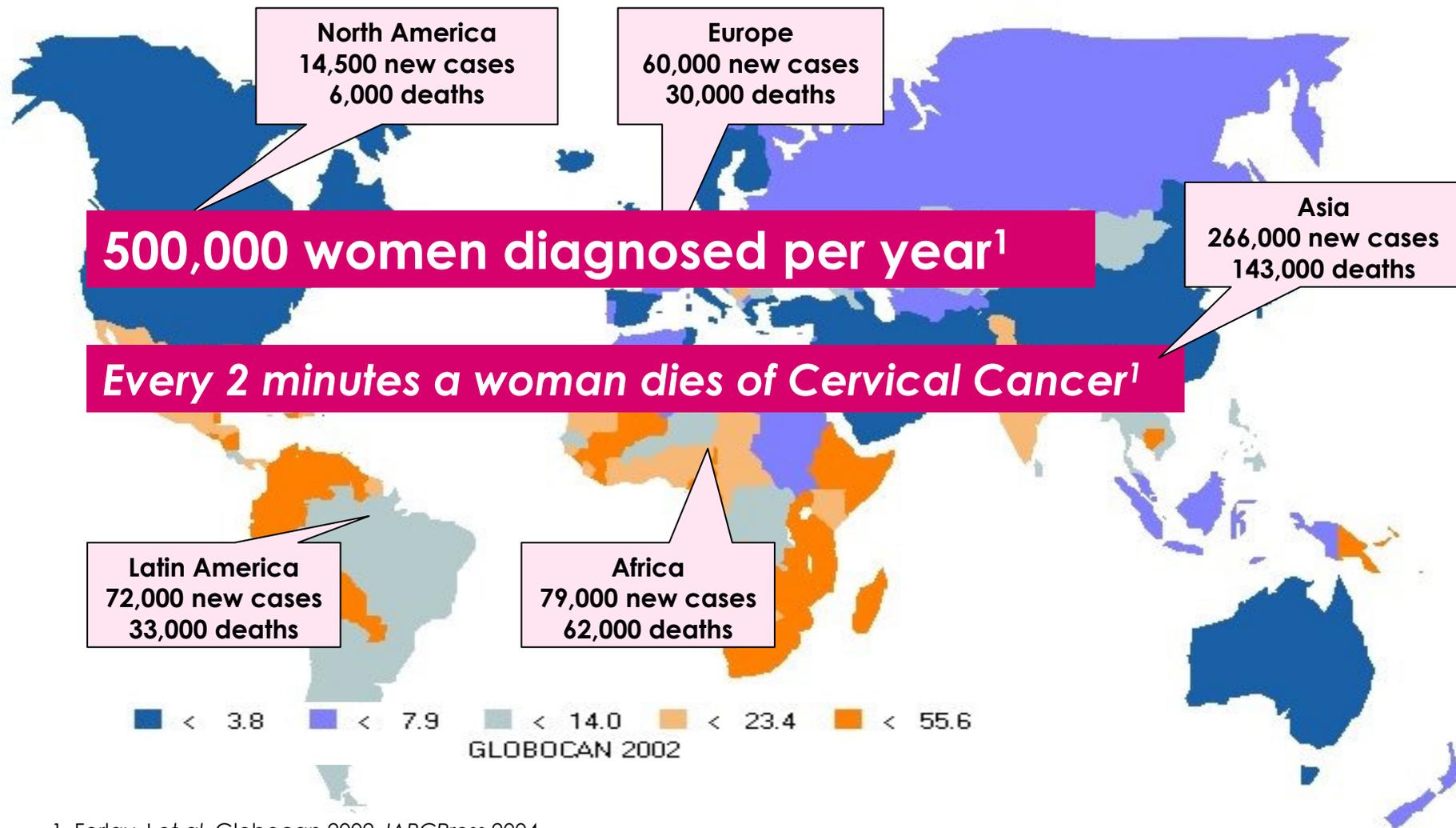


Prevalence of Cervical Cancer in Hong Kong



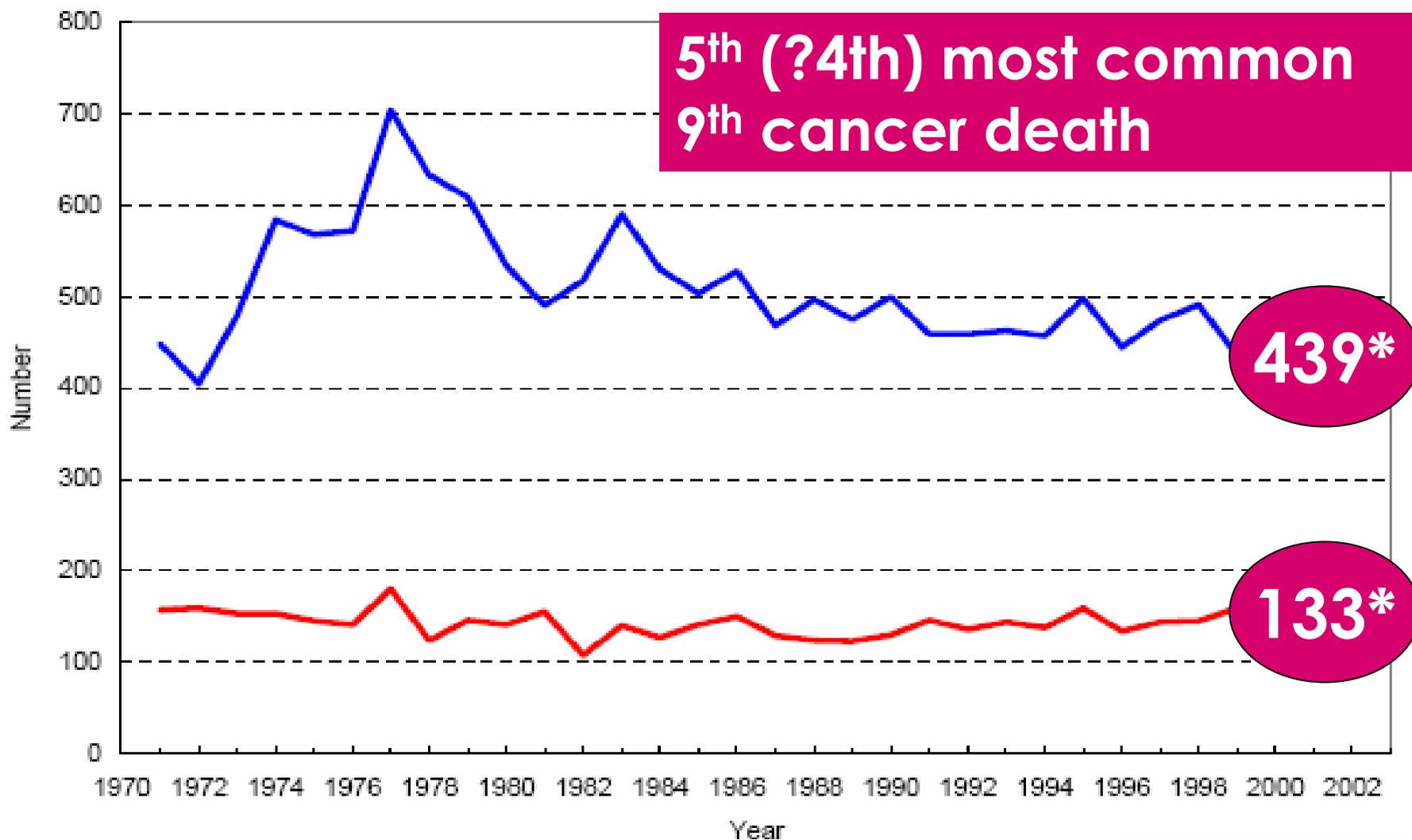
Cervical cancer mortality rates worldwide

Cases per 100,000 women per year



1. Ferlay J et al. Globocan 2002. IARC Press 2004

Cervical Cancer in Hong Kong



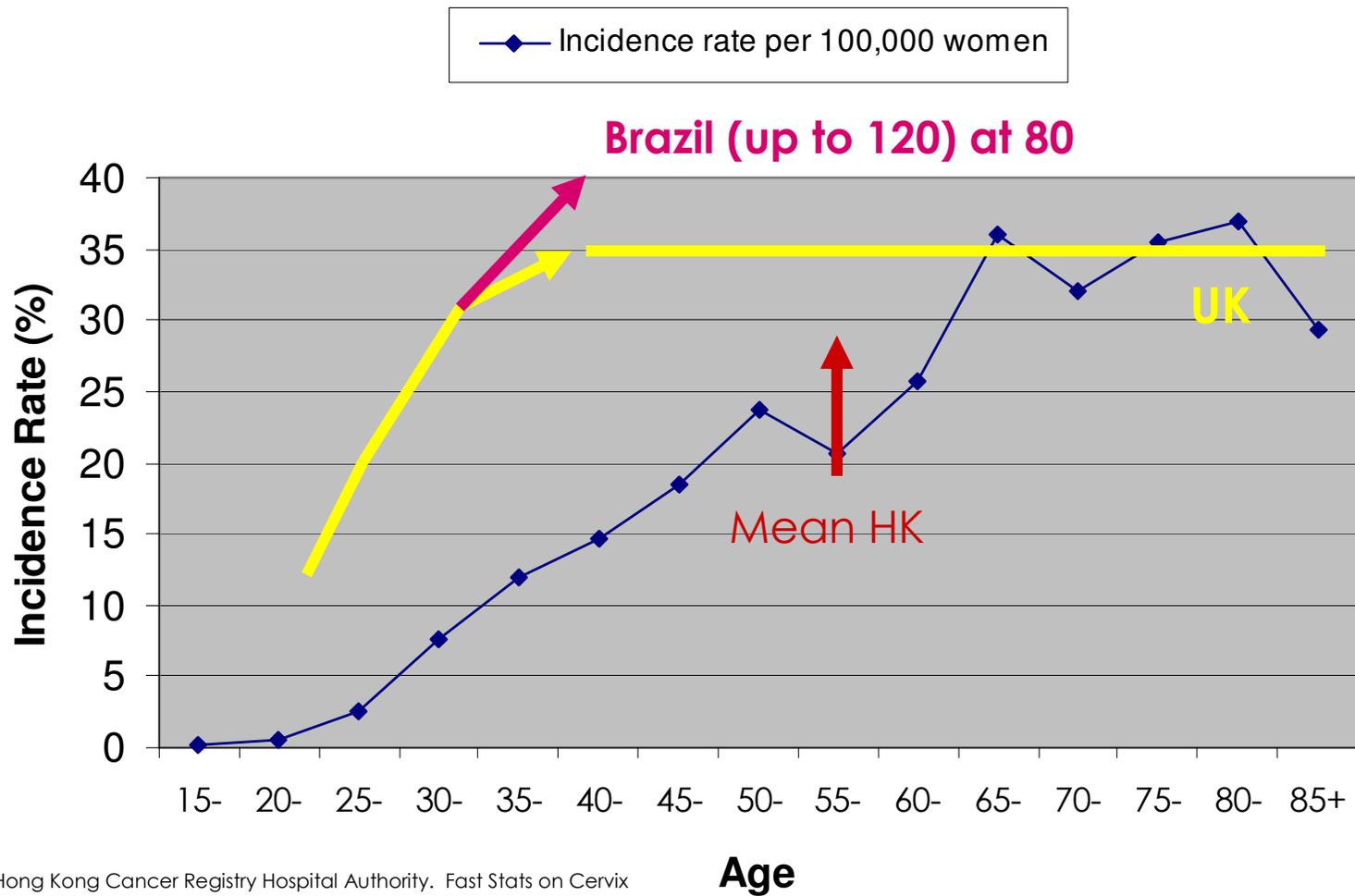
Hong Kong Cancer Registry, 2005; * 2004

Cervical cancer and age

- The risk of acquiring HPV infection starts from the first sexual encounter¹
- Both younger and older women are at risk of cervical cancer due to new infection or reinfection by HPV types that can cause cervical cancer^{2,3,4}
- Women can present with cervical cancer at any age, however, it is extremely rare in women <20 years⁵
- 30% of cervical cancer cases occur in women <45 years⁴ but the highest burden is in women aged >45 years⁵

1. Baseman JG *et al.* *J Clin Virol* 2005; 32 Suppl 1: S16–24; 2 .Gravitt PE *et al.* *Infect Dis Clin North Am* 2005; 19: 439–458; 3. Burd EM. *Clin Microbiol Rev* 2003; 16: 1–17; 4.Baseman JG *et al.* *J Clin Virol* 2005; 32 Suppl 1: S16–24; 5. Ferlay J *et al.* *Globocan* 2002. IARC Press 2004.

Cervical cancer incidence rate of women in HK



1) Hong Kong Cancer Registry Hospital Authority. Fast Stats on Cervix Cancer 2004. <http://www3.ha.org.hk/cancereg/site/c.asp> Accessed on 20 August 2007.

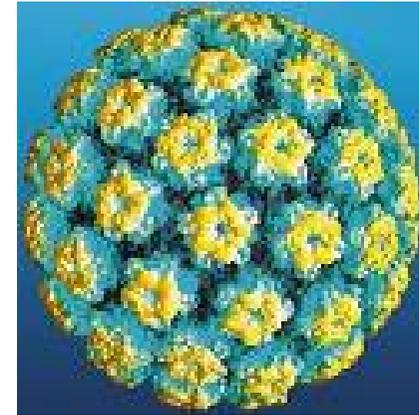


HPV Related Diseases in Hong Kong



Human Papilloma Virus (HPV)

- Non-enveloped
- Ubiquitous
- Skin to skin contact
- Micro-trauma
- Sex-related
- >200 types
 - 15 hours



HPV-related diseases

- Warts
- Anogenital diseases
 - Dysplasias
 - Carcinomas
- Laryngeal papillomatosis
- Head and neck cancers
- Nonmelanoma cutaneous SCC

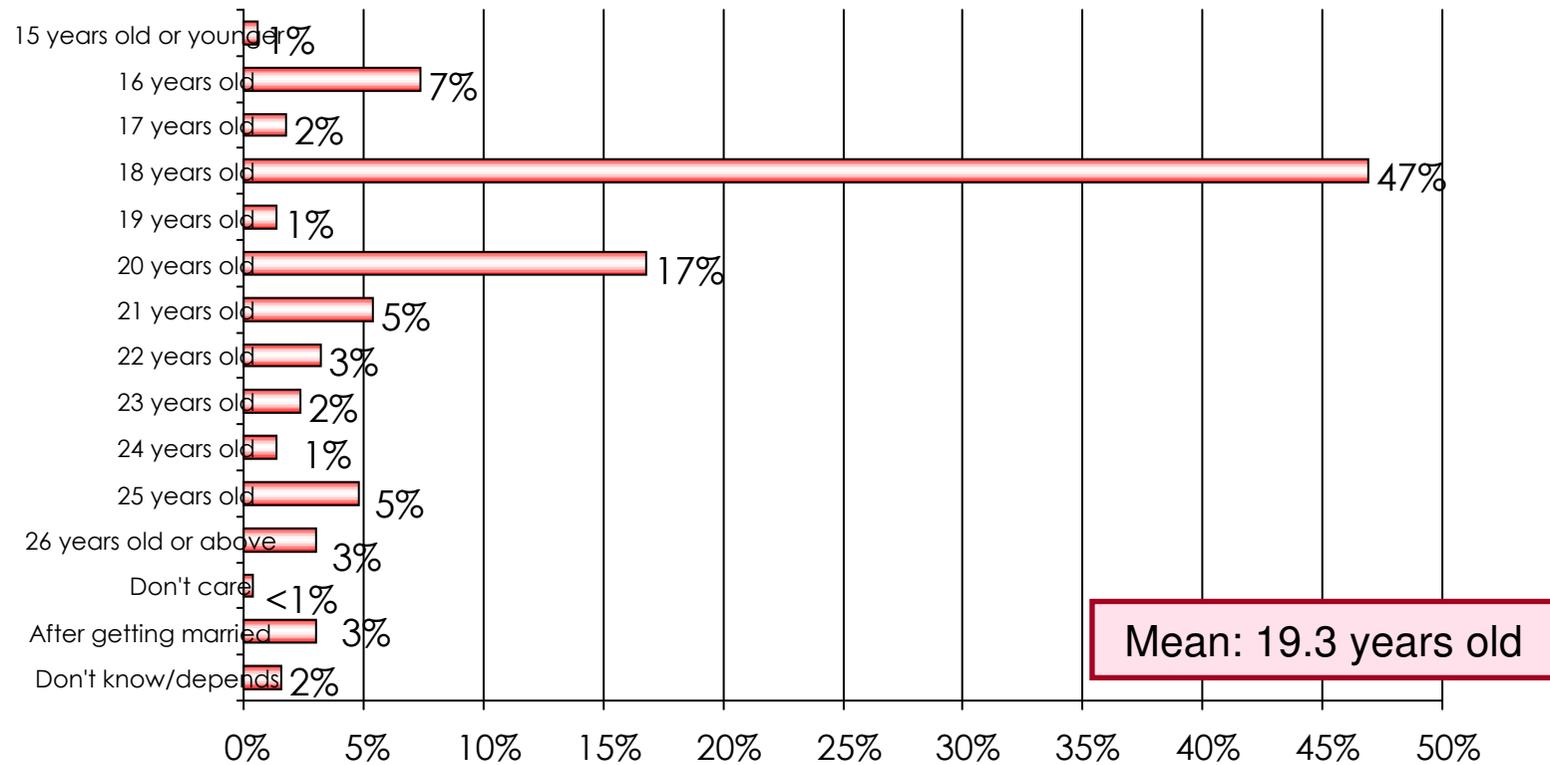
HPV: How common ?

- Every sexually active woman is at risk of acquiring an oncogenic HPV infection,¹ which may cause Cervical Cancer²
- The risk starts from sexual debut
- New infection continues throughout life³
- Up to 50–80% of women will acquire an HPV infection in their lifetime^{4,5,6}
- Up to 50% of those infections will be an oncogenic type HPV infection^{6,7}



1. Gravitt PE et al. *Infect Dis Clin North Am* 2005; 19: 439–58; 2. Bosch FX et al. *J Clin Pathol* 2002; 55: 244–65; 3. Burk RD. *Hosp Pract (Off Ed)* 1999; 34: 103–11; 4. Baseman JG et al. *J Clin Virol* 2005; 32 Suppl 1: S16–24; 5. Ho GY et al. *N Engl J Med* 1998; 338: 423–8; 6. Brown DR et al. *J Infect Dis* 2005; 191: 182–92; 7. Bosch FX et al. *J Natl Cancer Inst Monogr* 2003; 3–13;

47% accept starting sex at 18
 10% accept starting sex at 17 or younger
 Only 3% say should wait after marriage



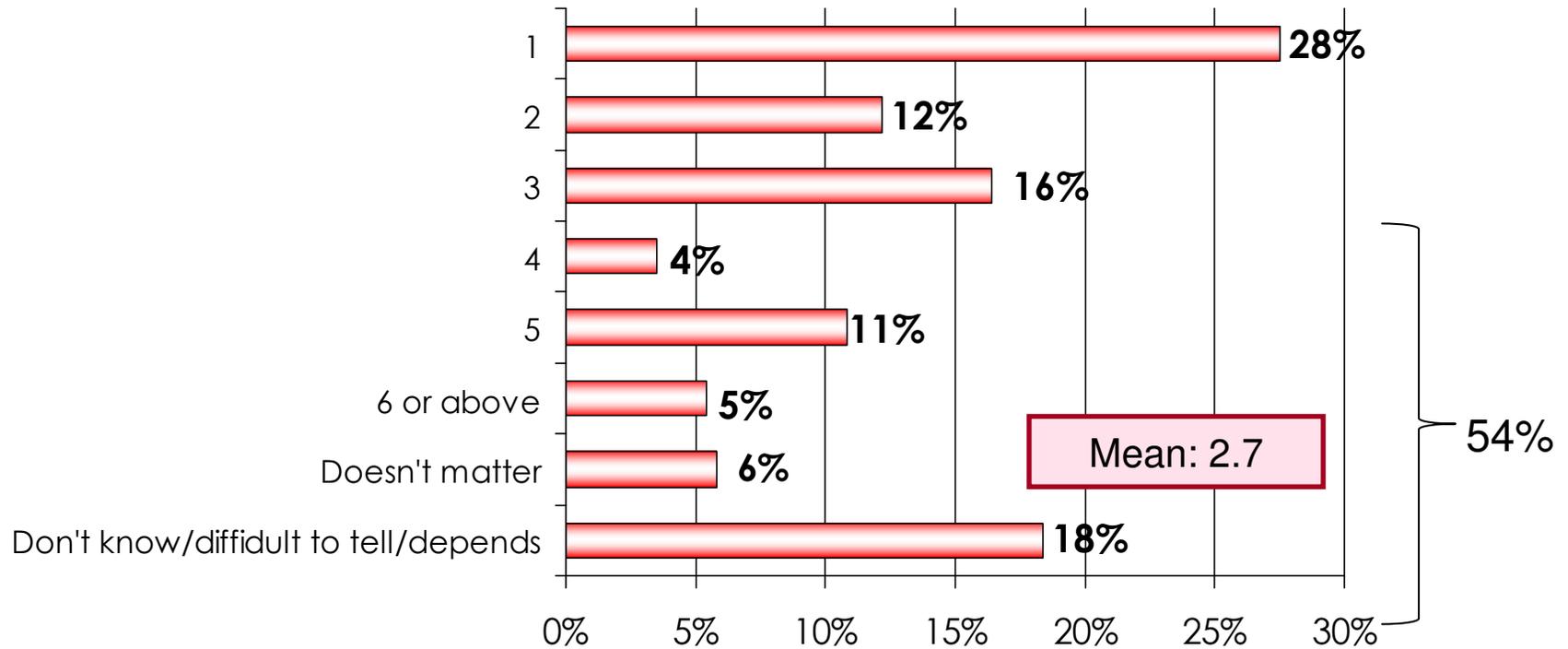
Source: Survey conducted by Public Opinion Programme, The University of Hong Kong during July 9 – August 9, 2007



香港兒科基金
 The Hong Kong Paediatric Foundation



54% think a woman can have more than one sex partners in her life-time



Source: Survey conducted by Public Opinion Programme, The University of Hong Kong during July 9 – August 9, 2007



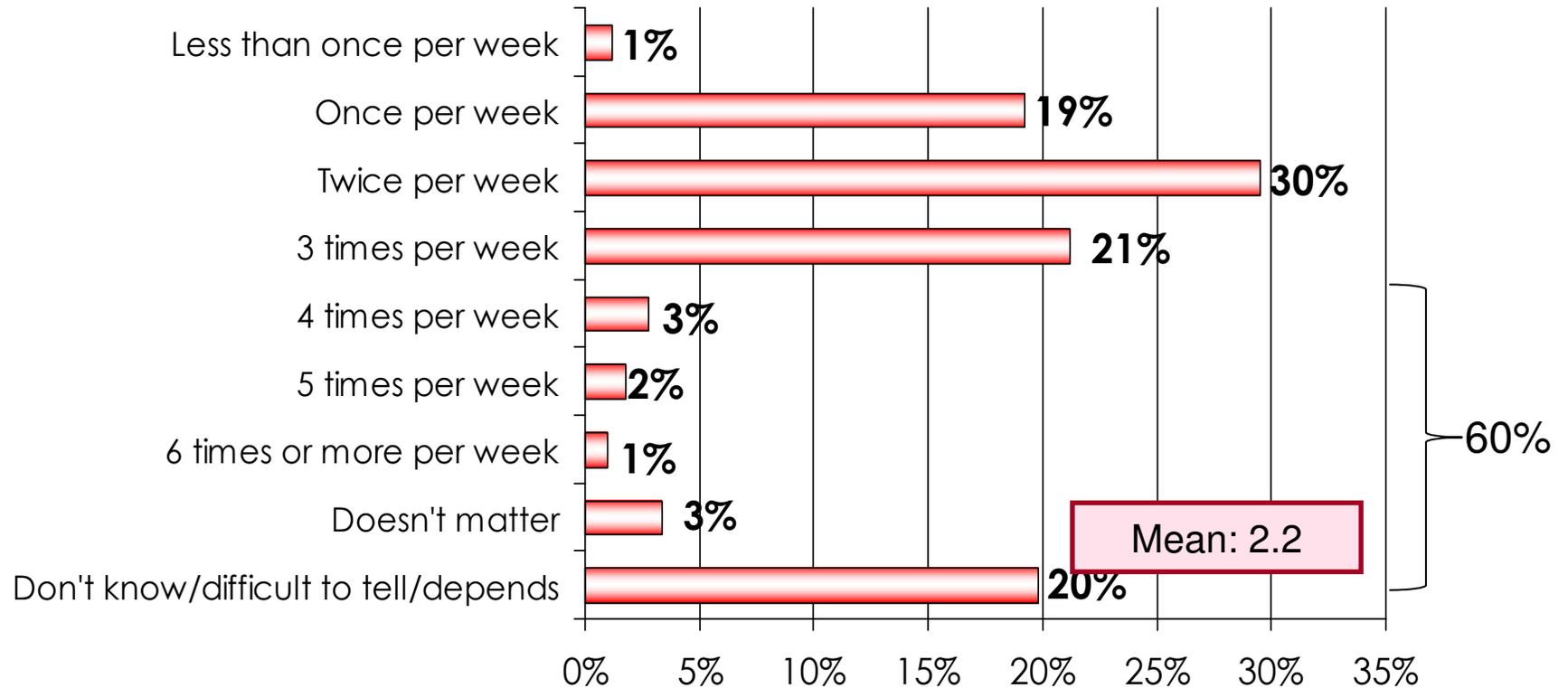
香港兒科基金
The Hong Kong Paediatric Foundation

12

Valid samples: 499



60% think a woman can have sex more than once a week



Source: Survey conducted by Public Opinion Programme, The University of Hong Kong during July 9 – August 9, 2007



香港兒科基金
The Hong Kong Paediatric Foundation

13

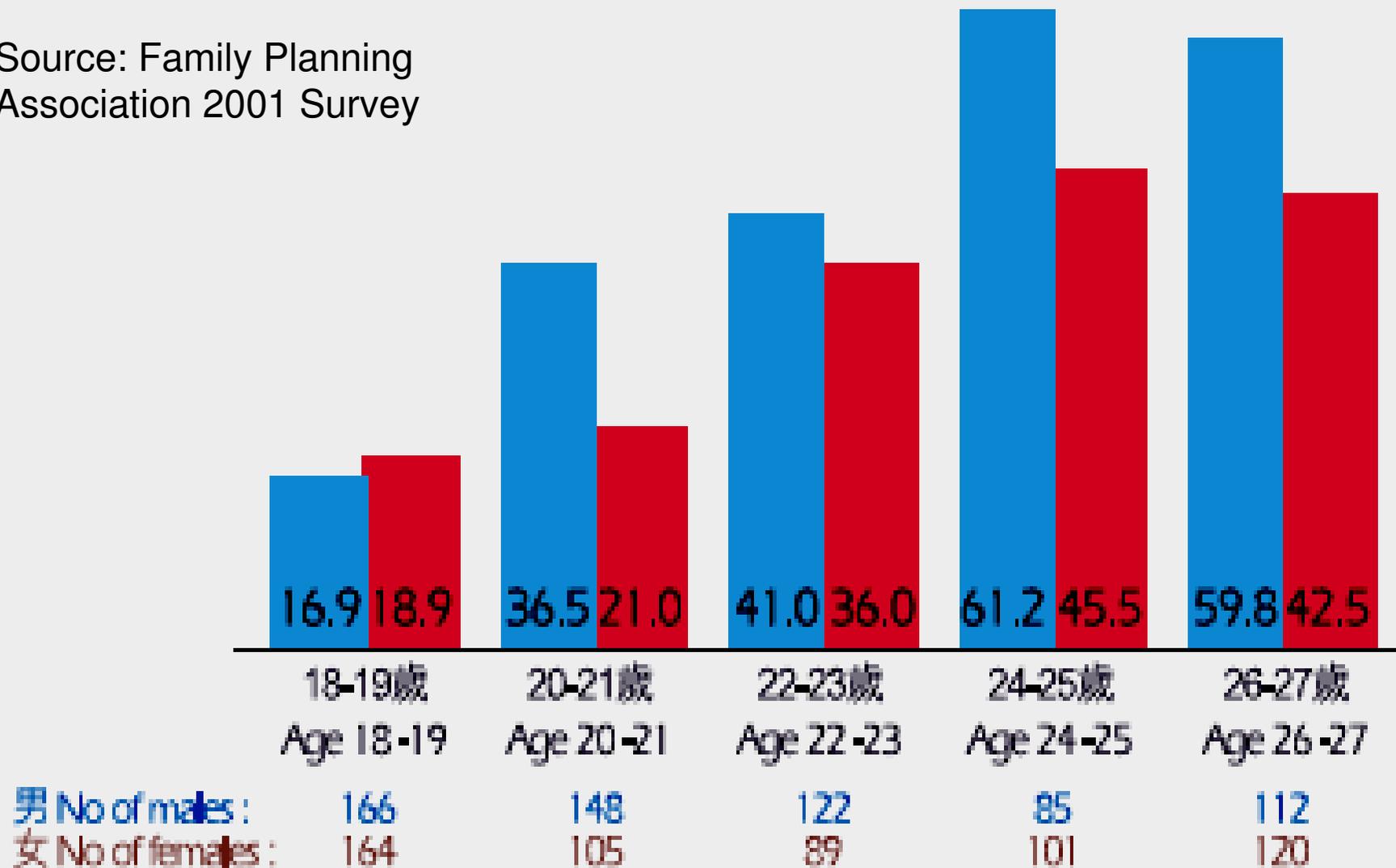
Valid samples: 499



婚前性行為 (有婚前性行為百分比)

Pre-marital Sex (Percentage of respondents who have had pre-marital sex)

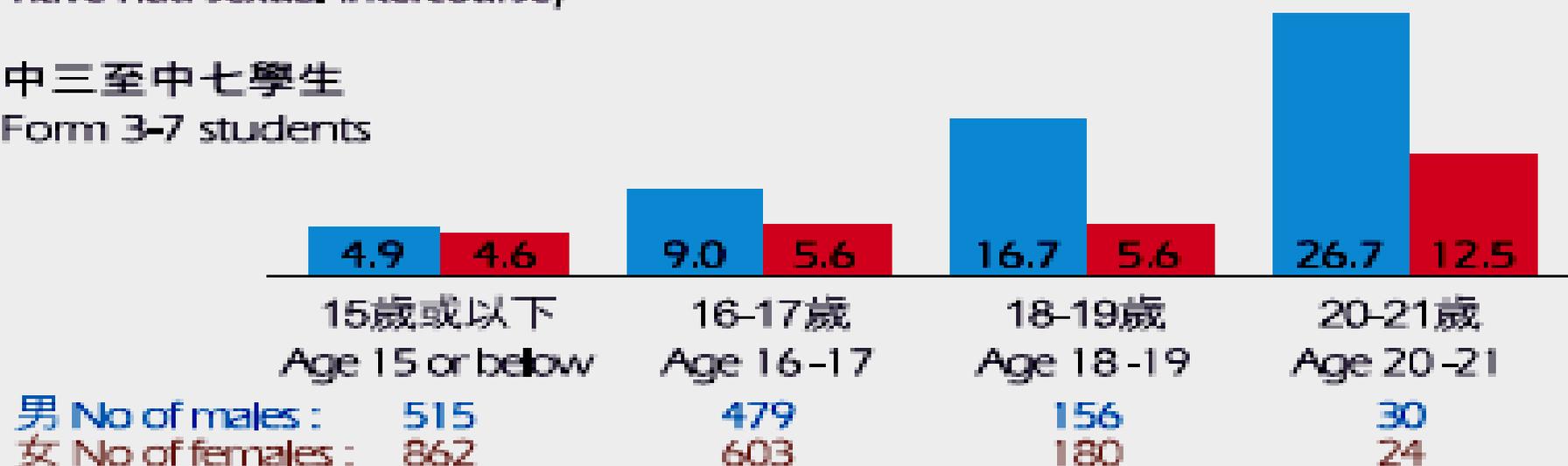
Source: Family Planning Association 2001 Survey



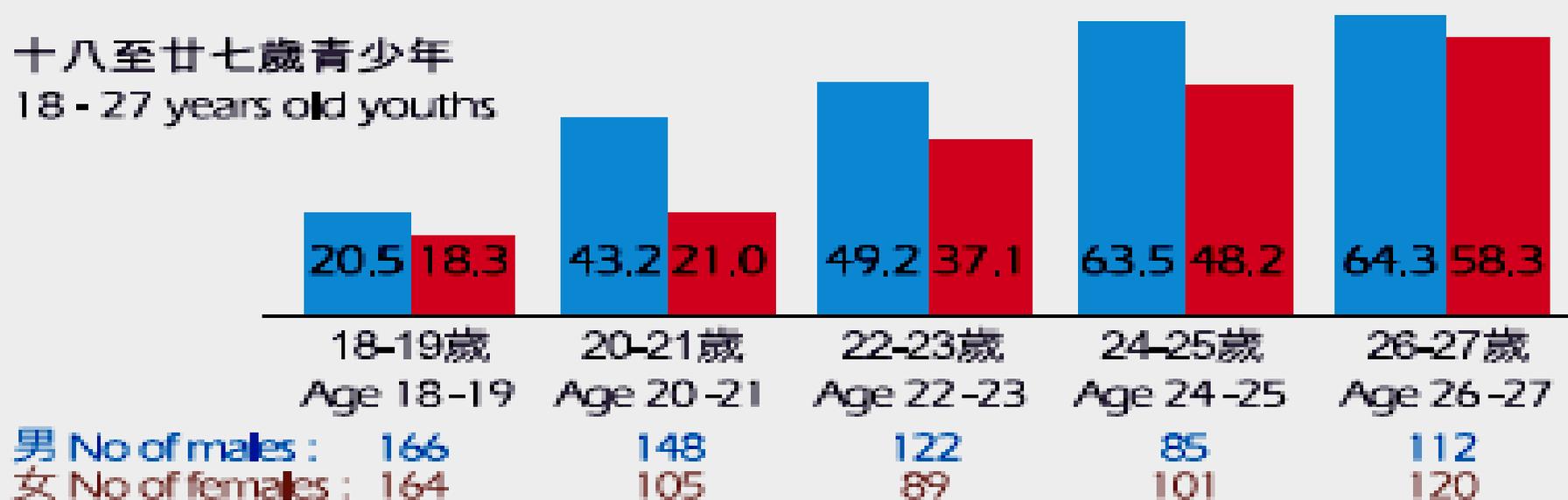
性交經驗 (有性交經驗百分比)

Experience of Sexual Intercourse (Percentage of respondents who have had sexual intercourse)

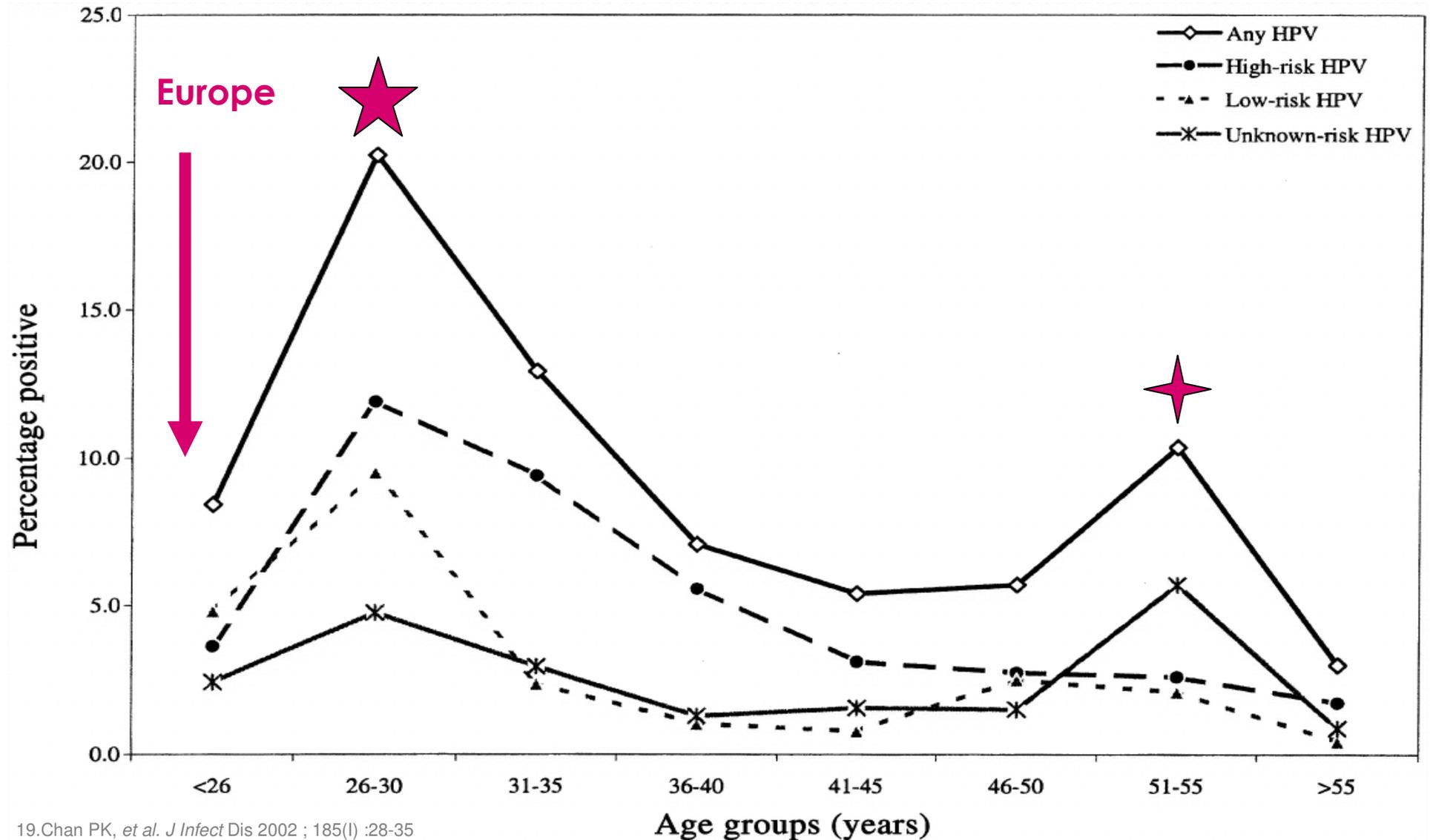
中三至中七學生
Form 3-7 students



十八至廿七歲青少年
18 - 27 years old youths



Age-specific incidence of HPV infection in HK



Hong Kong statistics

- No information on sexual debut
- No information on median age of sex debut
- In Hong Kong, the average age of marriage is 28.2 (By-census, 2006) 1
- The rate of pre-marital sex is not high, with only 28% among women aged 18-272

- 1) Census and Statistic Department, HKSAR. Women and men in Hong Kong – key statistics: updated with 2006 population by-census results. 2007 Edition.
- 2) Women's commission, HKSAR. Health status of women in Hong Kong. http://www.women.gov.hk/download/health_status_of_women.pdf Accessed on 27 august 2007

Disease progression

- For every one million women with a HPV infection:1
 - 100,000 develop pre-cancerous changes in their cervical tissue (dysplasia) *
 - 8,000 will develop carcinoma in situ (CIS) *
 - 1,600 will develop invasive Cervical Cancer
- Cervical cancer is a relatively rare outcome of a common oncogenic HPV infection²
- Over 80% of HPV infections are transient, asymptomatic and resolve spontaneously^{3,4,5,6}

1. McIntosh N. JHPIEGO strategy paper. 2000; 2. Bosch FX *et al. J Clin Pathol* 2002; 55: 244–65; 3. Ho GY *et al. N Engl J Med* 1998; 338: 423–8; 3–13; 4. Moscicki AB *et al. J Pediatr* 1998; 132:277–84; 5. Giuliano AR *et al. J Infect Dis* 2002; 186: 462–9; 6. Franco EL *et al. J Infect Dis* 1999; 180: 1415–23.

Cervical Ca

PK Chan et al (CUHK) 1999

332 HK Chinese women

Abnormal Pap smears

44.3% HPV +ve (Double 17/147)

HPV 16 (33.35); HPV 58(23.8%); HPV 11, 18, 31 (8.8%)

HPV 33 (6.8%)

Multicentre study in China and HK

Lo KW et al (CUHK; 2002)

809 cervical cancer specimens

5 regions (Shanghai, Guangzhou, Sichuan, Beijing & HK)

HPV DNA 83.7%

16 (79.6%) 18 (7.5 %)

52 (2.6%) 58 (3.8%)

HK 16 (61.7%) 18 (14.8%)



Type 58 variant

Chan PK et al (CUHK 2002)

Chinese women with Ca cervix

11.4% +ve was HPV 58

2 Variants detected

Showing positive trend association with severity $p < 0.001$

Prevalence of the 10 most common oncogenic HPV types worldwide

In 2855 HPV Positive Cervical Cancer Cases & Rank By Region

Europe & North America		<u>HONG KONG</u>		South Asia	
HPV type	%	HPV type	%	HPV type	%
HPV 16	69.7	HPV 16	50-79.6%	HPV 16	52.5
HPV 18	14.6	HPV 18	7.5 – 21.7%	HPV 18	25.7
HPV 45	9.0	HPV 58	3.8 – 31.5 %	HPV 45	7.9
HPV 31	4.5	HPV 52	2.6%	HPV 52	3.1
HPV 56	2.2	HPV 33	3.3%	HPV 58	3.0
HPV 52	1.1	HPV 31	3.3%	HPV 33	2.2
HPV 35	1.1	HPV 35	3.3%	HPV 59	2.0
		Multiple	11/120		

Determinants of cervical HPV infection

PK Chan et al (CUHK) 2002

Cross sectional study

2080 women for cervical screening

- Young age a common variable
- Lifetime partners Numbers ass/w HR & LR
- Previous pap smear, treatment for cervical lesion, induced abortion, smoking were risk factors for high risk HPV
- Barrier protection positive against low risk HPV
- Current vaginal discharge negative association with untyped

Vaccines available in HK

- HPV vaccines (commonly known as vaccines for cervical cancer) is the first vaccine in medical history that can prevent cancer
- Currently two types of HPV vaccines have been introduced to Hong Kong. Their safety profile and efficacy have been supported by sufficient medical evidence
- Despite vaccination, women should continue to have regular pap smears since HPV vaccines cannot 100% immunize women against the risks of cervical cancer