Disease Burden of HPV & Vaccination in Hong Kong

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Prevalence of Cervical Cancer in Hong Kong
Cervical cancer mortality rates worldwide
Cases per 100,000 women per year

Every 2 minutes a woman dies of Cervical Cancer

Cervical Cancer in Hong Kong

5th (?) 4th most common
9th cancer death

Hong Kong Cancer Registry, 2005; * 2004
Cervical cancer and age

- The risk of acquiring HPV infection starts from the first sexual encounter\(^1\).
- 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 years\(^5\).
- 30% of cervical cancer cases occur in women <45 years\(^4\) but the highest burden is in women aged >45 years\(^5\).

Cervical cancer incidence rate of women in HK

![Graph showing cervical cancer incidence rate by age]

**Brazil (up to 120) at 80**

**UK**

**Mean HK**

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, which may cause Cervical Cancer.
- The risk starts from sexual debut.
- New infection continues throughout life.
- Up to 50–80% of women will acquire an HPV infection in their lifetime.
- Up to 50% of those infections will be an oncogenic type HPV infection.

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

Mean: 19.3 years old

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

Valid samples: 501
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
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
Pre-marital Sex (Percentage of respondents who have had pre-marital sex)

Source: Family Planning Association 2001 Survey
Experience of Sexual Intercourse (Percentage of respondents who have had sexual intercourse)

### 中三至中七學生
*Form 3-7 students*

<table>
<thead>
<tr>
<th>Age</th>
<th>No of males</th>
<th>No of females</th>
</tr>
</thead>
<tbody>
<tr>
<td>15歲或以下</td>
<td>515</td>
<td>862</td>
</tr>
<tr>
<td>16-17歲</td>
<td>479</td>
<td>603</td>
</tr>
<tr>
<td>18-19歲</td>
<td>156</td>
<td>180</td>
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<tr>
<td>20-21歲</td>
<td>30</td>
<td>24</td>
</tr>
</tbody>
</table>

### 十八至廿七歲青少年
*18 - 27 years old youths*

<table>
<thead>
<tr>
<th>Age</th>
<th>No of males</th>
<th>No of females</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-19歲</td>
<td>166</td>
<td>164</td>
</tr>
<tr>
<td>20-21歲</td>
<td>148</td>
<td>105</td>
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<tr>
<td>22-23歲</td>
<td>122</td>
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<tr>
<td>24-25歲</td>
<td>85</td>
<td>101</td>
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<tr>
<td>26-27歲</td>
<td>112</td>
<td>120</td>
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</table>
Age-specific incidence of HPV infection in HK


Europe
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)
- The rate of pre-marital sex is not high, with only 28% among women aged 18-27

**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 infection

- Over 80% of HPV infections are transient, asymptomatic and resolve spontaneously

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

<table>
<thead>
<tr>
<th>HPV type</th>
<th>%</th>
<th>Europe &amp; North America</th>
<th>HPV type</th>
<th>%</th>
<th>South Asia</th>
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</thead>
<tbody>
<tr>
<td>HPV 16</td>
<td>69.7</td>
<td>HONG KONG</td>
<td>HPV 16</td>
<td>52.5</td>
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<tr>
<td>HPV 18</td>
<td>14.6</td>
<td></td>
<td>HPV 18</td>
<td>25.7</td>
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<tr>
<td>HPV 45</td>
<td>9.0</td>
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<td>HPV 45</td>
<td>7.9</td>
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<td>HPV 31</td>
<td>4.5</td>
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<td>HPV 31</td>
<td>3.3%</td>
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<td>HPV 56</td>
<td>2.2</td>
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<td>HPV 56</td>
<td>3.0%</td>
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</tr>
<tr>
<td>HPV 52</td>
<td>1.1</td>
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<td>HPV 52</td>
<td>3.1%</td>
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</tr>
<tr>
<td>HPV 35</td>
<td>1.1</td>
<td></td>
<td>HPV 35</td>
<td>2.2%</td>
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</tbody>
</table>

Adapted from Munoz N et al Int J Cancer 2004;111: 278-85
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.