Cervical Cancer Control
Current Practices

From Research to Practice: Training Course in Sexual and Reproductive Health Research
Geneva 2012

Dr Saloney Nazeer
Director, Int’l Network for Control of Gynae Cancers (INCGC); Geneva
Situational Analysis: Cancer Control in Developing Countries

- 75% of the new cancer cases worldwide
- 5% of the world cancer resources
- 80-85% cases diagnosed at late incurable stages - if at all
- majority not covered with cancer care
- 5% women screened for Cx Ca compared to 40% in industrialised countries
### Priorities and strategies for the eight most common cancers worldwide

**WHO, 1995**

<table>
<thead>
<tr>
<th>Site of cancer</th>
<th>Primary prevention</th>
<th>Early diagnosis</th>
<th>Curative therapy</th>
<th>Pain relief, palliative care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>++</td>
</tr>
<tr>
<td>Stomach</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>++</td>
</tr>
<tr>
<td>Breast</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Colorectum</td>
<td>+</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Cervix</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Mouth pharynx</td>
<td>++</td>
<td>+</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Oesophagus</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>++</td>
</tr>
<tr>
<td>Liver</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>++</td>
</tr>
</tbody>
</table>

++ effective, + partly effective, - ineffective
Cervical cancer continues to be a major burden in most developing countries.

More than 80% of world burden

493,000 new cases
1.4 million prevalent cases
273,000 deaths
## Estimated cases of Cx Ca in Regions and selected countries

IARC, 1999

<table>
<thead>
<tr>
<th>Region/Country</th>
<th>New cases per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>15 700</td>
</tr>
<tr>
<td>Latin America</td>
<td>49 000</td>
</tr>
<tr>
<td>Europe</td>
<td>47 200</td>
</tr>
<tr>
<td>USSR</td>
<td>31 300</td>
</tr>
<tr>
<td>Africa</td>
<td>36 900</td>
</tr>
<tr>
<td>Asian excluding India &amp; China</td>
<td>80 000</td>
</tr>
<tr>
<td>China</td>
<td>131 500</td>
</tr>
<tr>
<td>India</td>
<td>120 000</td>
</tr>
<tr>
<td>Australia/NZ</td>
<td>1 200</td>
</tr>
</tbody>
</table>
Cervical Cancer Control

Deaths per 100,000

27

Mortality in developing countries

6

Mortality in developed countries

Screening introduced in developed countries

Effect of screening

Effect of
health education
visual inspection
standard therapy

time

Effect of screening
Trends in age-standardized mortality rate for cervical cancer in selected developed and developing countries
The **main obstacle** to a further improvement of the situation is the **high cost and labour intensive nature of all screening programmes**; for this reason, in most developing countries **global preventive programs** have been **rarely implemented** and almost never sustained; the usual picture is one of **little financial support** which entails **poor quality and low coverage rates**. These facts alone explain why **mortality rates** in the less developed countries are twice those of the industrialized ones.
INCGC
A consortium of 32 organizations

➢ Local solutions
➢ External facilitation
➢ Pap smear technology revised

Cost-effective strategies

- Information systems / cancer registries
- Alternatives to Pap-smear (Education & empowerment + downstaging with simple VE; VIA; cervicography; spectroscopy; occuloscopy)
- HPV tests/vaccines
HPV VACCINES

Objective:

➢ To reduce Cx Ca burden globally

➢ To reduce costs of Cx Ca Screening Programmes in industrialised countries
RISK FACTORS FOR CERVICAL CANCER

- Age at first sexual intercourse
- Multiple sexual partners
- OCPs
- Social economic status
- Smoking
- STDs
- HPV
Papillomavirus types

host specifique, epitheliotropic

- **20** Animal types

- **100** Human types - **30** Infect genital tract : Low risk / High risk (**20** oncogenic)
Natural History of HPV

- Largely sexually transmitted
- Peak incidence: 20-24 yrs
- Incidence gradually declines up to 40-45 yrs
- May begin to increase slowly thereafter

(ref: Schifman et al 1993; Bosch et al, 1995; Burk et al, 1996; Dillner et al, 1996; Meijir et al, 1999)
Natural History of HPV

- 80% infections transient: median range 12 mths- no risk of CIN
- 10-20% infections persistent: high risk of CIN - only 30% of these progress if untreated
- RR of progression 40-180
- Persistence is the important factor for disease progression

HPV Prevalence

*In cervical lesions*

- Squamous carcinoma: 95% association
- HSIL/CIN II, III: 75-95%
- LSIL/CINI: 60%
- ASCUS: 30%
- Adenocarcinoma: 12-30% association

CERVICAL CANCER IS A RARE LONG-TERM OUTCOME OF PERSISTENT INFECTION WITH ONE OR MORE OF HIGH-RISK HPV TYPES (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73, 82)
HPV Vaccines Available

- Polyvalevt (Gardasil)
  VLPs of HPV 16; 18; 6; 11
  Schedule: 3 IM injections – 0, 2, 6 months

- Bivalent (Cervarix)
  VLPs of HPV 16; 18
  Schedule: 3 IM injections – 0, 1, 6 months
Available HPV Vaccines
Practical Facts

- Approved by health authorities in Western countries since 2006
- Currently only approved for use in girls 10-14 years, prior to sexual debut
- To have beneficial effects the vaccination coverage should be at least 70-80% and its efficacy should last longer than 15 years
Available HPV Vaccines
Clinical Facts

- No therapeutic effect against prevalent HPV infection
- To be given before exposure – before sexual debut
- Efficient: 98-100% against CIN2+; adenocarcinoma in situ & genital lesions
- Effect on invasive Cx Ca to be proven
- Cross protection against non-vaccine types – partial at best
- Currently approved for vaccination of girls 10-14 years, with catch-up programmes for girls up to 26 years
- To date protection proven up to 7.3 years
Available HPV Vaccines

Expected Benefits

- HPV vaccines will not eradicate Cx Ca
- Effect on Cx Ca incidence will only be evident in 20-30 yrs
- Decrease (25-50%) in abnormal pap-smears
- Decreased excisional treatment for high grade lesions
- Reduction in genital warts & cancers
- Beneficial in countries with and without Cx Ca screening programmes
Concluding Remarks

- Cx Ca is a public health issue
- Screening programmes – cost-effectiveness
- HPV is one of the main aetiological factors
- HPV in screening – no consensus
- HPV Vaccines – THE Plausible SOLUTION
Concluding Remarks

- HPV Vaccines – Key pending issues:
  - Duration of immune response – booster dose
  - Appropriate age of application
  - Cross immunisation – 30% vs 70%; geographic differences in HPV type prevalence
  - Monitoring methodologies
  - Different population groups – males; SIDA
  - Reduced participation in screening
  - Cost-benefit – continued screening