BRITISH COLUMBIA’S CERVICAL CANCER SCREENING PROGRAM

DATE: NOVEMBER 19, 2016
PRESENTER: DR. DIRK VAN NIEKERK
Conflict of Interest Disclosure

- Nothing to disclose
“…..in the beginning of the malady it is easy to cure but difficult to detect, but in the course of time, not having been either detected or treated in the beginning, it becomes easy to detect but difficult to cure.”

Niccolo Machiavelli

“I will prescribe regimens for the good of my patients according to my ability and my judgment and never do harm to anyone.”

Hippocrates of Kos
Programmatic Screening

Screening for disease is the examination of asymptomatic individuals in order to classify them as likely or unlikely to have the disease that is the object of screening.

People who appear likely to have the disease are investigated further to arrive at a final diagnosis. Those people who are found to have the disease are then treated.

Principles of Programmatic Screening

- Evidence from well-conducted studies that early detection improves health outcomes;
- There is accepted treatment for patients with recognised disease;
- There is an effective test available;
- Facilities exist for diagnosis and treatment;
- The benefits of screening outweigh any potential harms;
- Prevalence of the disease is high enough to justify the effort and costs of screening.

- World Health Organization
Cervical Screening Policy Review Process

- Guideline Review Committee
- Gyne Tumour Group & CCSP
- BCCA Executive Committee
- PHSA Board
- BC Ministry of Health
- New Cervical Screening Policy

- Literature Review (H. Kreuger & Associates)
- Cost effectiveness analysis
  - Lifetime Prevention schedule
# Screening Policy Comparison

**NEW Implemented June 2016**

<table>
<thead>
<tr>
<th>CERVICAL CANCER SCREENING</th>
<th>PREVIOUS POLICY</th>
<th>NEW POLICY <em>(EFFECTIVE JUNE 2016)</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>START AGE</td>
<td>Age 21</td>
<td>Age 25</td>
</tr>
<tr>
<td>CERVICAL CANCER SCREENING INTERVAL</td>
<td>2 years</td>
<td>3 years</td>
</tr>
<tr>
<td>CERVICAL CANCER SCREENING STOP AGE</td>
<td>Age 69</td>
<td>Age 69</td>
</tr>
<tr>
<td>TRIAGE OF POSITIVE RESULTS</td>
<td>Refer to colposcopy if ASC-H, AGC or HSIL+</td>
<td>Refer to colposcopy if ASC-H, AGC or HSIL+</td>
</tr>
<tr>
<td></td>
<td>Repeat every 6 months for 2 years if ASCUS or LSIL</td>
<td>Repeat every 6 months for 1 year if ASCUS or LSIL</td>
</tr>
</tbody>
</table>
# BC’s Cervical Cancer Screening Policy

**NEW Implemented June 2016**

<table>
<thead>
<tr>
<th>AVERAGE RISK</th>
<th>RECOMMENDATION</th>
<th>SCREENING INTERVAL</th>
<th>BALANCE OF HARMS &amp; BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 25-69</td>
<td>Screen</td>
<td>3 years</td>
<td>Benefits outweigh harms</td>
</tr>
<tr>
<td>Never had sexual contact*</td>
<td>Do not screen</td>
<td>N/A</td>
<td>Harms outweigh benefits</td>
</tr>
<tr>
<td>Received the HPV Vaccine</td>
<td>Screen</td>
<td>3 years</td>
<td>Benefits outweigh harms</td>
</tr>
<tr>
<td>In same sex relationships</td>
<td>Screen</td>
<td>3 years</td>
<td>Benefits outweigh harms</td>
</tr>
<tr>
<td>Transgender with a cervix</td>
<td>Screen</td>
<td>3 years</td>
<td>Benefits outweigh harms</td>
</tr>
<tr>
<td>After TOTAL hysterectomy</td>
<td>Do not screen</td>
<td>N/A</td>
<td>Harms outweigh benefits</td>
</tr>
<tr>
<td>Age &lt;25</td>
<td>Do not screen</td>
<td>N/A</td>
<td>Harms outweigh benefits</td>
</tr>
<tr>
<td>Age &gt;69</td>
<td>Do not screen</td>
<td>N/A</td>
<td>Harms outweigh benefits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HIGHER THAN AVERAGE RISK</th>
<th>RECOMMENDATION</th>
<th>SCREENING INTERVAL</th>
<th>BALANCE OF HARMS &amp; BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunocompromised women</td>
<td>Screen</td>
<td>Annual</td>
<td>Benefits outweigh harms</td>
</tr>
<tr>
<td>History of pre-cancerous lesions or cervical cancer</td>
<td>Screen</td>
<td>Annual</td>
<td>Benefits outweigh harms</td>
</tr>
</tbody>
</table>

* Sexual contact includes intercourse as well as digital or oral sexual contact involving the genital area of a partner of either gender
Age to Start Screening

Evidence suggests four well founded reasons for initiating screening at age 25:

• Invasive cervical cancers in women younger than age 25 are rare;
• Screening is relatively ineffective in younger women;
• Women under 25 have a higher prevalence of lesions that often clear without treatment;
• There are risks associated with unnecessary follow-up and treatments, many of which may have long-term consequences for pregnancy or cause undue anxiety and distress.
Age to Start Screening

Women younger than age 25 are rare
Age to Start Screening

Invasive cervical cancers in women younger than age 25 are rare

Cases of and deaths from cervical cancer, with associated incidence and mortality (rates per 100 000 women), among Canadian women (2002–2006) by age group

*Canadian Task Force on Preventive Health Care CMAJ 2013;185:35-45*
Age to Start Screening

Screening is relatively ineffective in younger women

\[\text{BMJ. 2009 Jul 28;339:b2968}\]

www.screeningbc.ca
Age to Start Screening

Women under 25 have a higher prevalence of lesions (CIN 2+ in BC 2014)
Age to Start Screening

Women under 25 have a higher prevalence of lesions that clear without treatment

Regression of Cervical Intraepithelial Neoplasia 2 in Young Women

Age to Start Screening
There are risks associated with unnecessary follow-up and treatments

<table>
<thead>
<tr>
<th>Outcome (# studies)</th>
<th>Cases</th>
<th>Controls</th>
<th>Pooled relative risk (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2\textsuperscript{nd} trimester loss (4)</td>
<td>1.6%</td>
<td>0.4%</td>
<td>2.60 (1.45-4.67)</td>
</tr>
<tr>
<td>Preterm birth &lt; 34/40 (5)</td>
<td>2.9%</td>
<td>2.3%</td>
<td>2.21 (1.33-3.67)</td>
</tr>
<tr>
<td>PPROM (6)</td>
<td>5.1%</td>
<td>2.5%</td>
<td>2.37 (1.64-3.44)</td>
</tr>
<tr>
<td>Preterm birth &lt;37/40 vs. no dysplasia (15)</td>
<td>8.6%</td>
<td>4.6%</td>
<td>1.86 (1.58-2.21)</td>
</tr>
<tr>
<td>vs. dysplasia untreated (4)</td>
<td>10.0%</td>
<td>7.2%</td>
<td>1.08 (0.88-1.33)</td>
</tr>
</tbody>
</table>

## Age to Start Screening

There are risks associated with unnecessary follow-up and treatments

### LEEP and preterm births

<table>
<thead>
<tr>
<th>Depth of LEEP</th>
<th>% preterm births</th>
<th>Odds ratio for preterm birth (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;12 mm</td>
<td>5.3%</td>
<td>1.00</td>
</tr>
<tr>
<td>13-15</td>
<td>4.4%</td>
<td>0.82 (0.55-1.23)</td>
</tr>
<tr>
<td>16-19</td>
<td>7.2%</td>
<td>1.44 (0.96-2.16)</td>
</tr>
<tr>
<td>&gt;20</td>
<td>9.0%</td>
<td>1.76 (1.21-2.55)</td>
</tr>
<tr>
<td>&lt;10 vs. &gt;10 mm</td>
<td></td>
<td>2.61 (1.28-5.34)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of LEEPs</th>
<th>% preterm births</th>
<th>Odds ratio for preterm birth (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 vs. none</td>
<td>11.4%</td>
<td>3.78 (2.58-5.53)</td>
</tr>
<tr>
<td>2 vs. 1</td>
<td></td>
<td>1.88 (1.27-2.78)</td>
</tr>
</tbody>
</table>

Noehr *et al*, Obstet Gynecol 2009;114(6):1232-8
Kyrgiou *et al*, Lancet 2006;367(9509):489-498

www.screeningbc.ca
Frequency of Screening
More frequent screening adds very little benefit

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Interval (yrs)</th>
<th>Lifetime tests</th>
<th>% Cancer Reduction</th>
<th>Number needed to test</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-64</td>
<td>1</td>
<td>45</td>
<td>93%</td>
<td>3,030</td>
</tr>
<tr>
<td>20-64</td>
<td>3</td>
<td>15</td>
<td>91%</td>
<td>1,042</td>
</tr>
<tr>
<td>25-64</td>
<td>3</td>
<td>13</td>
<td>90%</td>
<td>917</td>
</tr>
</tbody>
</table>

Modified from IARC working group BMJ, 1986

www.screeningbc.ca
Management of Abnormal Results

Age 25-69 Pap test Every 3 Years

- Normal
  - Routine Screening

- Low-grade ASC-US or LSIL
  - Repeat Pap at 6 Months
    - Normal
      - Repeat Pap at 6 Months
    - High/Low-grade
      - Colposcopy

- High-grade ASC-H, HSIL
  - Colposcopy

- Low-grade ASC-US or LSIL
  - Repeat Pap at 6 Months
    - Normal
      - Repeat Pap at 6 Months
    - High/Low-grade
      - Colposcopy

- High/Low-grade
  - Colposcopy

- High-grade ASC-H, HSIL
  - Colposcopy
Screening Effectiveness

• Screening effectiveness depends on:
  – *Women’s participation***
  – *Sample quality***
  – *Adequate management and treatment of abnormal results***

• Laboratory performance
Screening Challenges in BC
Participation

• 10% of eligible women have NEVER had a Pap smear
• >20% of women have had inadequate screening
• >50% of women with cancer had inadequate screening
Types of Cervical Cancer

There are two main types of cervical cancer:

- Squamous cell carcinoma (SCC)
- Adenocarcinoma*

Screening History by Cancer Type
Screening Challenges in BC Participation

• Poorly screened women
  – *More advanced disease*
  – *Higher mortality*

• Rate of cervical cancer is up to 4-6 times higher in First Nations women
Program Statistics
Participation by Age

Cervical Cancer Screening Participation Rates By Age Group: 2012-2014
Program Statistics
Participation Age

36-Month Retention Rates By Age Group Over Time: 2007-2011
Program Statistics
Participation Regional

Participation Rates by Health Authority: 2012-2014
Technique

• SINGLE slide

• Cytobrush!

• LABEL the slide in PENCIL
  – NAME and DOB
  – 2,000 smears per day!!!

• Use cytospray IMMEDIATELY
  – 10 seconds makes a difference
  – By 1 minute – largely air dried
Health Professional’s Recommendation
Immunization

Communication

• Explaining the need for immunization
• Clearly conveying the risks
• Strong physician/provider recommendation

Recommendation is critical

2. PHAC 2006 Canadian Adult Immunization Coverage Survey.

www.screeningbc.ca
STI Screening

• STI screening should not be offered concurrently with cervical cancer screening to young women due to different start ages.

• Primary care providers should offer STI risk assessment and screening to sexually active women under the age of 25 at all clinically appropriate encounters, consistent with:
  – Canadian Guidelines on Sexually Transmitted Infections
  – BC Lifetime Prevention Schedule

• BCCDC provides provincial leadership and guidance around STI clinical service delivery
  – GetCheckedOnline (www.getcheckedonline.com)
# Cervical Cancer Screening Program

<table>
<thead>
<tr>
<th><strong>PROGRAM OBJECTIVE</strong></th>
<th>To reduce cervical cancer incidence and mortality by finding pre-cancers and cancer at an early stage through routine screening</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TARGET POPULATION</strong></td>
<td>Women age 25-69 years</td>
</tr>
<tr>
<td><strong>SCREENING TEST</strong></td>
<td>Cytology</td>
</tr>
<tr>
<td></td>
<td><em>Pap test is provided by health care providers across BC; specimens sent to central lab in Vancouver for processing and reporting</em></td>
</tr>
<tr>
<td><strong>RESULTS</strong></td>
<td>Results mailed to health care provider</td>
</tr>
<tr>
<td><strong>REMINDER</strong></td>
<td>Mailed to health care provider when time to rescreen</td>
</tr>
<tr>
<td></td>
<td><em>Providers are responsible for reminding patients to return to screening</em></td>
</tr>
</tbody>
</table>
Resources

• Patient brochures in multiple languages (English, Punjabi, Chinese)
  – Is Cervical Cancer Screening Right for You?
  – Abnormal Cervical Cancer Screening Result

www.screeningbc.ca
Resources

• “After Your Cervical Cancer Screening” tear-off pad

Your results will be sent to your doctor within four weeks.

IF YOUR RESULTS ARE NORMAL
You should be tested again in three years unless your doctor tells you otherwise.

IF YOUR RESULTS ARE ABNORMAL
Don’t be alarmed. Abnormal cervical cancer screening results are common and do not mean you have cancer:
• An abnormal result means that cells have been found on your cervix that do not look normal.
• It is important to discuss the result with your doctor and attend all follow-up appointments for tests or treatment.

www.screeningbc.ca/cervix
Resources

• “What You Should Know” clinic poster

![Poster Image]

Women ages 25-69 should have a cervical cancer screening (Pap test) every three years.

Talk to your doctor today about cervical cancer screening.

Learn More: www.screeningbc.ca/cervix

• “Screening for Cervical Cancer: Pap Test” animated video
  
  – Available in multiple languages (English, Cantonese, Mandarin and Punjabi)
For More Information...

Visit www.screeningbc.ca
Resources – Provider and Patient

- www.bccolposcopy.ca
- HPV FOCAL FAQ
  - http://www.bccancer.bc.ca/our-research/participate/cervical-screening
- www.sexualityandu.ca
- www.hpvinfo.ca
- http://immunizebc.ca/diseases-vaccinations/hpv
- NACI Guidelines:
Questions?

Dr. Dirk van Niekerk
Medical Leader, Cervical Cancer Screening Program
BC Cancer Agency
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For more information on cancer screening...
Visit the BC Cancer Agency Screening Programs website: www.screeningbc.ca or email screening@bccancer.bc.ca
Chart 3
Total number of expected years of life for Canadian women—at birth, age 1, and age 65, 1920–1922 to 2009–2011

Note: The total number of expected years of life is the sum of the age reached and life expectancy for that age.
Figure 3. Odds ratio of cervical cancer in those with adequate negative screening compared with no screening at age 50–64 y by time since last screen.

http://journals.plos.org/plosmedicine/article?id=info:doi/10.1371/journal.pmed.1001585