The Introduction of Primary HPV Screening in Australia

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Disclosures

• No financial relationships or conflict of interest to disclose
Cervical screening in Australia

- NCSP 1991
- NCSP Policy:
  - 2-yearly conventional cytology (Pap test)
  - In sexually active women 18-20 to 69 years
  - Registry reminder
- Participation:
  - 2-yearly 58%
  - 5-yearly 83%

50% reduction in incidence and mortality from cervical cancer
## Cervical cancer Incidence & mortality

<table>
<thead>
<tr>
<th>Country</th>
<th>Incidence per 100,000 women (ASRW)</th>
<th>Mortality per 100,000 women (ASRW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>7.4</td>
<td>1.9</td>
</tr>
<tr>
<td>UK</td>
<td>7.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Netherlands</td>
<td>6.8</td>
<td>1.9</td>
</tr>
<tr>
<td>USA</td>
<td>6.6</td>
<td>2.7</td>
</tr>
<tr>
<td>Canada</td>
<td>6.3</td>
<td>1.9</td>
</tr>
<tr>
<td>Australia</td>
<td>5.5</td>
<td>1.6</td>
</tr>
<tr>
<td>New Zealand</td>
<td>5.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Finland</td>
<td>4.3</td>
<td>1.0</td>
</tr>
</tbody>
</table>

ASRW = age standardised rate (World Standard Population)

## Screening commencement & intervals

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>Age of commencement of screening</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>23 yrs</td>
<td>3 yrly 23–50 yrs 5 yrly 50–60 yrs</td>
</tr>
<tr>
<td>Netherlands</td>
<td>30 yrs</td>
<td>5 yrly</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>25 yrs IARC recommendation</td>
<td>3 yrly 25–49 yrs 5 yrly 50–64 yrs</td>
</tr>
<tr>
<td>USA</td>
<td>21 yrs</td>
<td>3 yrly</td>
</tr>
<tr>
<td>Canada</td>
<td>21 yrs</td>
<td>Every 3 yrs until 70 yrs</td>
</tr>
<tr>
<td>Australia</td>
<td>18 yrs</td>
<td>2 yearly until 70 yrs</td>
</tr>
<tr>
<td>New Zealand</td>
<td>20 yrs</td>
<td>3 yrly until 70 yrs</td>
</tr>
<tr>
<td>Finland</td>
<td>30 yrs (in some municipalities 25 yrs)</td>
<td>Every 5 years until 60 yrs (up to 65 yrs in some municipalities)</td>
</tr>
</tbody>
</table>
Reasons for Renewal

- New knowledge on the development of cervical cancer & new evidence for cervical cancer prevention & screening
- New technologies were available
  - liquid-based technology
  - computer assisted image analysis
  - HPV tests
- 2007 - National HPV Vaccination Program (girls)
- 2013 - National HPV Vaccination Program (girls + boys)
- Current NCSP is intensive compared to other countries
- Plateau in improvement in SCC rates & no impact on adenocarcinoma rates
Renewal Activity

• Began in Nov 2011
• Assess the evidence for screening pathways
  • Tests
  • Interval
  • Age range
• Determine a cost effective pathway
• Improve national data collection & registers
• Improve quality & safety monitoring
• Assess feasibility & acceptability of renewed program
### Options for screening approaches

<table>
<thead>
<tr>
<th>Primary screening test</th>
<th>Age range</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRENT PRACTICE: Conventional cytology</td>
<td>18-20 to 69 years</td>
<td>2</td>
</tr>
<tr>
<td>1 Conventional cytology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Manually-read LBC +/- HPV triage of LSIL</td>
<td></td>
<td>IARC intervals (3-yearly&lt;50; 5-yrly 50+ years)</td>
</tr>
<tr>
<td>3 Image-read LBC +/- HPV triage of LSIL</td>
<td>25-65 years</td>
<td>5-yearly</td>
</tr>
<tr>
<td>4 HPV with LBC triage of pooled oncogenic types</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 HPV with partial genotyping for HPV 16/18 &amp; direct referral to colposcopy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Co-testing with both HPV and LBC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Evaluated
- **Safety**
- **Effectiveness**
- **Cost effectiveness**

- in both unvaccinated and cohorts offered HPV vaccination
- **132** screening algorithms
- **Supplementary analysis:** screening end age **65 or 70 years**
Medical Services Advisory Committee (MSAC) considerations

- Any potential changes to the Program must achieve equal or better outcomes for women
- Evidence review
  - Sally Lord: NHMRC Clinical Trials Group, USyd
- Effectiveness modelling & economic evaluation
  - Karen Canfell: Lowy Institute, UNSW
- Additional research papers & requested information
Cost-effectiveness plane

- Increasing LYS/QALYS
- Decreasing costs
- Decreases life years and increases costs

- Decreasing LYS/QALYS
- Increasing costs
- Unlikely to be cost-effective

- Decreases costs but also decreases life years (disinvestment)

- Likely to be cost-effective
- Both life years and cost saving

Current practice

WTP ratio

Results: Cost-effectiveness, unvaccinated

(Screening cessation at 65 years)

Decreasing cost

Increasing effectiveness (LYS)
Results: Cost-effectiveness, vaccinated
(Screening cessation at 65 years)

- **Current practice**
- Conventional cytology
- Manually-read LBC
- Image-read LBC
- Co-testing
- No genotyping
- Genotyping

Decreasing cost

Increasing effectiveness (LYS)
MSAC recommendations

5 yearly cervical screening

• Primary oncogenic HPV test with partial genotyping
• Reflex LBC triage
• HPV vaccinated & unvaccinated women
• Age range 25 to 69 years
• Exit testing 70 to 74 years
MSAC recommendations

Self-collection of a vaginal sample for HPV testing

• Under screened & never screened women only
• Facilitated by nurse or medical practitioner
• Or on behalf of a medical practitioner who also offers mainstream cervical screening
MSAC recommendations

1. Single National Registry

2. Invitations and reminders to be sent to women 25 - 69 yrs of age

3. Exit communications to be sent to women 70 - 74 yrs of age

4. To ensure effectiveness of the program
   • Delisting of current MBS items
   • New descriptors and regulations for new MBS items
Renewal: Good News for Women

Primary HPV screening program will lead to:

Up to 30%

Fewer cases of cervical cancer

Fewer deaths from cervical cancer
The primary screening test

- Liquid based cervical sample
- No single HPV test technology mandated for use
- Must be capable of having reflex LBC performed
- Must allow partial genotyping: HPV 16 & 18
- Must meet the Meijer criteria
NPAAC draft requirements for HPV- NAT  (as of January 2017)

• Must satisfy Meijer criteria (sensitivity, specificity, reproducibility)
• Must be validated for primary population based screening
• Assay must contain a control to monitor inhibition &/or assay failure
• Assay must contain a control for cellularity to detect inadequate or empty cervical samples
• Self- collected specimens must be tested using a PCR test
HPV tests – open platform, criteria based

- Roche Cobas 4800
- Abbott RealTime
- BD Onclarity
- Seegene Anyplex 11 HPV28
- Cepheid Xpert HPV
80% cervical cancer occurs in women never screened or under-screened
Self - Collection Policy

• Aims to improve participation
  • Never screened
  • Under screened

• Healthcare professionals should promote conventional screening
  • Offer alternative if declined

• Women with symptoms
  • Gynaecologic examination is advised
  • Self-collection is not recommended
Self - Collection

- ♀ who have never participated in the NCSP & ≥30 years
- ♀ who are overdue for screening by ≥2 yrs & are ≥30 yrs

- the self-collection device & the HPV test, when used together, must meet the requirements of NPAAC Standards & Performance Measures

- ♀ with +ve HPV test from a self collected sample
  - should be followed up in accordance with the Clinical Management Guidelines for the Prevention of Cervical Cancer
Renewal Implementation

Steering Committee for the Renewal Implementation Project

- Small expert committee
- Engage broad range of stakeholders
  - Consultation
  - Working groups
  - Workshops
- Links with existing committees eg: NPAAC
- Specific implementation issues
  - Workforce, registers, guidelines etc

Professor Ian Hammond Chair
NATIONAL CERVICAL SCREENING PROGRAM:
Guidelines for the management of screen-detected abnormalities, screening in specific populations and investigation of abnormal vaginal bleeding
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Pathology & workforce issues

- Conventional Pap tests ~ $2.4 \times 10^6$ to 0
- HPV tests ~ 55,000 to $1.3 \times 10^6$
- LBC tests ~ ? to 340,000
Results: Impact on colposcopies
Predicted annual number of colposcopies

66% of the increase is in women <35 years

Range of outcomes for all strategies and strategy variants where intermediate risk women have 12 month follow-up.

For partial genotyping, colposcopies would increase by 12-25% in unvaccinated women (driven by referrals in women 25-34 years) but decrease by 11-13% in vaccinated cohorts.
Number of cytology tests

Adapted from Smith et al. *Transitioning from cytology-based screening to HPV-based screening at longer intervals: implications for resource use.* BMC Health Services Research (2016) 16:147.

This work was commissioned and funded by the Victorian Cytology Service (VCS Ltd), Australia.
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Number of precancer treatments in women aged <45

Adapted from Smith et al. Transitioning from cytology-based screening to HPV-based screening at longer intervals: implications for resource use. BMC Health Services Research (2016) 16:147.

This work was commissioned and funded by the Victorian Cytology Service (VCS Ltd), Australia.
Target start date

May 2017

HPV
Delayed Start

• Due to an unexpected delay in the development of the new National Cancer Screening Register, it became apparent that this would not be ready in time for 1st May start.

• Since this is integral to the new program, the start date has been delayed until 1st Dec 2017.