HPV and cervical cancer in Sénégal

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Durban, 21th November 2013
HPV and cervical cancer in Sénégal

- Epidemiological aspects
- Prevention program
- Prevalence of specific HPV types
- Research Proposal
HPV and cervical cancer in Sénégal

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Cervical cancer in Senegal

The most common cancer among women

Senegal 35 women per 100,000 (80 per 100,000 in age 45+)

http://globocan.iarc.fr/factsheets/cancers/cervix.asp

Senegal 26 per 100,000 women
Cervical cancer in Senegal

The most common cancer

- 3.2 million women age 15+ at risk
- 1197 cases per year
- 795 deaths per year

WHO/ICO Information Center HPV and related cancers summary report update.
Senegal. Sept. 25, 2010
Cervical cancer in Senegal

Advanced stages 60 - 80 %

- Bull Cancer. 2008 Feb;95(2):235-40

Precancerous lesions 20 %

Dakar Med. 2003;48(3):181-4
Cervical cancer in Senegal

Squamous cell carcinoma of the uterine cervix at the Dakar Cancer Institute

From 1977 to 1999

616 cervical carcinomas at Dakar Cancer Institute

Squamous cells carcinomas

Mean age 35 years

Mean parity 8

Menopause 44.4%

419 patients had advanced stage (FIGO IIb, III, IV) 68%

Cervical cancer in Senegal

Condyloms, dysplasia and carcinomas of cervix : a twenty years experience (1980 - 1999)

Histology and Embryology Laboratory of Dakar School of Medecine and Pharmacy

100,358 Pap smears and biopsies

21.03% of precancerous lesions

17.56% of CIN1

2.49% of CIN2

0.49% of CIN3

*Dakar Med. 2003;48(3):181-4*
HPV and cervical cancer in Sénégal

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• Research Proposal
CERVICAL CANCER PREVENTION PROGRAM

QIAGEN DONATION PROGRAM

- CareHPV testing
  - Premenopausal
    - 35 years and +
  - Negative predictive value 99-100%

- Referral for large lesion, no TZ visualized, cancer

- Visual inspection with acetic acid
  - Triage
  - Positive
    - Cryotherapy
  - Negative
    - Referral for large lesion, no TZ visualized, cancer
CERVICAL CANCER PREVENTION PROGRAM

Workshop training on Colposcopy for Ob Gyn
Dakar (Sénégal) June 19-21, 2013
CERVICAL CANCER PREVENTION PROGRAM

Screen and treat using VIA and Cryotherapy

Workshop for 25 midwives and nurses on **VIA and Cryo**
Health district of **Thies** in 2010

- 447 women screened
- 15 cryotherapy
- 2 invasive lesions
CERVICAL CANCER PREVENTION PROGRAM

Screen and treat using VIA and Cryotherapy

Workshop for 28 midwives on VIA and Cryo
District Hospital Roi Baudoin (Guediawaye) in 2013

466 women screened
18 cryotherapy
13 invasive lesions
CERVICAL CANCER PREVENTION PROGRAM

Vaccination

- GAVI application in September 2013
- HPV quadrivalent vaccine
- Pilot project in 2014 Districts Dakar Ouest and Mékhé

Vaccination may be combined with screen and treat
PATH project “Vaccinate girl, screen and treat women”
HPV and cervical cancer in Sénégal

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- Research Proposal
PREVALENCE OF SPECIFIC TYPES OF HUMAN PAPILLOMAVIRUS AND CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS

Department of Pathology, School of Medicine, University of Washington, Seattle, WA, USA
Department of Epidemiology, School of Public Health, University of Washington, Seattle, WA, USA
Department of Infectious Diseases, University of Dakar, Senegal

• Prevalence of specific HPV types

• Association of each type with cervical neoplasia among women in Senegal

Strategic planning of vaccination
Screening using HPV testing

PREVALENCE OF SPECIFIC TYPES OF HUMAN PAPILLOMAVIRUS AND CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS

- 2,065 consecutive women, aged 35 years or older
- Community health clinics in Dakar
- Over 2 and ½ years
- Not pregnant
- Never screened previously
PREVALENCE OF SPECIFIC TYPES OF HUMAN PAPILLOMAVIRUS AND CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS

• ThinPrep smears

Classification Bethesda
Normal – ASCUS – LSIL– HSIL/ Carcinome

• Detection and genotyping of HPV

- HPV 16, 18, 26, 31, 33, 35, 39, 42, 45, 51-59, 66, 68, 73, 82, 83 and 84
- HPV Types 6, 11, 40

• Cervical lesions ↔ Specific HPV types

Any type, high risk and low risk

PREVALENCE OF SPECIFIC TYPES OF HUMAN PAPILLOMAVIRUS AND CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS

- Mean age: 42.7 years
- Polygamous marriage: 53%
- Oral contraception: 11%
- At least one pregnancy: 98%
- Pregnancy before age 18: 49%
- Nine or more pregnancies: 38%
PREVALENCE OF SPECIFIC TYPES OF HUMAN PAPILLOMAVIRUS AND CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS

• 1,639 women with normal cytology results 79%

Cytologic abnormalities were found in 426 women 21%

• 254 (12%) ASCUS (atypie)
• 86 (4%) LSIL (bas grade)
• 66 (3%) HSIL (haut grade)
• 20 (1%) cancer invasif

PREVALENCE OF SPECIFIC TYPES OF HUMAN PAPILLOMAVIRUS
AND CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS

HPV DNA was detected in 366 (18%) of 2,065 subjects

• 13% of 1,639 women with normal cytology results
• 21% of 254 women with ASCUS
• 51% of 86 women with LSIL
• and 76% of 86 women with HSIL/cancer

Among women with normal cytology findings

• HPV prevalence generally increased with age and was highest among women 55 years of age or older

• Same age-specific prevalence pattern for high risk and unclassified HPV types

• HPV DNA was more likely to be found in cervical swab samples from women in polygamous marriages and those with 5 or more pregnancies

PREVALENCE OF SPECIFIC TYPES OF HUMAN PAPILLOMAVIRUS AND CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS

De Sanjose, and al. Lancet Inf Dis 2007
PREVALENCE OF SPECIFIC TYPES OF HUMAN PAPILLOMAVIRUS AND CERVICAL SQUAMOUS INTRAEPITHELIAL LESIONS

HPV16 and 58 were the most common types

• Overall
  HPV 16  2.4%
  HPV 58  1.6%

• Women with HSIL/cancer
  HPV 16  23%
  HPV 58  13%

Risks for HSIL/cancer remained most strongly associated with infection with HPV16 (OR 88, 95% CI 38.6–200) and HPV58 (OR 51.2, 95% CI 16.3–161)

<table>
<thead>
<tr>
<th>HPV type</th>
<th>Normal (N=1639)</th>
<th>ASCUS (N=254)</th>
<th>Bas grade (N=86)</th>
<th>Haut grade / Cancer (N=86)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPV6</td>
<td>4 (0.2)</td>
<td>0 (0.0)</td>
<td>2 (2.3)</td>
<td>2 (2.3)</td>
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<tr>
<td>HPV11</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>1 (1.2)</td>
<td>0 (0.0)</td>
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<tr>
<td><strong>HPV16</strong></td>
<td><strong>17 (1.0)</strong></td>
<td><strong>6 (2.4)</strong></td>
<td><strong>7 (8.1)</strong></td>
<td><strong>20 (23.3)</strong></td>
</tr>
<tr>
<td>HPV18</td>
<td>14 (0.9)</td>
<td>4 (1.6)</td>
<td>4 (4.7)</td>
<td>4 (4.7)</td>
</tr>
<tr>
<td>HPV26</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>1 (1.2)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>HPV31</td>
<td>6 (0.4)</td>
<td>2 (0.8)</td>
<td>1 (1.2)</td>
<td>5 (5.8)</td>
</tr>
<tr>
<td>HPV33</td>
<td>12 (0.7)</td>
<td>4 (1.6)</td>
<td>2 (2.3)</td>
<td>7 (8.1)</td>
</tr>
<tr>
<td>HPV35</td>
<td>0 (0.0)</td>
<td>1 (0.4)</td>
<td>3 (3.5)</td>
<td>1 (1.2)</td>
</tr>
<tr>
<td>HPV39</td>
<td>2 (0.1)</td>
<td>3 (1.2)</td>
<td>0 (0.0)</td>
<td>1 (1.2)</td>
</tr>
<tr>
<td>HPV42</td>
<td>1 (0.1)</td>
<td>0 (0.0)</td>
<td>1 (1.2)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>HPV45</td>
<td>4 (0.2)</td>
<td>1 (0.4)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>HPV51</td>
<td>5 (0.3)</td>
<td>0 (0.0)</td>
<td>1 (1.2)</td>
<td>3 (3.5)</td>
</tr>
<tr>
<td>HPV52</td>
<td>9 (0.5)</td>
<td>1 (0.4)</td>
<td>3 (3.5)</td>
<td>7 (8.1)</td>
</tr>
<tr>
<td>HPV53</td>
<td>12 (0.7)</td>
<td>3 (1.2)</td>
<td>3 (3.5)</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td>HPV54</td>
<td>16 (1.0)</td>
<td>6 (2.4)</td>
<td>1 (1.2)</td>
<td>1 (1.2)</td>
</tr>
<tr>
<td>HPV56</td>
<td>5 (0.3)</td>
<td>1 (0.4)</td>
<td>1 (1.2)</td>
<td>1 (1.2)</td>
</tr>
<tr>
<td><strong>HPV58</strong></td>
<td><strong>12 (0.7)</strong></td>
<td><strong>2 (0.8)</strong></td>
<td><strong>8 (9.3)</strong></td>
<td><strong>11 (12.8)</strong></td>
</tr>
<tr>
<td>HPV59</td>
<td>6 (0.4)</td>
<td>0 (0.0)</td>
<td>2 (2.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>HPV66</td>
<td>3 (0.2)</td>
<td>1 (0.4)</td>
<td>1 (1.2)</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td>HPV68</td>
<td>1 (0.1)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>1 (1.2)</td>
</tr>
<tr>
<td>HPV73</td>
<td>5 (0.3)</td>
<td>2 (0.8)</td>
<td>1 (1.2)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>HPV82</td>
<td>1 (0.1)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td>HPV83</td>
<td>13 (0.8)</td>
<td>2 (0.8)</td>
<td>0 (0.0)</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td>HPV84</td>
<td>0 (0.0)</td>
<td>3 (1.2)</td>
<td>1 (1.2)</td>
<td>1 (1.2)</td>
</tr>
<tr>
<td>One type</td>
<td>102 (6.2)</td>
<td>24 (9.4)</td>
<td>31 (36.0)</td>
<td>42 (48.8)</td>
</tr>
<tr>
<td>Multiple types</td>
<td>20 (1.2)</td>
<td>8 (3.1)</td>
<td>6 (7.0)</td>
<td>13 (15.1)</td>
</tr>
<tr>
<td>2 genotypes</td>
<td>14 (0.9)</td>
<td>6 (2.4)</td>
<td>5 (5.8)</td>
<td>10 (11.6)</td>
</tr>
<tr>
<td>3 genotypes</td>
<td>6 (0.4)</td>
<td>2 (0.8)</td>
<td>1 (1.2)</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td>5 genotypes</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>1 (1.2)</td>
</tr>
</tbody>
</table>

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Research proposal

GENOTYPAGE HPV POUR LA PREVENTION DU CANCER

Context

- Multivalent vaccine

- Low cost, accurate testing in screen and treat strategy (single visit)
  - VIA : low sensitivity ?
  - Rapid HPV testing : overtreatment ?
Research proposal

GENOTYPAGE HPV POUR LA PREVENTION DU CANCER

Objectives

• **Prevalence** of high risk HPV types

• Associations between risk of *cervical lesions and HPV status*

• Reliability and accuracy of **HPV testing and liquid-based cytology**

• Associations between epidemiological aspects and HPV persistence
Research proposal

GENOTYPAGE HPV POUR LA PREVENTION DU CANCER

Study Overview

- Consecutive women, aged 35 years or older, not pregnant

- One liquid based sample for cytologic diagnosis and HPV detection followed by colposcopy and biopsy

- 4 recruitment centers, over 2 years

- Recruitment criteria: *Normal* – *ASCUS* – *LSIL* – *HSIL/ Carcinome*
Research proposal

**GENOTYPAGE HPV POUR LA PREVENTION DU CANCER**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
<th>HPV</th>
<th>% HPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal + inflammatory</td>
<td>1639</td>
<td>79,37%</td>
<td>205</td>
<td>12,51%</td>
</tr>
<tr>
<td>ASCUS</td>
<td>254</td>
<td>12,30%</td>
<td>52</td>
<td>20,47%</td>
</tr>
<tr>
<td>LSIL</td>
<td>86</td>
<td>4,16%</td>
<td>44</td>
<td>51,16%</td>
</tr>
<tr>
<td>HSIL / Cancer</td>
<td>86</td>
<td>4,16%</td>
<td>65</td>
<td>75,58%</td>
</tr>
</tbody>
</table>

Prévalence d’après *Long Fu and al, 2003*  
Population d’étude : 2 065 femmes
Research proposal

GENOTYPAGE HPV POUR LA PREVENTION DU CANCER

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
<th>HPV</th>
<th>% HPV</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>normal</td>
<td>378</td>
<td>79,37%</td>
<td>38</td>
<td>12,51%</td>
<td>300</td>
</tr>
<tr>
<td>ASCUS</td>
<td>1463</td>
<td>12,30%</td>
<td>37</td>
<td>20,47%</td>
<td>180</td>
</tr>
<tr>
<td>Lésions de bas grade</td>
<td>1921</td>
<td>4,16%</td>
<td>41</td>
<td>51,16%</td>
<td>80</td>
</tr>
<tr>
<td>Lésion de haut grade / cancer</td>
<td>4322</td>
<td>4,16%</td>
<td>136</td>
<td>75,58%</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>4000</td>
<td>100,00%</td>
<td></td>
<td></td>
<td>740</td>
</tr>
</tbody>
</table>

- N : Number of women to screen
- HPV : Number of women HPV + by group
- n : Number of women to enroll by group
High incidence of cervical cancer

Lack of infrastructures, equipment and human resources

Cervical Cancer Francophone Research Network

African french speaking countries
Thank you