Introduction of HPV Vaccine into the national vaccination schedule Belize

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Maternal and Child Health TA
Ministry of Health
Outline

Overview of prevention of cancer of the cervix program

Process for introduction of HPV vaccine

Lessons Learnt and Challenges
**Capital:** Belmopan

**Population:** 387,895 [SIB 2017]

**Largest City:** Belize City

**Area**

- Total 22,966 km² (8,867 sq mi)
- Water (%) 0.8

**Official Language:** English

**UPPER-MIDDLE-INCOME ECONOMY**
### Ethnic Groups [2010 Census-SIB]

<table>
<thead>
<tr>
<th>Rank</th>
<th>Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mestizo</td>
<td>53.9%</td>
</tr>
<tr>
<td>2</td>
<td>Creole</td>
<td>23.9%</td>
</tr>
<tr>
<td>3</td>
<td>Mayan</td>
<td>11.3%</td>
</tr>
<tr>
<td>4</td>
<td>Garifuna</td>
<td>6.1%</td>
</tr>
<tr>
<td>5</td>
<td>White</td>
<td>5.8%</td>
</tr>
<tr>
<td>6</td>
<td>Asian Indians</td>
<td>3.9%</td>
</tr>
<tr>
<td>7</td>
<td>East Asian</td>
<td>1.0%</td>
</tr>
<tr>
<td>8</td>
<td>Other</td>
<td>1.2%</td>
</tr>
<tr>
<td>9</td>
<td>Unknown</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

### Districts

1. Corozal
2. Orange Walk
3. Belize [80% Urban]
4. Cayo
5. Stann Creek
6. Toledo [80% Rural]
Program overview

- Policy and legal framework
- National Committee
- Normative level
- Program management
- Revised screening strategies
Policy level

Sexual and Reproductive Health Policy

- Reduce reproductive tract cancers
- Improve adolescent health
  - HPV vaccine introduced into the national vaccination schedule
Normative level

Clinical guidelines and procedure manual updated

Local partners: Ministry of Health, Belize Cancer Society, Belize
Family Life Association, National Health Insurance, KHMH

International partners: Jhpiego, IPPF-WHR, PAHO, IUCC

National Vaccination Schedule: Includes HPV
Cervical cancer prevention and control
Strategic Plan 2016-2021
Cervical cancer prevention and control operational plans
Monitoring and Evaluation plan
Decision-making flowchart for programme managers

Do you have a screening programme in place?

Yes, VIA

Do you have enough resources to provide an HPV test?

Yes, cytology followed by colposcopy

No

No

Do the programme meet quality indicators (e.g. training, coverage, and follow-up)?

Yes

HPV test followed by VIA

Yes

HPV test alone

No

VIA alone

No

Cytology or HPV test followed by colposcopy

Yes

Cryotherapy and/or LEEP must be part of a screen-and-treat programme
Screening method

10 Screen and Treat clinics

- VIA
- Cryotherapy
- LEEP
- Portable Colposcope - New

Target by district
VIA in Females 25-49 years

Belize Family Life Association sourced funding from IPPF WHR
Screen + Treat Facilities

VIA
CRYO
LEEP
Colposcopy
Surgery

VIA
CRYO
VIA
CRYO?
PAP
smear

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>6</td>
<td>10</td>
<td>32</td>
</tr>
</tbody>
</table>
## Target population to be screened

<table>
<thead>
<tr>
<th>District</th>
<th>URBAN</th>
<th></th>
<th></th>
<th>RURAL</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Yearly Target</td>
<td>Monthly Target</td>
<td>Total</td>
<td>Yearly Target</td>
<td>Monthly Target</td>
</tr>
<tr>
<td>Corozal</td>
<td>2197</td>
<td>750</td>
<td>65</td>
<td>5488</td>
<td>1800</td>
<td>150</td>
</tr>
<tr>
<td>Orange Walk</td>
<td>2521</td>
<td>840</td>
<td>70</td>
<td>5716</td>
<td>1900</td>
<td>160</td>
</tr>
<tr>
<td>Belize</td>
<td>14954</td>
<td>5000</td>
<td>420</td>
<td>6379</td>
<td>2200</td>
<td>180</td>
</tr>
<tr>
<td>Cayo</td>
<td>8372</td>
<td>2800</td>
<td>230</td>
<td>6048</td>
<td>2020</td>
<td>180</td>
</tr>
<tr>
<td>Stann Creek</td>
<td>1635</td>
<td>600</td>
<td>45</td>
<td>4530</td>
<td>1500</td>
<td>130</td>
</tr>
<tr>
<td>Toledo</td>
<td>1026</td>
<td>200</td>
<td>30</td>
<td>3863</td>
<td>1300</td>
<td>110</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30705</td>
<td>10,500</td>
<td>900</td>
<td>32024</td>
<td>10700</td>
<td>900</td>
</tr>
</tbody>
</table>

### Screening and treatment services provided at or during:
- Health facilities
- Mobile clinics
- Health fairs

**Women with HIV**
- Yearly Screening

**First time screening / every 3 years**
- Fist time in life
- Previous screening and no result given
- First screening since 3 or more years
## Cervical Cancer Screening Report - SR. July 2018

### 1. Number of clients who received a CERVICAL CANCER SCREENING (By visit type)

<table>
<thead>
<tr>
<th>Details</th>
<th>HIV+</th>
<th>HIV-</th>
<th>HIV Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIA-First time in Life</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>VIA - First time within last 3 years</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>VIA - Last 3 years screened - No result</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>PAP SMEARS - FIRST TIME as per criteria for VIA</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

| First time screening | 19 | 16 | 2 |

### 2. Number of clients who received a CERVICAL CANCER SCREENING (By visit type)

<table>
<thead>
<tr>
<th>Details</th>
<th>HIV+</th>
<th>HIV-</th>
<th>HIV Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIA - Post-treatment Follow-Up at 1 year</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VIA - Rescreening Visit (previous negative result &lt; 3 years)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| VIA - OTHERS | 0 | 0 | 0 |
| PAP SMEARS - Not first time screening | 1 | 1 | 2 |

| TOTAL WOMEN SEEN IN THE MONTH | 0 | 1 | 0 |

### 3. Number of clients with SUSPECT CANCER

<table>
<thead>
<tr>
<th>Details</th>
<th>HIV+</th>
<th>HIV-</th>
<th>HIV Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>First time screening VIA</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### 4. Number of clients with ABNORMAL/POSITIVE screening result

<table>
<thead>
<tr>
<th>Details</th>
<th>HIV+</th>
<th>HIV-</th>
<th>HIV Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>First time screening - VIA</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### 5. Number of clients with POSITIVE screening result TREATED WITH CRYOTHERAPY

<table>
<thead>
<tr>
<th>Details</th>
<th>HIV+</th>
<th>HIV-</th>
<th>HIV Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same day screen &amp; treat (SVA)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### 6. Number of clients with a POST-TREATMENT COMPLICATION

<table>
<thead>
<tr>
<th>Details</th>
<th>HIV+</th>
<th>HIV-</th>
<th>HIV Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cryotherapy</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### 52 women screened, 50 first time in life or in 3 years, SVA 100% [5]
Plans 2018

- Salud Mesoamerica Initiative / Rotary Club
  - VIA/CRYO/LEEP Training for Doctors and Nurses
- RUTGERS University = Needs assessment completed
- Procure pap smears to reduce turn around time in the pipeline, dependent on access to funds
- Liquid cytology
- HPV screening
Vaccine introduction process
Introduction of HPV vaccine

Program Needs Assessment – CAREC
- Automated slide stainer

2006
Introduction of HPV vaccine

2007

HPV sero-prevalence in 463 women – Charles R. Drew

University of Medicine and Science, Los Angeles, California –

16 and 18 highest frequency

Study Sponsors: Digene Corporation; The Department of Pathology, the University of Virginia at Charlottesville; The American Cancer Society

Figure 4. Prevalence of overall HPV and HPV16 or 18 by age in the entire group of Belizean women.

The overall prevalence of HPV in the population studied was 15.6%
Introduction of HPV vaccine

- **2011**: Private sector provides HPV vaccine
- **2013**: Cost Effectiveness Analysis of HPV vaccine introduction – PAHO
Total Cancer cases 2011-2012 [n=266]
Dr. Aisha Andrewin – MOH Belize
HPV vaccine acceptance 2016

Survey done by Public Health Nurses

<table>
<thead>
<tr>
<th>Category</th>
<th>Belize</th>
<th>Orange Walk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heard of CC</td>
<td>93</td>
<td>100</td>
</tr>
<tr>
<td>Heard of Vaccine</td>
<td>41</td>
<td>63</td>
</tr>
<tr>
<td>Vaccine helpful</td>
<td>57</td>
<td>91</td>
</tr>
<tr>
<td>Uptake</td>
<td>85</td>
<td>100</td>
</tr>
<tr>
<td>Authorized Child</td>
<td>82</td>
<td>92</td>
</tr>
</tbody>
</table>
National Committee Recommendation

School based HPV4 vaccination program
Sensitization on HPV vaccine

Mapping of stakeholders

- Religious Leaders
- Ministry of Education
- Media, CSO, HCW and CHW
- Parents
The plan

- One cohort of girls 10 years old [all girls in standard IV]
- PAHO Revolving Fund – 1st procurement done by the Belize Social Security Board
- Parental consent form + information sheet
- Census and reporting forms
- Breakfast on the day of vaccination
Number of female students in Standard 3-6
Belize 2010-2011 and 2011-2012

<table>
<thead>
<tr>
<th></th>
<th>Standard 3</th>
<th>Standard 4</th>
<th>Standard 5</th>
<th>Standard 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-2011</td>
<td>4296</td>
<td>4234</td>
<td>3823</td>
<td>3540</td>
</tr>
<tr>
<td>2011-2012</td>
<td>4278</td>
<td>4415</td>
<td>4174</td>
<td>3558</td>
</tr>
</tbody>
</table>

Source: MOEYS. Education Statistical Digest of Belize 2011/2012
Lessons Learnt

Life Course Preventive Interventions

Crosscutting: Screening and management of acute and chronic illnesses

Birth
- BCG Vaccine
- Immediate newborn care
- Exclusive breastfeeding

Birth up to 4 years
- Child growth and development – 3 days
- Vaccines against 11 diseases – 2 months
- Deworming – 1 year + every 6 months
- Vitamin A – 6 months + every 6 months

5 to 9 years
- Tetanus + Diphtheria vaccine
- Deworming every 6 months
- Vitamin A every 6 months
- Child growth and development

10-19 years
- Multivitamins
- Iron and folic acid
- Deworming
- Tetanus + diphtheria vaccine
- HPV vaccine
- Health education

Adults
- Tetanus + Diphtheria vaccine
- Deworming + Iron and folic acid
- Healthy lifestyle promotion
- Cervical cancer screening
- Breast and Prostate cancer screening

What is Human Papilloma Virus or HPV?

It’s a virus that cause infections in nearly all persons at some point in their lives.

There are many different types of HPV virus. Some types can cause health problems including genital warts and cancers. And there are vaccines that can STOP these health problems from happening.
Lessons Learnt

Evangelical Council of Churches  Chief Education Officer  Belize Cancer Society  Director Health Services  MCH-TA  OBGYN-Oncologist Private
Lessons Learnt - RESPECT

- Meetings and number of participants in red
- 1: Bishop - [1]
- 3: Bishop + School Manager + District Managers [12]
- 4: School + District Managers + Principals [100+]
- 5: Meeting with teachers and parents at schools

- Presentation by MOH and Belize Cancer Society
Lessons Learnt -

TRANSPARENCY
when sharing information

Update presentation based on questions

Richard E. Shope (1901—1966)
1957 Albert Lasker Clinical Medical Research Award

From the 1930s showing that infection with a type of papillomavirus could cause warts and cancers in rabbits.

Peyton Rous (1879—1970)

1966 Nobel Prize in Physiology or Medicine
Benign tumors in rabbits can become cancerous.

1898 – 1930 - 1966* and 2008*

NOBEL PRIZE*
- Cervical cancer caused by papillomaviruses
- Isolation and characterization of the two most frequent HPV types
- Better understanding of HPV-mediated carcinogenesis
- Development of a preventive vaccine were cited as the prime reasons for awarding one half of the Nobel Prize for Medicine or Physiology in 2008.

Cervical cancer seemed to be more common among women who started having sex at a younger age or who had multiple sexual partners.
Lessons Learnt - MEDIA

Media Breakfast – Great OPPORTUNITY

https://www.breakingbelizenews.com/2016/11/03/ministry-health-roll-hpv-vaccines/
http://edition.channel5belize.com/archives/137531


http://outbreaknewstoday.com/belize-includes-hpv-vaccine-national-vaccine-program-15044/

http://edition.channel5belize.com/archives/83402

http://www.7newsbelize.com/sstory.php?nid=35243 BCS-Video

- Presentation by MOH and Belize Cancer Society
Lessons Learnt - MEDIA

Radio and TV talk shows

- Train the host before the show
- They breakdown the information to listeners/viewers
- They request the guest to further explain a specific point
Lessons Learnt

Standardized message to parents

8 hours training of staff in preparation for a 10 minutes presentation to parents
Lessons Learnt

Global Advisory Committee on Vaccine Safety (GACVS)

- Advisory body to WHO/IVB.
- Response to vaccine safety issues of potential global importance:
  - promptly, efficiently, with scientific rigor.
- Broad expertise.
- Independence.
- Decisions and recommendations based on best available evidence.

Share with anti-vaccine groups and others the evidence available.

Reports and statements: www.who.int/vaccine_safety/en/
Challenges

- No funds for social mobilization
- Major efforts done with face to face meetings with stakeholders
Challenges

- High number of small schools [<10 girls in STD-IV]
  - Campaign
  - Mobile clinics
- Reaching parents and teachers prior vaccination is a must
- Timely supply of vaccines
Challenges

BELIZE Introduction of HPV Vaccine 2016

Sensitization of stakeholders on HPV Vaccine
Cervical cancer clinical guidelines updated
VIA equipment procured
CC Strategic and operational plan updated
CC Procedure manual updated
# Conclusion

Documented cases of cancer of the cervix 2013-2017

<table>
<thead>
<tr>
<th>District</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Corozal</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>2 Orange Walk</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>3 Belize</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>5</td>
<td>9</td>
<td>37</td>
</tr>
<tr>
<td>4 Cayo</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>5 Stann Creek</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>6 Toledo</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>7 Unknown</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>23</strong></td>
<td><strong>29</strong></td>
<td><strong>26</strong></td>
<td><strong>24</strong></td>
<td><strong>24</strong></td>
<td><strong>126</strong>**</td>
</tr>
</tbody>
</table>

- Incidence rate: 38.8/100,000 females 15 and older
# Conclusion

## Deaths due to cancer of the cervix

<table>
<thead>
<tr>
<th>District</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017 Total</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corozal</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Orange Walk</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Belize</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Cayo</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Stann Creek</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Toledo</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>15</strong></td>
<td><strong>17</strong></td>
<td><strong>13</strong></td>
<td><strong>16</strong></td>
<td><strong>16</strong></td>
<td><strong>77</strong></td>
</tr>
</tbody>
</table>

Mortality rate: 23.7/100,000 deaths among females 15 and older
Conclusion

- HPV vaccine introduced into the national vaccination coverage in October 2016
- Currently procured by Government
- Coverage by school year
  - School year 2016/2017 58.8%
  - School year 2017/2018 62.4%
Conclusion

- Screening method VIA
- Insufficient coverage, 1 day a week
- Target population defined by district
- Pathology Department requires investment in capacity building and equipment/supplies
- Continue with the expansion of see and treat clinics
HPV Vaccine Introduction - Belize

Information sheet for parents
Consent form
Educational poster for parents
PowerPoint presentation and educational videos
HPV introduction Plan
Reporting forms
Letter sent to parents by Ministry of Education

Materials developed are available for sharing
nlargaespada@gmail.com