Women’s Health Across the Lifespan

Translating Research to Policy:
Creating and implementing evidence-based policies for the prevention and early detection of women’s cancers

Panelists:

Mauricio Maza, MD, MPH
Chief Medical Officer, Basic Health International

Ophira Ginsburg, MSc, MD, FRCPC
Associate Professor, NYU Langone School of Medicine

Michele Bloch, MD, PhD
Chief, Tobacco Control Research Branch, National Cancer Institute

Moderator:

Ted Trimble, MD, MPH
Director, National Cancer Institute’s Center for Global Health
75% of premature deaths in LMICs are caused by NCDs

Institute for Health Metrics and Evaluation, Global Burden of Disease Study, 2013
DALYs for Communicable Diseases vs. non-Communicable Diseases

- Communicable Diseases (46%)
  - Injuries: 11.8%
  - Cardiovascular Disease: 11.2%
  - Cancer: 7.6%
  - Musculoskeletal Disorders: 7.4%
  - Mental Health and Behavioral Disorders: 6.8%
  - Other NCDs: 4.7%

- Non-Communicable Diseases (54%)
  - Chronic Respiratory: 4.5%

Institute for Health Metrics and Evaluation, Global Burden of Disease Study, 2013
NCDs have common risk factors

1. Tobacco use
   a. Chewing tobacco, water pipe use
   b. Secondhand smoke exposure

2. Physical inactivity

3. Unhealthy diet

4. Harmful use of alcohol

5. Environmental factors
   a. Outdoor air pollution
   b. Indoor air pollution
Women are Uniquely Affected by NCDs

- Aging and globalization both act as drivers of NCDs, placing greater strain on countries still fighting infectious disease and maternal and child mortality.

- Every year, over 785,000 women die from breast and cervical cancer worldwide. 70% of these deaths occur in LMICs.

- Rapid sociodemographic shifts, such as changing reproductive patterns, influence patterns of both breast and cervical cancer.

- Cultural and social attitudes can prevent women from presenting with early disease, particularly for cancers.

- Given women’s central role in both child-rearing and the workforce, communities suffer economically when women are chronically ill.

Consortium of Universities for Global Health
Translating Research to Policy: Implementing Evidence-based Policies
The experience in a Lower Middle Income Country

8th Annual Global Conference
Consortium of Universities for Global Health

Mauricio Maza MD, MPH
Chief Medical Officer
Basic Health International
• I have no commercial relationship with any corporate entity that produces or sells products related to HPV

• Basic Health International has an agreement with the Ministry of Health of El Salvador, to oversee donation program for the QIAGENcares, careHPV implementation program
Our Vision: To live in a World where no woman dies of cervical cancer, a preventable disease

Mission: To eradicate cervical cancer globally
These are countries we have consulted / worked on / shared experiences. We are constantly trying to learn about programs. Every country is different.

Vietnam

Dominican Republic

Nicaragua

Honduras

Malawi

Rwanda

India

Peru

Haiti

Guatemala

Brazil

China
• Implementation is the process of putting to use or integrating evidence-based interventions within a setting

Source: National Institute of Health
"Blue Highways" on the NIH Roadmap

BENCH

Basic Science Research
Preclinical Studies
Animal Research

BEDSIDE

Human Clinical Trials
Controlled Observational Studies
Phase 3 Clinical Trials

PRACTICE

Clinical Practice
Delivery of Recommended Care to the Right Patient at the Right Time
Identification of New Clinical Questions and Gaps in Care

Practice-Based Research
Phase 3 and 4 Clinical Trials
Observational Studies
Survey Research

TRANSLATION TO PATIENTS

T1 Case Series
Phase 1 and 2 Clinical Trials

T2 Guideline Development
Meta-analyses
Systematic Reviews

T3 Dissemination Research
Implementation Research

T4 TRANSLATION TO POPULATION

IDEAL - PRACTICAL - REAL
Table 4
Cytological screening coverage in Latin America and the Caribbean

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Region or city</th>
<th>Number of women</th>
<th>Age (years)</th>
<th>Coverage (%)</th>
<th>Interval (years)</th>
<th>Method of estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>2005</td>
<td>National</td>
<td>NS</td>
<td>&gt;18</td>
<td>51.6</td>
<td>2</td>
<td>Survey</td>
</tr>
<tr>
<td>Belize(^a)</td>
<td>1999</td>
<td>National</td>
<td>4,164</td>
<td>13–49</td>
<td>13.4</td>
<td>1</td>
<td>Survey</td>
</tr>
<tr>
<td>Brazil</td>
<td>2002–2005</td>
<td>Capital cities</td>
<td>13,282</td>
<td>25–59</td>
<td>63.4</td>
<td>1</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>National</td>
<td>NS</td>
<td>&gt;24</td>
<td>68.7</td>
<td>3</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>National</td>
<td>2,577</td>
<td>18–69</td>
<td>64.8</td>
<td>3</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>Pelotas</td>
<td>1,198</td>
<td>25–59</td>
<td>68.8</td>
<td>3</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>Sao Paulo</td>
<td>1,050</td>
<td>15–49</td>
<td>77.3</td>
<td>3</td>
<td>Survey</td>
</tr>
<tr>
<td>Chile</td>
<td>2003</td>
<td>National</td>
<td>27,000</td>
<td>&gt;15</td>
<td>51.4</td>
<td>3</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>2003</td>
<td>National</td>
<td>–</td>
<td>25–64</td>
<td>66.0</td>
<td>1</td>
<td>SP</td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>National</td>
<td>–</td>
<td>25–64</td>
<td>64.0</td>
<td>3</td>
<td>SP</td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>Araucania Sur</td>
<td>–</td>
<td>25–64</td>
<td>56.2</td>
<td>3</td>
<td>SP</td>
</tr>
<tr>
<td>Colombia</td>
<td>2005</td>
<td>National</td>
<td>34,674</td>
<td>25–69</td>
<td>50.6</td>
<td>1</td>
<td>Survey</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1999–2000</td>
<td>National</td>
<td>1,612</td>
<td>18–44</td>
<td>37.0</td>
<td>1</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>1991</td>
<td>National</td>
<td>NS</td>
<td>25–58</td>
<td>51.3</td>
<td>1</td>
<td>Survey</td>
</tr>
<tr>
<td>Cuba</td>
<td>1993–1994</td>
<td>National</td>
<td>–</td>
<td>&gt;20</td>
<td>54.2</td>
<td>2</td>
<td>SP</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>2002</td>
<td>National</td>
<td>1,389</td>
<td>18–69</td>
<td>54.4</td>
<td>3</td>
<td>Survey</td>
</tr>
<tr>
<td>Ecuador</td>
<td>2004</td>
<td>National Urban</td>
<td>10,813</td>
<td>15–49</td>
<td>31.0</td>
<td>2</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>5,876</td>
<td></td>
<td>35.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4,938</td>
<td></td>
<td>24.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>El Salvador</td>
<td>2002</td>
<td>National</td>
<td>10,689</td>
<td>15–49</td>
<td>47.0</td>
<td>1</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>1998</td>
<td>National</td>
<td>–</td>
<td>NS</td>
<td>19.0</td>
<td>3</td>
<td>SP</td>
</tr>
</tbody>
</table>
At 1 year Follow-up

369 cases reported in National Ministry of Health Records

Adherence to recommended follow-up care after high-grade cytology in El Salvador

Maureen Max1, Susan Mannon2, Kato Allan1, Todd A. Kroop1, Rachel MacRae1, Susana Celisera1, Jose Velia1

1. University of Wisconsin Madison, Madison, WI
2. University of Puerto Rico

CHALLENGES
At 1 year Follow-up

- 369 cases reported in National Ministry of Health Records
- 148 Met criteria for study
  - 49 charts not located
  - 99 / 148 were located

Adherence to recommended follow-up care after high-grade cytology in El Salvador
At 1 year Follow-up

369 cases reported in National Ministry of Health Records

148 Met criteria for study

49 charts not located

99 / 148 were located

99 treatment status within a year of HSIL result

44/99 (44.4%) Received Treatment
51/99 (51.5%) No treatment
4/99 (4.0%) completed treatment after a year

Adherence to recommended follow-up care after high-grade cytology in El Salvador

Mauricio Marín, Susana Marcano, Pedro Alfaro, Todd Allen, Rachel Murch, Sarah Colón, Jose Velo

Adherence to recommended follow-up care after high-grade cytology in El Salvador

Table 2. Step in cervical cancer screening and precancer treatment process where loss to follow-up occurred (n=55)

<table>
<thead>
<tr>
<th>Reason</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not schedule colposcopy appointment</td>
<td>34 (61.8)</td>
</tr>
<tr>
<td>Did not receive Pap results</td>
<td>11 (20.0)</td>
</tr>
<tr>
<td>Did not return for biopsy results after abnormal colposcopy</td>
<td>5 (9.1)</td>
</tr>
<tr>
<td>Did not complete treatment within 1 year</td>
<td>4 (7.3)</td>
</tr>
<tr>
<td>Did not attend colposcopy appointment</td>
<td>1 (1.8)</td>
</tr>
</tbody>
</table>
A new HPV-DNA test for cervical-cancer screening in developing regions: a cross-sectional study of clinical accuracy in rural China
You-lin Qiao, John W Sellers, Paul S Eder, Yan-ping Bao, Jeanette M Lim, Fang-hui Zhao, Bernhard Weigl, Wen-ju Zhang, Roger B Peck, Ling Li, Feng Chen, Qing-jing Pan, Attila T Lorincz

Cost-Effectiveness of Cervical-Cancer Screening in Five Developing Countries
Sue J. Goldie, M.D., M.P.H., Lynne Gaffikin, Dr.P.H., Jeremy D. Goldhaber-Fiebert, A.B., Amparo Gordillo-Tobar, M.D., Ph.D., Carol Levin, Ph.D., Cédric Mahé, Ph.D., and Thomas C. Wright, M.D., for the Alliance for Cervical Cancer Prevention Cost Working Group®

Human Papillomavirus–Based Cervical Cancer Prevention: Long-term Results of a Randomized Screening Trial
Lynette Denny, Louise Kuhn, Chih-Chi Hu, Wei-Yann Tsai, Thomas C. Wright Jr
Propuesta para la Implementación de careHPV en El Salvador:
Fase 1. Definiendo el Algoritmo de Tratamiento

PRESENTADO POR:
SERVICIO DE ATENCIÓN INTEGRAL A LA SALUD SEXUAL Y REPRODUCTIVA
MINISTERIO DE SALUD DE EL SALVADOR
CAPE PROJECT (Cervical Cancer Prevention in El Salvador)

Project is 3 phases which will screen 30,000 women between 2012 y 2015

- **Phase 1:**
  - October 2012 - March 2013
  - 2,000 women, 4 municipalities / main health clinics

- **Phase 2:**
  - September 2013 - May 2014
  - 8,000 women, 4 municipalities, 16 additional health houses or community clinics

- **Phase 3:**
  - July 2014 – December 2015
  - 20,000 women, 1/5 of country
Political Will

October 2012
Cohort A: Colposcopy referral (standard of care)

- Sample collection
  - HPV+
    - Colposcopy appointment made when positive results are received
      - Positive colposcopy → Treatment (LEEP, cryotherapy, cone biopsy) following biopsy results
      - Negative colposcopy → HPV test in 1 year
  - HPV - → Repeat test in 5 years
Cohort B: Screen and Treat (Innovation)

Sample collection

**HPV+**
- Treatable with cryotherapy → Treated with cryotherapy by a gynecologist in the same visit

**HPV-** → Repeat test in 5 years
- Not treatable with cryotherapy → Referred to colposcopy

---

**HPV+**

**HPV-** → Repeat test in 5 years
- Not treatable with cryotherapy → Referred to colposcopy
RESULTS
COHORT A
(Screen and Refer to Colposcopy)

1000 women screened

93 HPV-positive (9.3%)

100% received results and made appointment for colposcopy

82/93 women attended colposcopy (88.2%)

64/82 Received proper follow up / treatment

905 HPV-negative (90.7%) (will rescreen in 5 years)

11 did not attend colposcopy (11.8%)

Average time between results and colpo = 50 days

Average time between biopsy and treatment = 48 days

Women with treatment (64/93) 68.8%

At 6 Month Follow-up
COHORT B
(Screen and Treat with cryotherapy)

1000 women screened

119 HPV-positive (11.9%)

- 9 judged ineligible for cryotherapy / referred to colposcopy
- 7/9 received treatment

110 treated with cryotherapy (93.3%)

881 HPV-negative (88.1%) (will rescreen in 5 years)

Women with treatment (117/119) 98.3%

Average time between screening and treatment = 24 days
### TABLE 3. Worst Histopathology Result of Biopsy by Local and Expert Pathologists

<table>
<thead>
<tr>
<th>Worst diagnosis by expert pathologist</th>
<th>Worst diagnosis by local pathologist</th>
<th>Normal</th>
<th>CIN 1</th>
<th>CIN 2</th>
<th>CIN 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Normal</td>
<td>2</td>
<td>57</td>
<td>1</td>
<td>1</td>
<td>61</td>
</tr>
<tr>
<td>CIN 1</td>
<td>CIN 1</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>CIN 2</td>
<td>CIN 2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>CIN 3</td>
<td>CIN 3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>Adenocarcinoma</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Missing</td>
<td>Missing</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
<td>3</td>
<td>79</td>
<td>3</td>
<td>4</td>
<td>89</td>
</tr>
</tbody>
</table>
Cervical Cancer Prevention in El Salvador: Costs and Cost-Effectiveness of careHPV testing (Phase I)

Jane J. Kim, Ph.D.
Nicole G. Campos, Ph.D.
Cancer Risk

Reduction in Lifetime CC Risk (%)

- 80% Screen Covg
- 50% Screen Covg

- careHPV (A) (5-years)
- careHPV (B) (5-years)
- Pap (2-years)

Campos et al. Int. J. Cancer: 00, 00–00 (2015) CV 2015 UICC
Cost Effectiveness Results

- **Pap (2-year)**
  - Total Cost: $2,020

- **careHPV A (5-year)**
  - Quality-adjusted Life Years (QALY)

- **careHPV B (5-year)**
  - Quality-adjusted Life Years (QALY)

Campos et al Int. J. Cancer: 00, 00–00 (2015) CV 2015 UICC
Summary of Key Findings from Phase I

- Screening with careHPV provides *greater health benefits* than current Pap smear screening.

- Routine screening with careHPV (every 5y) is *cost-effective* compared to Pap testing (every 2y) at a cost-effectiveness threshold of 1x-3x GDP per capita.

- Screening with careHPV followed by visual triage (cohort B) is *more effective and less costly* than careHPV with colposcopy triage (cohort A).
Evaluate Results
CAPE Phase 2

- Determine most effective follow-up method for HPV+ women
- 8 communities involved
- Target population:
  - women age 30-49
  - no history of screening in > 3 years
COHORT A
(Screen and Refer to Colposcopy)

3.963 women screened

489 (12%) HPV positives

100% Received results and made an appointment for colposcopy

387 (79%) women attended colposcopy

11 (3%) Negative biopsy

203/387 (52%) received treatment

173/387 (55%) Did not received treatment

3.474 (88%) HPV negatives (Screening in 5 years)

102 (21%) did not attended colposcopy

Women with treatment 41.5% (203/489)

At 6 Month Follow-up
COHORT B
(Screen and Treat with cryotherapy)

At 6 Month Follow-up

4.087 women screened

<6 months

465 (11%) HPV Positive

56 (12%) Ineligible for cryotherapy, referred to colposcopy

30/56 (54%) women attending colposcopy

2/30 (7%) Negative biopsy

11/30 (37%) received appropriate treatment

17/30 (57%) Did not receive appropriate treatment

3.622 (89%) HPV negative (Screening in 5 years)

397 (85%) Immediate treatment with cryotherapy

Women with treatment (410/465) 88.2%
Worst histopathology result of biopsy by local and expert pathologists

<table>
<thead>
<tr>
<th>Worst diagnosis by expert pathologist</th>
<th>Worst diagnosis by local pathologist</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>360 CIN1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17 CIN2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 CIN3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 Carcinoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>392</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>74.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIN1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 CIN1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 CIN2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 CIN3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 Carcinoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIN2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>35 CIN1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 CIN2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 CIN3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 Carcinoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CIN3/AIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22 CIN1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 CIN2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>29 CIN3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 Carcinoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carcinoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 CIN1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 CIN2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 CIN3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Carcinoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16 Normal</td>
<td>441</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3%)</td>
<td>(83.4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>38 CIN1</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(7.2%)</td>
<td>(6.2%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33 CIN3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.2%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>529</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Accuracy of Histopathology in a Regional Cervical Cancer Screening Program in El Salvador

Julia C. Gage*, Juan Felix, Mario Morales, Mauricio Maza, Karla Alfaro, Philip E. Castle, Jane Kim, Rachel Masch, Proma Paul, Miriam Cremer

PRELIMINARY RESULTS – DO NOT CITE OR DISTRIBUTE
Cancer Reduction

Reduction in Lifetime Risk of CC (%)

- careHPV Screen and Treat (5-year)
- careHPV Colposcopy Management (5-year)
- Pap (2-year)

- 80% Coverage
- 60% Coverage
- 40% Coverage
- 20% Coverage

PRELIMINARY RESULTS – DO NOT CITE OR DISTRIBUTE
Cost-Effectiveness Results

PRELIMINARY RESULTS – DO NOT CITE OR DISTRIBUTE
Screening with careHPV is less costly than Pap smear screening.

Routine screening with careHPV (every 5 years) is more effective and less costly compared to Pap testing (every 2 years).

careHPV Screen and Treat is more effective and less costly than careHPV with Colposcopy Management, and is a very cost-effective intervention in El Salvador.
NOW WE HAVE RESULTS
NOW WE HAVE OUR OWN EVIDENCE
NOW WE CAN JUSTIFY CHANGE
Lineamientos técnicos para la prevención y control del cáncer cérvido uterino y de mama

Flujograma n.° 2
Tamizaje con una prueba de detección de VPH seguida de evaluación visual con ácido acético y tratamiento

Prueba del VPH
- Negativa
  - Repita el tamizaje en 5 años
- Positiva
  - Determine eligibilidad para citología y descarte cáncer cervido-inferior utilizando evaluación visual con ácido acético
    - Eligible para citologías
      - Dar citología cada 3 ciclos de 3 meses con periodo de descanso de 6 meses entre ciclos
    - No elegible para citologías
      - Realizar colposcopia
      - Tomar biopsia dirigida del cuello
    - Suspuesta de cáncer invasor
      - Realizar ginecología oncológica

Criterios de elegibilidad para citologías:
1. Que lesión se observe en su totalidad
2. Que lesión sea cubierta por la punta de la cirugía

Fuente: Adaptación de flujograma de OPS. "Prevención del cáncer Cérvido uterino. Estrategias para el Tamizaje y Tratamiento de las Lesiones Precursores." 2013
### SOLICITUD Y REPORTE DE CITOLÓGIA CÉRICO VAGINAL

<table>
<thead>
<tr>
<th>NOMBRE DEL ESTABLECIMIENTO</th>
<th>NÚMERO</th>
<th>FECHA DE NACIMIENTO</th>
<th>EDAD</th>
<th>NÚMERO EXPEDIENTE</th>
<th>NÚMERO CITOLÓGIA</th>
<th>FECHA TOMA DE MUESTRA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### DATOS CLÍNICOS

<table>
<thead>
<tr>
<th>LACTANCIA</th>
<th>ANTICONCEPTIVOS</th>
<th>TIP. ADN</th>
<th>INY.</th>
<th>DIU</th>
<th>OTRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>NO</td>
<td>S</td>
<td>NO</td>
<td>DIU</td>
<td>OTRO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEUCOCITOS</th>
<th>SANGRADO</th>
<th>CERVICIS</th>
<th>HISTÉRECTOMÍA</th>
<th>RADIACIÓN</th>
<th>HORMONAL</th>
<th>RESULTADO</th>
<th>PAP 1 VEZ</th>
<th>PAP SG</th>
<th>PAP RECURS</th>
<th>ATRASADO</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

#### CALIDAD DE LA MUESTRA

- SATISFACTORIA PARA EVALUACIÓN
- INEQUIVOCADA PARA EVALUACIÓN
- PROCESADA
- NO PROCESADA

#### ORGANISMOS

- TRICOMICOSAS VAGINALES
- MICROORGANISMOS MÓVILES
- CONSISTENCIAS CON CÁNCER
- MICROORGANISMOS MÓVILES
- CAMBIO EN LA FLORA BACTERIANA
- DEXAMETASÓN

#### CAMBIOS CELULARES REACTIVOS ASOCIADOS

- RADIOACCIÓN
- INFLAMACIÓN

#### ANORMALIDADES DE LA CÉLULA ESCAMOSA

- CELULAS ESCAMOSAS ATÍPICAS
- LÉY DE BAJO GRADO
- LÉY DE ALTO GRADO
- CON HALLAZGOS SOSPICIOSOS DE INVASIÓN
- CARCINOMA DE CELULAS ESCAMOSAS

#### OTRAS NEOPLASIAS MALIGNAS

- LEUKEMIA
- LINFOMA

#### OBSERVACIONES

- FECHA DE RECEPCIÓN: 3 OCT 2014
- FECHA DE REPORTE: 3 OCT 2014
- FIRMADO: M. C. A. OTTOY
- FECHA 15 OCT 2014
Screening Forms
Transition
Screening Forms
Advocacy
Fecha: 4 febrero 2016

Asistencia de 255 personas, de todas instituciones del sector.
CAPE Phase 3

- Take up on a regional level
- SCREEN AND TREAT
- 4 Departments
- Target population:
  - women age 30-59
  - no history of screening in > 2 years
<table>
<thead>
<tr>
<th>Category</th>
<th>Numbers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women screened (from 20,000 target)</td>
<td>17,966</td>
<td>89.8%</td>
</tr>
<tr>
<td>Samples tested</td>
<td>17,966</td>
<td>100%</td>
</tr>
<tr>
<td>HPV Positive Results</td>
<td>2,209</td>
<td>12.3%</td>
</tr>
<tr>
<td>Underwent VT (from 2,209)</td>
<td>1,949</td>
<td>88.2%</td>
</tr>
<tr>
<td>Received cryotherapy (from 1,949)</td>
<td>1,650</td>
<td>84.6%</td>
</tr>
<tr>
<td>Referred to colposcopy (from 1,949)</td>
<td>299</td>
<td>15.4%</td>
</tr>
</tbody>
</table>
Diagnóstico Situacional de cáncer en El Salvador: publicado y divulgado a nivel interinstitucional

Política Nacional para la Prevención y control del cáncer: publicada y divulgada a nivel interinstitucional

Lineamientos Técnicos para la prevención y control del cáncer de cérvix y mama: publicado, divulgado a nivel interinstitucional y socializados a través de talleres de trabajo en las 5 Regiones de salud

En Oficialización: Leucemia, linfomas. estómago, colon-recto, próstata, pulmón (validación externa por Dr. Franco Cavalli)

SOURCE: AVANCE EN LA IMPLEMENTACION DE LA POLÍTICA NACIONAL PARA LA PREVENCIÓN Y CONTROL DEL CÁNCER, MOH EL SALVADOR PRESENTATION DRA ANDREA CHACON
Research that leads change

- TRAIN/EDUCATE
  
  *700 Health Promoters*
  
  *500 Nurses and physicians*
Cryotherapy Cylinders and Equipment
“Blue Highways” on the NIH Roadmap

Cryopen For LMIC

NIH NATIONAL CANCER INSTITUTE

Cleveland Clinic
Mobile phone platform ensures collaboration is built in, algorithmic analysis forthcoming
“Blue Highways” on the NIH Roadmap

BENCH

Basic Science Research
Preclinical Studies
Animal Research

BEDSIDE

Human Clinical Trials
Controlled Observational Studies
Phase 3 Clinical Trials

PRACTICE

Clinical Practice
Delivery of Recommended Care to the Right Patient at the Right Time
Identification of New Clinical Questions and Gaps in Care

Practice-Based Research
Phase 3 and 4 Clinical Trials
Observational Studies
Survey Research

T1 Case Series
Phase 1 and 2 Clinical Trials

T2 Guideline Development
Meta-analyses
Systematic Reviews

T3 Dissemination Research
Implementation Research

T4 Translation to Populatation

Screen over 100,000
Research Challenges

Not all countries have financial and technical human resources for research

There is a need to support the ideas on research that can impact decision making

Advocate for simple ways to conduct implementation research in limited resource settings
A multi-step approach for implementation of cancer programs in Low and Middle Income Countries

- Political Will
- Negotiate
- Legal Framework
- Advocacy
- Research
- Budget/Costing
- Transition
- Evaluate
- Educate/Disseminate
- Evidence
WE CAN OVERCOME CHALLENGES

LEARN FROM OUR MISTAKES
LMICs need to share their experiences
Challenges are very common, regardless the country
No one solution
But if we work together
Thank you!

Collaborators-
• Juan Felix MD
  Phil Castle PhD
• Julia Gage PhD
• Jane Kim PhD
• Nicole Campos PhD

Advisors-
• Silvana Luciani (PAHO)
• Jose Jeronimo (PATH)
• Melissa Rendler (UICC)
• Kathleen Schmeler (MD Anderson)
• Paul Pearlman (NCI/NIH)
Thank you!

BHI and MOH Staff-
- Miriam Cremer (Founder)
- Rachel Masch (Executive Director)
- Karla Alfaro (Medical Director)
- Elizabeth Torres (Director of Clinical and Educational Training)
- Catherin Platt (Director of Grants and Finance)
Breast Cancer Control in low resource settings

innovation and integration for greater impact

Ophira Ginsburg, MSc MD
NYU School of Medicine
CUGH Washington, D.C.
April 8, 2017
“Women’s Cancers”

- 2.7 million new cases
- >1 million deaths

- Breast
- Cervix
- Uterus (Endometrium)
- Ovary
- + rarer tumours
“Women’s Cancers” – public health view

- Breast
  - big #s
  - major cause of premature M&M
  - effective interventions to reduce mortality

- Cervix
  - prevention at relatively low cost
  - some interventions at primary care
An equity imperative ...

high income, strong health system

low and middle-income, rural, impoverished regions
We know what to do!

But how do we get there...?
Public Health Interventions

- Tobacco control & other Risk reduction policies
- HPV vaccination
- Cervical screening
- Treatment of pre-cancers

- Improve access/utilization for early detection
- Process improvements: triage, referral, monitoring/evaluation follow-up

- Public and provider awareness of early symptoms, where to go
- Countering myths, stigma
Cancer System Capacity

Improve access/utilization for early detection

Process improvements: triage, referral, monitoring/evaluation follow-up
Feasible and effective interventions for breast cancer control in LMICs and in bridging the divide

- Breast awareness among the public and health care professionals
- Clinical breast examination (CBE) screening
- Early diagnosis using triple testing: expert CBE, diagnostic imaging (USS/mammography), FNAC
- Histopathology of tissue samples
- Testing for oestrogen receptor using IHC
- Staging
- Treatment of early stage disease and follow-up care: access to care

Courtesy of Dr Sankaranayanaran
The Lancet Series launch 2016, IARC, WCC 2017
Integration of Services to Strengthen Health Systems

- Prevention
- Early detection
- Dg & Treatment
- Palliative care

Specialized

Non-specialized
Health Systems Approach

• universal health coverage
• innovative financing
• integration within existing system/leveraging resources
• institutional twinning
• telemedicine, mHealth
• Local and Global Partners: UN system, academia, civil society

Photo Amref.org
The Breast Health Global Initiative

www.bhgi.info

BREAST CANCER INITIATIVE 2.5
Making breast health a global priority

www.BCI25.org

With funding from the Komen Foundation
BCI 2.5 is a global campaign to reduce disparities in breast cancer outcomes for 2.5 million women by 2025.
PHASED IMPLEMENTATION

Prerequisites
- Standardized guidelines, protocols and trained health care workforce.

Phase 1
- Systematic triage and diagnosis of palpable breast disease.

Phase 2
- Resource-adapted stage-appropriate treatment planning.

Phase 3
- Scaling up of targeted education interventions for public and health care staff & CBE to promote early detection of clinically detectable disease.

Phase 4
- Systematic upgrading of image-based diagnostic systems (technology & training) for management of non-palpable disease as a prerequisite to image-based (mammographic) screening.
Tanzania Situation Analysis

Dr Benjamin O Anderson, BHGI, Fred Hutchison Cancer Center
Tanzania Situation Analysis

Figure 2: Tanzanian health care structure

- Natl. Hospitals [2]
- Zonal Hospitals [4]
- Regional Referral Hospitals [30]
- District Hospitals [169]
- Primary Health Care Clinics

Dr Benjamin O Anderson, BHGI, Fred Hutchison Cancer Center
SUMMARY OF RECOMMENDATIONS

• Successful breast cancer control demands integrating early detection programs with accurate diagnosis and timely, accessible and effective treatments. Addressing any of these components in isolation will not improve breast cancer outcomes.

• Based on the findings of this situation analysis, the assessment team recommends that the government of a resource-stratified, phased implementation approach to breast cancer detection, diagnosis and treatment.
• **Prerequisites:** Standardized guidelines, protocols and trained health care workforce.

• **Phase 1:** Systematic triage and diagnosis of palpable breast disease.

• **Phase 2:** Resource-adapted stage-appropriate treatment planning.

• **Phase 3:** Scaling up of targeted education interventions for public and health care staff and clinical breast examination (CBE) to promote the downstaging of clinically detectable disease.

• **Phase 4:** Systematic upgrading of image-based diagnostic systems (technology and training) for management of non-palpable disease as a prerequisite to image-based (mammographic) screening.
How do we get there....?

✓ **Sustained commitment from leadership** Heads of state, “first spouses”, MoH with *all* stakeholders from *all* sectors (sustained commitment)

✓ **Realistic** goals and objectives that respond to the people's needs

✓ **Set priority interventions** based on evidence, resources and values and tailored to the context

✓ **Gradual implementation** of few, affordable interventions, better organization of available resources

✓ **Allocate resources** - make the investment case and *work with* reproductive, maternal health, HIV/AIDS, primary care- champions, community advocates, and experts

✓ **Be rigorous and transparent.** Monitoring and evaluation is an iterative process.

✓ **Demonstrate successes. Acknowledge and learn from failures.**
Presentation Overview

- Tobacco: a threat to women’s health worldwide via
  - Women’s own (direct) tobacco use
  - Exposure to secondhand smoke (SHS)
  - Economic impact of tobacco use on women and families

- Effective tobacco control policy measures
  - WHO Framework Convention on Tobacco Control (FCTC)
  - MPOWER package
  - Key goal: address role of tobacco industry
  - “Global Laboratory of Tobacco Control”
  - Progress is now being made!
Diverse Tobacco Products, Diverse Patterns of Use
Direct Smoking Exposure: Health Consequences

**Cancers**
- Oropharynx
- Larynx
- Esophagus
- Trachea, bronchus, and lung
- Acute myeloid leukemia
- Stomach
- Liver
- Pancreas
- Kidney and ureter
- Cervix
- Bladder
- Colorectal

**Chronic Diseases**
- Stroke
- Blindness, cataracts, age-related macular degeneration
- Congenital defects—maternal smoking: orofacial clefts
- Periodontitis
- Aortic aneurysm, early abdominal aortic atherosclerosis in young adults
- Coronary heart disease
- Pneumonia
- Atherosclerotic peripheral vascular disease
- Chronic obstructive pulmonary disease, tuberculosis, asthma, and other respiratory effects
- Diabetes
- Reproductive effects in women (including reduced fertility)
- Hip fractures
- Ectopic pregnancy
- Male sexual function—erectile dysfunction
- Rheumatoid arthritis
- Immune function
- Overall diminished health

*Source: Centers for Disease Control and Prevention 2014*
Secondhand Exposure: Health Consequences

Source: Centers for Disease Control and Prevention 2014
Adult Smoking Prevalence

Current Smoking Prevalence by Region, Adult Males and Females, 2013

Estimated and Projected Adult Prevalence Rates for Tobacco Smoking, by WHO Region, 2000–2025

Tobacco industry marketing to women, global examples

Source: Trinkets and Trash, Rutgers School of Public Health
Tobacco use: A modifiable risk factor for cancer and other NCDs

Based on data from NCI and WHO 2016.
Economic burden of tobacco use for women and families

- Tobacco use and its consequences are now increasingly concentrated in low- and middle-income countries, and within most countries, among those with lower SES.
- Tobacco use in poor households exacerbates poverty by increasing health care costs, reducing incomes, decreasing productivity, and diverting limited family resources from basic needs.
- Tobacco “crowds out” spending on household essentials: food, shelter, health, education. Tobacco use exacerbates childhood malnutrition.
- By reducing tobacco use among the poor, tobacco control policies can help break the cyclical relationship between tobacco use and poverty.

Economic burden of tobacco use for women and families

**Vicious Cycle of Tobacco and Poverty**

- **Forgone Income 1:** More money spent on tobacco; high opportunity cost. Less money spent on education, nutrition, etc.
- **Forgone Income 2:** Due to treatment cost and loss of work days
- **Forgone Income 3:** Due to premature death
- **Breadwinner gets sick due to tobacco use**
- **Income increases**
- **Youth and women start smoking and men smoke more**
- **Higher prevalence and consumption level**
- **Family falls into poverty**

**Source:** NCI & WHO 2016. [https://cancercontrol.cancer.gov/brp/tcrb/monographs/21/](https://cancercontrol.cancer.gov/brp/tcrb/monographs/21/)
Strong Evidence Base for Tobacco Control

Decades of research and practice, inform tobacco control program and policy efforts of countries and subnational jurisdictions
WHO Framework Convention on Tobacco Control (FCTC)

- First global health treaty negotiated by the World Health Organization (WHO)
- First “legal instrument” designed to reduce tobacco-related deaths and disease around the world
- Unanimously adopted by WHO’s 192 Member States on May 21, 2003
  - Entered into force on February 2005
  - 180 countries are Parties to the treaty
- Binding international legal instrument - establishes broad commitments and a general system of governance for an issue area.
- Governing body: Conference of the Parties (COP), establishes detailed “guidelines” for implementation of specific FCTC articles. Technical assistance by WHO.

Source: WHO Framework Convention on Tobacco Control: Tobacco taxes can be used to finance the Sustainable Development Goals, 2015.
Provisions of WHO FCTC

**Demand Reduction**
- Article 6: Price and tax increases
- Article 8: Protection from SHS exposure
- Article 9: Regulation of tobacco product contents
- Article 10: Regulation of tobacco product disclosure
- Article 11: Packaging and labeling of tobacco products
- Article 12: Education, communication, training and public awareness
- Article 13: Tobacco advertising, promotion and sponsorship
- Article 14: Addressing tobacco dependence and cessation

**Supply Reduction**
- Article 15: Illicit trade in tobacco products
- Article 16: Sales to and by minors
- Article 17: Provision of support for economically viable alternative activities

*Source: WHO FCTC 2015.*
MPOWER Framework

- **Monitor** tobacco use and prevention policies
- **Protect** people from tobacco smoke
- **Offer** help to quit tobacco use
- **Warn** about the dangers of tobacco
- **Enforce** bans on tobacco advertising, promotion and sponsorship
- **Raise** taxes on tobacco
The Role of the Tobacco Industry

“The tobacco industry can be trusted in one area only. The vigour of its opposition to a control measure is good evidence of the effectiveness of that measure. If they fight you strongly, it means you have hit them where it hurts.” Margaret Chan, D. G. WHO, 2015

“The high-profile legal actions targeting Uruguay, Norway, Australia and Turkey, are deliberately designed to instill fear in countries wishing to introduce similarly tough tobacco control measures.” M. Chan, 2012

TransPacific Partnership (TPP):

- Included, for first time in any trade agreement, a provision permitting partners to preclude claims concerning tobacco control measures.
- Protects the right of participating nations to adopt tobacco control measures, and prevents tobacco companies from using the TPP to attack such measures.

The Role of the Tobacco Industry

- WHO FCTC Article 5.3 of the Convention requires that “in setting and implementing their public health policies...Parties shall act to protect these policies from commercial and other vested interests of the tobacco industry in accordance with national law.”

- WHO FCTC Article 5.3 Guidelines Principles
  - 1: There is a fundamental and irreconcilable conflict between the tobacco industry’s interests and public health policy interests.
  - 2: Parties, when dealing with the tobacco industry or those working to further its interests, should be accountable and transparent.
  - 3: Parties should require the tobacco industry and those working to further its interests to operate and act in a manner that is accountable and transparent.
  - 4: Because their products are lethal, the tobacco industry should not be granted incentives to establish or run their businesses.

Source: WHO 2008
Graphic Warning Labels and Plain Packaging

Sources: Trinkets and Trash, Rutgers School of Public Health and Action on Smoking and Health 2016.
Government fears that tobacco control will have an adverse economic impact are not justified by the evidence.

Above all, this monograph confirms that effective, evidence-based tobacco control interventions—such as increased taxes; complete bans on tobacco marketing; comprehensive, smoke-free policies; dissemination of information on the health consequences of tobacco use; and many other types of interventions—make sense from an economic as well as a public health standpoint.

Significantly increasing the excise tax and price of tobacco products is the single most consistently effective tool for reducing tobacco use. Though highly cost-effective in reducing tobacco use, increased tobacco taxation is the least implemented intervention.

Rigorous empirical studies using objective economic indicators find that smoke-free policies do not have negative economic consequences for businesses, including restaurants and bars.

In high-income countries, comprehensive policies to ban the marketing activities of tobacco companies are effective in reducing tobacco use, but partial marketing bans have little or no effect.

WHO FCTC Illicit Trade Protocol (ITP)

“Control of illicit trade in tobacco products…is the key supply-side policy to reduce tobacco use and its health and economic consequences.”

Share of Illicit Trade Versus Corruption, by Country, 2011

Sources: Euromonitor International 2011 and Transparency International 2011
Conclusions

- Tobacco use burdens women’s health via women’s own use, via exposure to secondhand smoke, and by contributing to poverty.
- Tobacco control measures contribute to poverty reduction; these now incorporated into U.N. Sustainable Development Goals.
- WHO Framework Convention on Tobacco Control – galvanizing force behind enactment of tobacco control measures worldwide.
- “Global Laboratory” of tobacco control - many new research opportunities, inform science and practice in U.S. and elsewhere.
- Article 5.3. “There is a fundamental and irreconcilable conflict between the tobacco industry’s interests and public health policy interests.” Tobacco industry remains key opponent to effective tobacco control.
- Progress is now being made, but continued vigilance is needed.
Women’s Smoking Prevalence

Percentage of adult females (age ≥15) who smoke daily, 2013

Source: Tobacco Atlas 2015
Implementation of WHO FCTC Measures

- Implementation of key WHO FCTC demand-reduction measures is significantly associated with:
  - Lower smoking prevalence
  - Anticipated future reductions in tobacco-related morbidity and mortality
- Between 2007 and 2014, there was a significant global increase in highest-level implementation of all key demand-reduction measures.
  - The mean smoking prevalence for 126 countries was 24.73% (SD 10.32) in 2005 and 22.18% (SD 8.87) in 2015, an average decrease in prevalence of 2.55 percentage points (SD 5.08; relative reduction 10.31%).

Source: Gravely et al., 2017