CUGH & NCI Cervical Cancer Webinar 3: Ensuring effective implementation of cervical cancer prevention and control strategies

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Co-Moderator:

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CUGH & NCI Cervical Cancer

The role of Implementation Science to bridge the gap between research and practice in the implementation of HPV-testing as primary screening in middle income settings

Silvina Arrossi, Msc, PhD
CEDES/CONICET

Declaration of Good Standing and Conflict of Interest Disclosure
I do not have a financial interest in any product or service related to my presentation
THE BURDEN OF CERVICAL CANCER

TECHNOLOGY

HPV-testing
HPV-self collection
HPV-vaccination

Cervical cancer elimination

[Diagram showing the relationship between technology and cervical cancer elimination]
HOW TO IMPLEMENT EVIDENCE-BASED INTERVENTIONS IN REAL WORLD SETTINGS SO WE CAN MAKE THEM WORK?

POLICY CONTEXT

HOW TO IMPLEMENT EVIDENCE-BASED INTERVENTIONS IN REAL WORLD SETTINGS SO WE CAN MAKE THEM WORK?

Socio-economic determinants, Culture/Ethnicity
Living/material conditions
Community/Neighbourhood Social cohesion
Psychological factors
POLICY CONTEXT
WHAT
HPV-testing
HPV-self collection
HPV-vaccination

Incidence
Mortality

Adapted from Chambers, Proctor, D. TIDIRH 2014
WHAT
HPV-testing
HPV-self collection
HPV-vaccination

HOW
Implementation strategies

OUTCOMES
Reach
Feasibility
Acceptability
Adoption
Cost
Uptake
Fidelity
Scaling-up
Barriers
Facilitators
Equity

WHO
Health services
Providers
Funders
Decision-makers
Women
Patients

Adapted from Chambers, Proctor, D. TIDIRH 2014
WHAT
HPV-testing
HPV-self collection
HPV-vaccination

HOW
Implementation strategies

OUTCOMES
Reach
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Barriers
Facilitators
Equity

WHO
Health services Providers
Funders
Women Patients

Incidence Mortality

Adapted from Chambers, Proctor, D. TIDIRH 2014
HPV SELF-COLLECTION

Highly effective to detect disease

Acceptable

High potential to reduce barriers to screening

ARGENTINEAN CONTEXT

- The offer of HPV self-collection: Where, by whom?
- Is it acceptable?
- Is it effective to increase screening uptake?
- What are its core components?
- What are the method main limitations in the local context?
200 CHWs who routinely visited households for health service provision

6000 women

Arrossi et al, LANCET GH 2015, IMPLEMENTATION SC 2017
EMA STUDY: MAIN RESULTS

- High acceptability by women, by CHWs and health providers
- 4 times more screened women in the intervention group than in the control group (86% vs 20%)

Self-collection strategy: Core components

**TRAINING**
- Home visits,
- Identification of target population;
- During the visit, provision of information about cervical cancer prevention and HPV testing; a 10-min step-by-step explanation on how to perform it using communication support material and Information about HPV results
- Labeling of collectors with the woman name and the national unique identifier number
- Transport of specimens at room temperature to PHC centers:
  - Transport to the provincial HPV laboratory (before 14 days)
- Follow up and treatment according to guidelines:
  - Cytology triage for HPV+ women, colposcopy and treatment for HPV+/Cyto ASCUS+;
  - Referral times.

**OFFER OF SELF-COLLECTION**
- 2 workshops including:
  - Scientific data on HPV/cervical cancer prevention
  - Step-by-step self-collection take-up
  - Communication skills to conduct the educational talk (instruct women on how to perform self-collection)
  - Evaluation.

**SAMPLE HANDLING AND TRANSPORTATION**
- Arrossi et al, 2016
Is the intervention (EMA STRATEGY) being delivered as intended by the program developers and in line with the program model?
HOW TO SCALE-UP HPV SELF-COLLECTION IN PROGRAMMATIC CONTEXTS?

• Do primary health workers accept to incorporate it as routine practice?
• Is it effective to reach the target population?
• What are the main limitations when applied at scale?
• What is the level of fidelity in the core components implementation?
Mix-methods to evaluate scaling-up

Fidelity Study

Hybrid Type II Trial

mHealth
Evaluation of provincial scaling up

N= 3000 women

Reach: 10 % of screening in target population

Effectiveness to increase coverage: 40% increase in screening uptake in target population

Adoption: 70% of CHWs offered Self-collection;

Implementation: Training: 82%; Discarded samples: 0.2%
70% triage; 70% DX; Tx: 82%
CIN2+: 0.9% (EMA: 1.1%)

Maintenance: SC routine practice from 2014 onwards

Arrossi et al, Implementation Science 2017, Curotto et al, SPM 2019
Self-collection introduced in 2017

Urban municipality with 2 million inhabitants

More than 30% of its population is poor, high insecurity
FIDELITY STUDY IN LA MATANZA, BUENOS AIRES METROPOLITAN AREA

How far the implemented intervention actually adhered to the prescribed model (EMA strategy/core components)?

METHODS

Observations of health promoters during the offering of self collection (n=70)

Evaluation of training (n=171)

Analysis of screening registries (clinical outcomes, follow-up, treatment)
Fidelity Study in La Matanza, Buenos Aires Metropolitan Area

- **TRAINING**
  - 98% adherence to training protocol
  - Evaluation

- **OFFER OF SELF-COLLECTION**
  - Adaptations considering different context: insecurity, different primary health care structure; different health promoters
  - Less time for the offering, fewer pieces of information provided
  - Ongoing: Evaluation of impact; reduced acceptability?

- **SAMPLE HANDLING AND TRANSPORTATION**
  - • 98% of adherence to standardized protocol

- **FOLLOW-UP AND TREATMENT**
  - Reduced adherence to triage and follow-up

Preliminary results, please do not quote
IMPLEMENTATION SCIENCE TO IMPROVE EFFECTIVENESS OF THE FOLLOW-UP PROCESS

HPV Self-collection
Primary Health Care
Information system
mHealth
Formative research to design messages: What should be said?, key messages

Pragmatic Randomized controlled trial: Is it effective in real world conditions?

Evaluation of implementation: decisors, CHWs, women

Arrossi et al, Implementation Science 2017
Women accept messages; for them they represent the close link with CHWs (Sanchez-Antelo et al, 2019)

CHWS consider messages as a facilitator of their work and link with women (preliminary results)

Women who received SMS were more likely to be triaged (19% difference; preliminary results)
HPV self collection

A road map guided by Implementation Science

HPV-self collection is accepted by women and providers; it is effective to increase screening uptake.

Adaptation of key components; adjustment of script and dynamic of offer.

Adherence to triage and follow up is major drawback with impact in detection of disease.

When scaled-up effectiveness and acceptability is maintained.

mHealth methods are effective to communicate with women with reduced access to health, they increase follow-up; they are accepted by women.
ACKNOWLEDGEMENTS

Ministerio de Salud de Argentina, for its participation in the EMA study
Instituto Nacional del Cancer, Argentina, for its participation in the EMA study/ATICA project/Fidelity study
Ministerio de Salud de Jujuy, for its participation in the EMA study/ATICA Project
IARC-WHO, for its participation in the EMA Study
Secretaria de Salud de la Matanza, for its participation in the Fidelity Study
Harvard University, for its participation in the ATICA Project
Deakin University Australia, for its participation in the ATICA project
NCI/NIH for its funding of the ATICA Project
Thanks!

Silvina Arrossi
silviarrossi@cedes.org
Designing research to guide program implementation: The ASPIRE Program

CUGH Webinar Series: August 2020
The ASPIRE program of research

• Partnership between UBC, Makerere University and Uganda Cancer Institute since 2006
• Focused on cervical cancer elimination
• Ongoing consultation with MoH and health care leaders developing National strategy for cervical cancer elimination
• Phased pragmatic research approach to designing cervical cancer screening program
Designing a research program with an implementation focus

1) Always keep end goal of national scale-up in mind

2) Authentic, established partnerships are critical to a pragmatic in trial design

3) Responsive to input from partners and stakeholders including patients and health system leaders.

4) Plan trial as program implementation - logic model development; consider the entire cascade

5) Develop process evaluation strategy using a Implementation Science framework (we used the Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) framework)
Assessing women's willingness to collect their own cervical samples for HPV testing as part of the ASPIRE cervical cancer screening project in Uganda

Sheona Mitchell a, Gina Ogilvie a,b,* , Malcolm Steinberg b,c , Musa Sekikubo d, Christine Biryabarema d, Deborah Money a,e

* University of British Columbia, Vancouver, Canada
b British Columbia Center for Disease Control, Vancouver, Canada
c Simon Fraser University, Vancouver, Canada
d Makerere University, Kampala, Uganda
e British Columbia Women's Hospital, Vancouver, Canada

Understanding the role of embarrassment in gynaecological screening: a qualitative study from the ASPIRE cervical cancer screening project in Uganda

Flora F Teng, Sheona M Mitchell, Musa Sekikubo, Christine Biryabarema, Josaphat K Byamugisha, Malcolm Steinberg, Deborah M Money, Gina S Ogilvie

Understanding Men's Perceptions of Human Papillomavirus and Cervical Cancer Screening in Kampala, Uganda

Erin Moses, Heather N Pedersen, Emily C Wagner, Musa Sekikubo, Deborah M Money, Gina S Ogilvie, Sheona M Mitchell-Foster
Results of a community-based cervical cancer screening pilot project using human papillomavirus self-sampling in Kampala, Uganda

Gina S. Ogilvie a,*, Sheona Mitchell b, Musa Sekikubo c, Christine Biryabarema c, Josaphat Byamugisha c, Jose Jeronimo d, Dianne Miller b, Malcolm Steinberg e, Deborah M. Money b

a Department of Family Practice, University of British Columbia, Vancouver, Canada
b Department of Obstetrics and Gynecology, University of British Columbia, Vancouver, Canada
c Department of Obstetrics and Gynecology, Makerere University, Kampala, Uganda
d Program for Appropriate Technology in Health, Seattle, USA
e Faculty of Health Sciences, Simon Fraser University, Vancouver, Canada

Self-collection based HPV testing for cervical cancer screening among women living with HIV in Uganda: a descriptive analysis of knowledge, intentions to screen and factors associated with HPV positivity

Sheona M Mitchell 1, Heather N Pedersen 1, Evelyn Eng Stime 1, Musa Sekikubo 2, Erin Moses 3, David Mwesigwa 4, Christine Biryabarema 2, Jan Christilaw 5, Josaphat K Byamugisha 2, Deborah M Money 3, Gina S Ogilvie 6

Uptake of community-based, self-collected HPV testing vs. visual inspection with acetic acid for cervical cancer screening in Kampala, Uganda: preliminary results of a randomised controlled trial

Erin Moses 1, Heather N Pedersen 2, Sheona M Mitchell 2, Musa Sekikubo 3, David Mwesigwa 4, Joel Singer 2, Christine Biryabarema 3, Josaphat K Byamugisha 3, Deborah M Money 1, 2, Gina S Ogilvie 1, 2

Global Control of HPV Related Diseases and Cancer
Community-based HPV self-collection versus visual inspection with acetic acid in Uganda: a cost-effectiveness analysis of the ASPIRE trial

Alex K Mezei, Heather N Pedersen, Stephen Sy, Catherine Regan, Sheona M Mitchell-Foster, Josaphat Byamugisha, Musa Sekikubo, Heather Armstrong, Angeli Rawat, Joel Singer, Gina S Ogilvie, Jane J Kim, Nicole G Campos

Cost-effectiveness of cervical cancer screening methods in low- and middle-income countries: A systematic review

Alex K Mezei, Heather L Armstrong, Heather N Pedersen, Nicole G Campos, Sheona M Mitchell, Musa Sekikubo, Josaphat K Byamugisha, Jane J Kim, Stirling Bryan, Gina S Ogilvie

Integrated cervical cancer screening in Mayuge District Uganda (ASPIRE Mayuge): a pragmatic sequential cluster randomized trial protocol

Carolyln Nakisige, Jessica Trawin, Sheona Mitchell-Foster, Beth A. Payne, Angeli Rawat, Nadia Mithani, Cathy Amuge, Heather Pedersen, Jackson Orem, Laurie Smith, and Gina Ogilvie
Considering rural women’s and health care providers preferences

**Facilitator**
- High awareness of need
  
  “We shall accept because it is us who are affected, if it has happened to me then why shouldn’t I accept?”

**Individual Level**
- Misinformation about supernatural causes of cervical cancer
- Lack of transportation to few clinics with service

**Facility Level**
- Perception of poor quality care for treatment
- Long wait times

**Health system Level**
- Laboratory staff already using GeneXpert for HIV and TB testing
- Interest in skill development by nursing staff
- Priority of Uganda Cancer Institute and MoH to improve service availability
- Human resource shortages
- No established specimen transport mechanisms to laboratory

High awareness of need:
- Perception of poor quality care for treatment

**Priority of Uganda Cancer Institute and MoH to improve service availability**

Interest in skill development by nursing staff

Laboratory staff already using GeneXpert for HIV and TB testing

Human resource shortages

No established specimen transport mechanisms to laboratory
Program Planning – the ASPIRE Trial Logic Model

Inputs

- CHIR Funding
- Materials for Geriatric, TB, and HIV testing
- Project Management (HR)
- VHT training
- VHT salaries
- Education: tools about self-collection
- SOPs for screening and HPV testing

Activities

- Establish lab, equipment, and protocols for HPV and VIA screening and test
- Nurse training using WHO program
- VHT training
- CCS education for women and communities
- Community based HPV testing for CCS
- Transport specimen/results within operations
- Distinct screening results to women
- VIA screen and brisk at HC
- Observations of base line for screening/follow-up
- IDDOP survey
- Follow-up with women PREM
- CHW FGD
- Stakeholder meetings
- Study monitoring
- Survey for health system costs
- Develop CCS policy recommendations for MOH / WHO
- Results dissemination (KT)

Outputs

- 8 nurses trained on cervical cancer control practice
- 32 CHWs trained to administer screening program and collect data on women’s participation in CCS
- CHW training program for self-collected CCS
- ~2000 specimens results transported and tested
- ~2000 results provided to women via CHW
- ~2000 women screened for cervical cancer
- VIA+ women treated
- Women’s preference and experience of CCS
- Knowledge on effectiveness of CCS program within sub-populations (HPV co-infection)
- Health system facilitation and barriers to program success
- Data on program’s cost-effectiveness
- Policy recommendations for CCS program

Outcomes

- Increased community knowledge and awareness of CCS
- Data on HPV prevalence in Uganda
- Increased cervical cancer screening and follow-up
- Women’s preference and experience of CCS
- National CCS policy/program
- WHO guidelines for CCS effectiveness
- National program scale-up (integration of policy recommendations)
- Reduced cervical cancer in Uganda and globally

Assumptions: Training programs will be adopted and used as intended; Policy adoption will lead to individual behaviour changes; VIA program will function as intended; treatment will be available when needed.

Contextual factors: Socioeconomic factors of target population; motivations and behaviours of the target population; attitudes, norms, beliefs of the target population.
What is the ASPIRE Mayuge trial?

- A sequential, pragmatic, two arm cluster randomized clinical trial
- 31 villages randomized in Mayuge District, Eastern Uganda
- Aim is to determine the most effective method of community based cervical cancer screening for women in rural Uganda
- Secondary objectives to determine cost effectiveness and process evaluation following RE-AIM framework
Eligibility: Who can participate in sample self-collection for ASPIRE?

- women between the ages of 25-49 years old
- no previous hysterectomy or cervical cancer history
- who have not previously been treated for cervical cancer
Randomization by village

**ARM 1**
- Door to door recruitment with individual VHT
- Health education for women and family
- Self-collection in home
  - Results and counseling by VHT at home

**ARM 2**
- Community mobilization by VHT for health day recruitment
- Community health education
- Self-collection in private tent
- Follow-up group health education event
  - Results and counseling by VHT in private tent

**Sample tested at Kigandalo HCIV with GeneXpert**

- HPV+ women referred for follow-up VIA and treatment at HCIII
Build Local Partnerships And Leverage Existing Resources
Adapting to the Agile Nature of the Research Environment and COVID-19

Key:
• Strong partnerships at community and health system level

Example:
• Local partnerships were integral to resumption of research during COVID-19 pandemic
  – Essential updates on local situation and lockdown measures
  – Advocate for resumption with ethics committee
  – Guidance on safety plan development and adjustments to standard operating procedures to meet standards of new research environment
  – Link to both community and health system to ensure plans reflect needs of both and maintain overall research aims
Arm 2 process adapted to COVID-19

Arm 2
Village Health Day: Screening

Step 1
Entrance
Participants enter study site wearing their own mask

Step 2
Hand wash station
Participants wash hands with soap and water

Step 3
Temperature check
Nurse supervisor checks participants temperature

Step 4
Check-in
Participants check-in at registration desk with their ticket

Step 5
VHTs introduce study to participants in small groups
(max: 10 women per group)

Step 6
Waiting
Participants enjoy bottled refreshments while waiting for one-on-one survey with VHT

Ongoing support from PI and VHT supervisors

Step 7
Survey
1) VHTs confirm eligibility and assign unique study ID
2) VHTs obtain informed consent
3) VHTs administer survey
(max: 1 VHT, 1 woman)

Step 8
Self-collection
1) VHTs obtain informed consent
2) VHTs provide self-collection instruction
3) Women self-collect sample
(max: 1 VHT, 1 woman)

Step 9
Obtain sample
1) VHTs obtain and label sample
2) VHTs provide participant card
3) Women exit study site

Step 10
Quality check
VHTs take sample, consent form, enrollment log, and survey to study coordinators for verification

Step 11
Hand wash station
1) Participants wash hands with soap and water
2) Participants exit study site

Global Control of HPV Related Diseases and Cancer
Status update

- Recruitment for Arm 1 complete between August 7, 2019 – December 20, 2019
- 1055 now enrolled and tested
- Ongoing VIA follow-up being monitored
- Resumption of research now approved and Arm 2 expected to start in September
Discussion

- Recruitment to Arm 1 exceeded expectations in pace
- Community support is high
- HR-HPV is common and dominated by types not impacted by the use of the quadravalent vaccine
- Suggests screening is critical to Ugandan strategy for elimination of cervical cancer
Thank you!
Background

- The World Health Organization has called cervical cancer one of the ‘gravest threats to women’s lives.’
- Uganda has one of the highest cervical cancer incidence rates in the world (54.8 per 100,000).
- Specific high-risk subtypes of human papillomavirus (HR-HPV) are established as the cause of cervical cancer.

<table>
<thead>
<tr>
<th>Research Objective</th>
<th>Research Question</th>
<th>RE-AIM Outcome</th>
<th>Outcomes</th>
<th>Data Analysis Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Objective</td>
<td></td>
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</tr>
<tr>
<td>Self-collected cervical cancer screening effectiveness</td>
<td>To compare the effectiveness of two self-collected CCS models at improving VIA follow-up: community health worker recruitment (door-to-door) versus community health day.</td>
<td>Effectiveness (Individual level)</td>
<td>Primary Outcome: Follow-up attendance for VIA screening at a designated Health Center after a positive HR-HPV test out of all participants screened per arm</td>
<td>Quantitative analysis of clinical data: Mixed effect model with cluster as a random intercept and adjusted for all known confounders. Intention to treat and sensitivity analysis; Multivariate logistic regression</td>
</tr>
<tr>
<td></td>
<td>Which of the two self-collected CCS models is more effective at improving VIA follow-up among screened women: door-to-door screening or community health days?</td>
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<td></td>
<td>What is the effect of screening model on CCS knowledge retention and follow-up uptake? Are women aware of cervical cancer and how knowledgeable are they about CCS?</td>
<td>Effectiveness (Individual level)</td>
<td>Mean CCS knowledge scores; cervical cancer awareness;</td>
<td>Quantitative analysis of survey data: multi-level Poisson model;</td>
</tr>
</tbody>
</table>
**WHO Life-course Approach To Cervical Cancer Control**

<table>
<thead>
<tr>
<th>Primary Prevention</th>
<th>Secondary Prevention</th>
<th>Tertiary Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Girls 9-14 years</strong></td>
<td><strong>Women &gt; 30 years of age</strong></td>
<td>All women as needed</td>
</tr>
<tr>
<td>• HPV vaccination</td>
<td>• “Screen and treat” – single visit approach</td>
<td>Treatment of invasive cancer at any age and palliative care</td>
</tr>
<tr>
<td><strong>Girls and boys, as appropriate</strong></td>
<td>• Point-of-care rapid HPV testing for high risk HPV types</td>
<td>• Ablative surgery</td>
</tr>
<tr>
<td>• Health information and warnings about tobacco use</td>
<td>• Followed by immediate treatment</td>
<td>• Radiotherapy</td>
</tr>
<tr>
<td>• Sexuality education tailored to age &amp; culture</td>
<td>• On site treatment</td>
<td>• Chemotherapy</td>
</tr>
<tr>
<td>• Condom promotion/provision for those engaged in sexual activity</td>
<td></td>
<td>• Palliative Care</td>
</tr>
<tr>
<td>• Male circumcision</td>
<td></td>
<td></td>
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</tbody>
</table>

**WHO Life-course Approach To Cervical Cancer Control**

**Primary Prevention**
- Girls 9-14 years
  - HPV vaccination
- Girls and boys, as appropriate
  - Health information and warnings about tobacco use
  - Sexuality education tailored to age & culture
  - Condom promotion/provision for those engaged in sexual activity
  - Male circumcision

**Secondary Prevention**
- Women > 30 years of age
  - “Screen and treat” – single visit approach
    - Point-of-care rapid HPV testing for high risk HPV types
    - Followed by immediate treatment
    - On site treatment

**Tertiary Prevention**
- All women as needed
  - Treatment of invasive cancer at any age and palliative care
    - Ablative surgery
    - Radiotherapy
    - Chemotherapy
    - Palliative Care
Current Evidence for Self-collected HPV Testing as Primary Screening Method For LMICs

Three trials: India; Mexico and South Africa

Self-collected HR-HPV testing led to higher screening uptake

3.4 x higher detection of CIN2+ than Pap

Higher specificity for CIN2+ than VIA or Pap
Cervical Cancer Prevention in El Salvador (CAPE): Lessons in developing and implementing a primary HPV screening program in a low-middle-income country

Karla Alfaro
Basic Health International
August 12th, 2020
Conflict of Interest

I have no commercial relationship with any corporate entity that produces or sells products related to HPV testing.
Presentation outline

• State of cervical cancer control in El Salvador pre-CAPE
• Steps leading to the development of CAPE
• Steps involved in building and delivering a screening program in a limited-resource setting.
• National Scale-up
• Challenges
Cervical Cancer Control in El Salvador pre-CAPE
### 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>
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<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>
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<td>Belize</td>
<td>1999</td>
<td>National</td>
<td>4,164</td>
<td>13-49</td>
<td>13.4</td>
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<td>Survey</td>
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<tr>
<td>Brazil</td>
<td>2002–2005</td>
<td>Capital cities</td>
<td>13,282</td>
<td>25-59</td>
<td>63.4</td>
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<td>Survey</td>
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<td>2003</td>
<td>National</td>
<td>NS</td>
<td>&gt;24</td>
<td>68.7</td>
<td>3</td>
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<td>2002</td>
<td>National</td>
<td>2,577</td>
<td>18-69</td>
<td>64.8</td>
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<td>2002</td>
<td>Pelotas</td>
<td>1,196</td>
<td>25-59</td>
<td>68.8</td>
<td>3</td>
<td>Survey</td>
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<td>2000</td>
<td>Sao Paulo</td>
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<td>15-49</td>
<td>77.3</td>
<td>3</td>
<td>Survey</td>
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<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>
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<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>
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<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>
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<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>
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<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>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>15-49</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>10,089</td>
<td>15-49</td>
<td>47.0</td>
<td>1</td>
<td>Survey</td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>National</td>
<td>–</td>
<td>NS</td>
<td>10.0</td>
<td>3</td>
<td>SP</td>
</tr>
</tbody>
</table>
Pre-CAPE: 1-year follow-up after cytology-based screening (2010)

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
Steps leading to CAPE
Introduction of HPV-based screening in El Salvador

MOH and BHI partnered to present a proposal for the implementation of a low-cost HPV through a donation program.

Consultants from NCI, PAHO, National OBGYN and Pathology societies were involved in the process.

In 2011 we received the approval to implement HPV as part as a pilot project.
CAPE: Cervical Cancer Prevention in El Salvador
Building and delivering a screening program in a limited-resource setting
CAPE Cervical Cancer Prevention in El Salvador

Three phase project:

Phase 1: 2,000 women (2012-2013)
Phase 2: 8,000 women (2013-2014)
Phase 3: 20,000 women (2015-2017)
Nested Studies
Cost-Effectiveness Results

• Screening with a low-cost HPV test provides *greater health benefits* than current Pap smear screening.

• Routine screening with this low-cost HPV test (every 5y) is *cost-effective* compared to Pap testing (every 2y).

• Screening with low cost HPV test followed by visual assessment triage is *more effective and less costly* than low cost HPV test with colposcopy triage.
Presenting results
Changing the paradigm
Sustainable change

December 2015

As a result of CAPE, the El Salvador MOH changed its cervical cancer guidelines to include HPV test and the proposed treatment algorithm.
Visual Assessment Triage (VAT)

- Provider collection
  - HPV+ ➔ Results in 1 to 2 weeks
    - Visual Triage
  - HPV - ➔ Repeat test in 5 years
    - Treatable with cryotherapy ➔
      - Treated with cryotherapy in the same visit
    - Not treatable with cryotherapy ➔
      - Referred to colposcopy
Screening forms

SEGUIMIENTO DE PAP:
Fecha de entrega de resultado a paciente: _______ Responsable de entrega: _______
Establecimiento de salud a la que se refiere y fecha cita para colposcopia: _______

SEGUIMIENTO DE PRUEBA DE VPH:
Fecha de entrega de resultado a paciente: _______ Responsable de entrega: _______
Establecimiento de Salud a la que se refiere y Fecha cita para evaluación visual con ácido acético: _______

NUMERO DE PRUEBA DE VPH: _______
FECHA: _______
POSITIVO _______ NEGATIVO _______
Nombre, Firma y Sello responsable lectura VPH: _______
Building a Surveillance System in El Salvador

<table>
<thead>
<tr>
<th>Indicadores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicador</td>
</tr>
<tr>
<td>Numero de mujeres con pruebas de VPH y PAP realizadas</td>
</tr>
<tr>
<td>Numero de mujeres con pruebas de VPH y PAP positivas</td>
</tr>
<tr>
<td>Numero de mujeres con pruebas de VPH positivas que asistieron a evaluacion visual</td>
</tr>
<tr>
<td>Numero de mujeres con pruebas de VPH positivas que fueron elegibles para crioteraplas</td>
</tr>
<tr>
<td>Numero de mujeres con pruebas de VPH positivas que fueron referidas a colposcopia</td>
</tr>
<tr>
<td>Numero de mujeres con pruebas de VPH positivas a quienes se les realizo colposcopia</td>
</tr>
<tr>
<td>Numero de mujeres con pruebas de PAP positivas a quienes se les realizo colposcopia</td>
</tr>
<tr>
<td>Numero de mujeres a quienes se les practico crioterapia despues de evaluacion colposcopia</td>
</tr>
<tr>
<td>Numero de mujeres con biopsia cervico uterinas positivas</td>
</tr>
<tr>
<td>Numero de mujeres a quienes se les practico como leep</td>
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</table>
Training sessions
Visual assessment triage and cryotherapy
National scale-up
December 2018
Expectations
Reality

2014 - 2017

2018 - 2020

2020 - 2021

2021
Total of health personnel trained 2012-2020

<table>
<thead>
<tr>
<th>Health Personnel</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Promoters</td>
<td>2,655</td>
</tr>
<tr>
<td>Nurses</td>
<td>1,230</td>
</tr>
<tr>
<td>Doctors</td>
<td>869</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,754</strong></td>
</tr>
</tbody>
</table>
## Total of women screened 2012-2020

<table>
<thead>
<tr>
<th>Period of time</th>
<th>Total of Screenings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-2017 Pilot</td>
<td>29,139</td>
</tr>
<tr>
<td>2018-2020(Octubre-Diciembre)</td>
<td>64,690</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>93,829</strong></td>
</tr>
</tbody>
</table>
Challenges
- Reluctance by local stakeholders to change cytology-based screening program to HPV testing

- Loss to follow-up increased as program expanded

- Long intervals between program steps

- Advocate for ways to conduct implementation research

in limited resource settings **BASED ON YOUR RESEARCH FINDINGS**
Impact of COVID19 in Cervical Cancer Program

● Health services are focusing to combat the pandemic.

● Occidental and Oriental Region: women pending of treatment

● Delay implementing HPV testing in Central and continuing in Paracentral region
  ○ 80,000 women schedule to be screened in 2020
  ○ New possible target to screen 40,000
  ○ Self Sampling to be added in the national guidelines
Thank you
CUGH & NCI Cervical Cancer Webinar 3: Ensuring effective implementation of cervical cancer prevention and control strategies

August 12, 2020
11:00am-12:00pm EDT

Silvina Arrossi, PhD
Centro de Estudios de Estado Sociedad
Buenos Aires, Argentina

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Canada Research Chair in Global Control of HPV-Related Disease and Cancer,
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Johns Hopkins Bloomberg School of Public Health;
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Co-Moderator

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