Cervical Cancer Screening and Treatment in the Rio Grande Valley (RGV) along the Texas-Mexico Border

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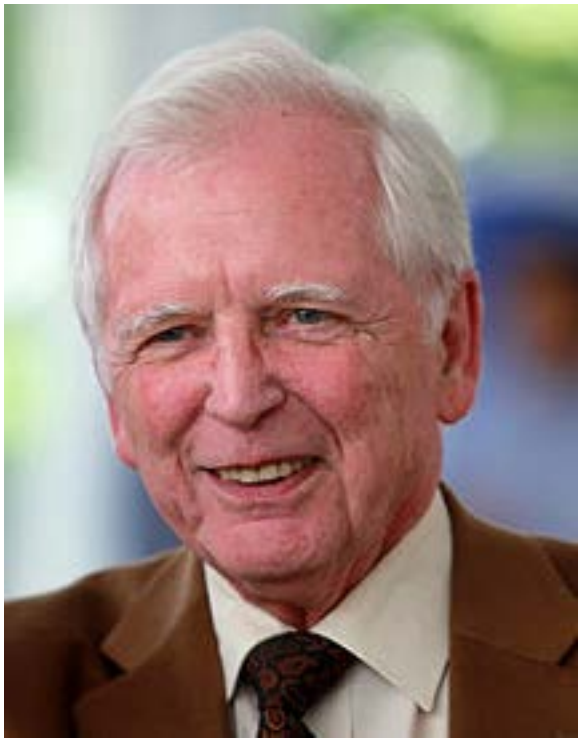
No Financial Disclosures

Cervical Cancer is Preventable

- **Known Etiology:**
  - **Human Papillomavirus (HPV)**
- **Prevention:**
  - **HPV Vaccination**
- **Screening:**
  - **Pap Test, HPV DNA Testing, VIA**
- **Treatable Pre-Invasive Phase:**
  - **Cervical Cone/LEEP/Cryotherapy**
  - **Takes ~10y to progress from pre-invasive disease to cancer**



Dr. Harald zur Hausen
Nobel Prize, 2008

No woman should die of cervical cancer

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May 2018: WHO Director General's call to action to eliminate cervical cancer as public health problem

World Health Organization · UN WOMEN · unicef · UNFPA · UNAIDS · IAEA International Atomic Energy Agency

International Agency for Research on Cancer · World Health Organization · UNODC · Unitaid · The Global Fund · Gavi

CLINTON HEALTH ACCESS INITIATIVE · uicc · GHO Global Health Observatory · unfm Université Numérique Francophone Mondiale · NYU Langone Health

World Health Organization

The Architecture to Eliminate Cervical Cancer

Vision: To build a world without cervical cancer

Threshold: < 4 cases of cervical cancer per 100,000 woman-years

2030 CONTROL TARGETS

90%

of girls fully vaccinated with HPV vaccine by 15 years of age

70%

of women screened with an HPV test at 35 and 45 years of age

90%

of women identifed with cervical disease receive treatment for precancerous lesions or invasive cancer

SDG 2030: Target 3.4 – 30% reduction in mortality from cervical cancer

The 2030 targets and elimination threshold are subject to revision depending on the outcomes of the modeling and the WHO approval process

The New York Times

In Australia, Cervical Cancer Could Soon Be Eliminated

Professor Ian Frazer, a co-creator of the HPV vaccine, Gardasil, said he hoped other countries would follow Australia's lead. David Maurice Smith for The New York Times

Inequity of Cervical Cancer

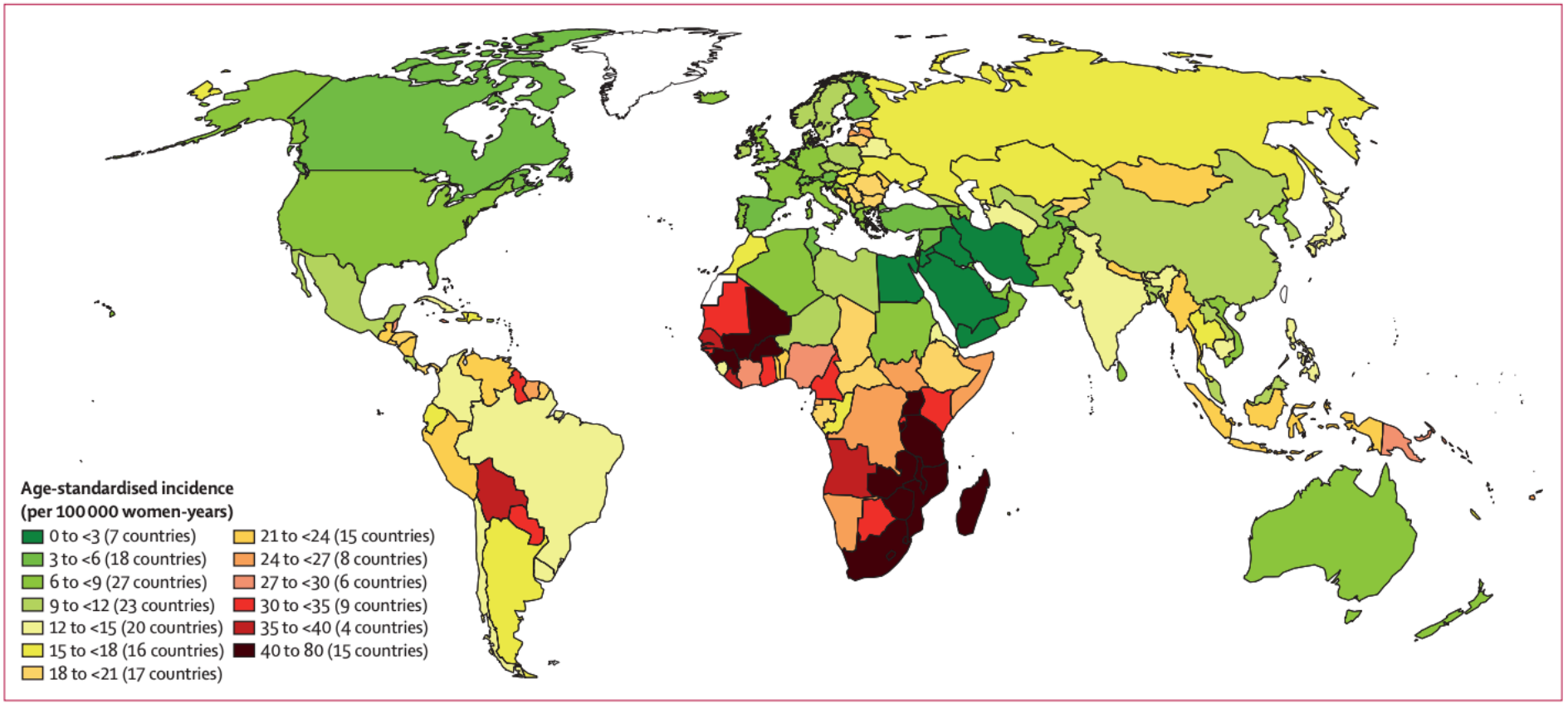

Figure 1: Geographical distribution of world age-standardised incidence of cervical cancer by country, estimated for 2018

85% of cervical cancer cases occur in low-resource countries

Arbyn *et al.*, *Lancet Glob Health*, 2020

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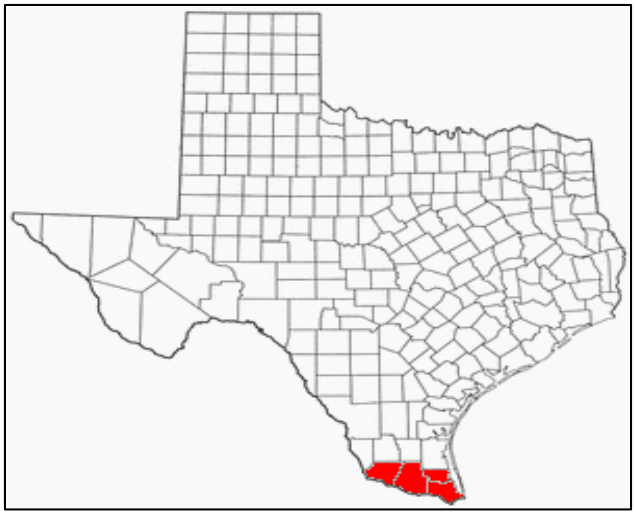
Texas-Mexico Border

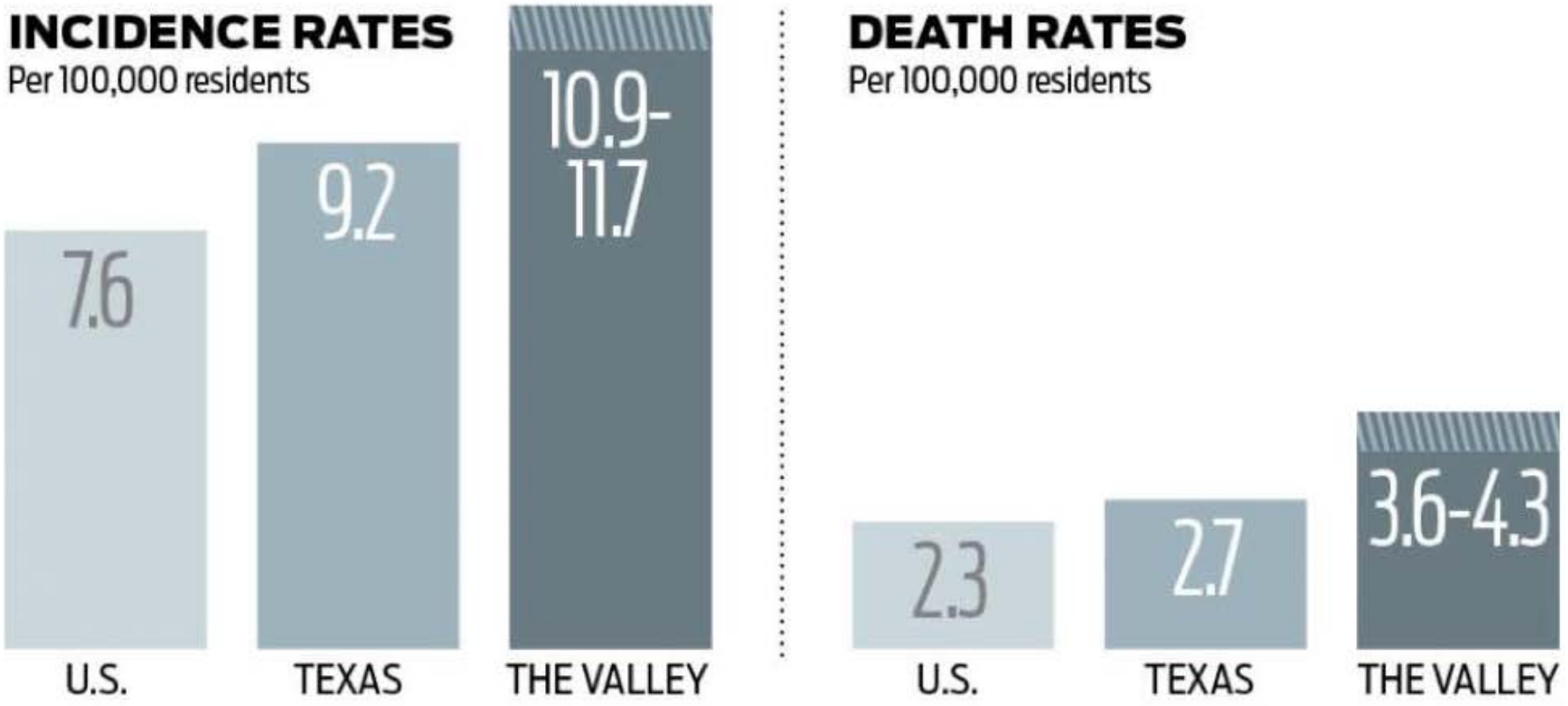
Rio Grande Valley:

- **Population of ~1.3 million**
- **90% of population is Hispanic**
- **40% below the poverty line**
- **<10% of eligible women receiving cervical cancer screening**
- **Limited number of providers trained to care for women with abnormal screening results (colposcopy and LEEP)**



Cervical cancer in the Rio Grande Valley

Women in the Rio Grande Valley are nearly twice as likely to die from cervical cancer compared to the rest of the country. Half the population there has no health insurance.



Source: National Cancer Institute

Houston Chronicle

Collaboration to address cervical cancer in RGV - 2015

- MD Anderson Cancer Center
- The University of Texas School of Public Health
  - Brownsville regional campus
- Su Clinica (FQHC)
- The University of Texas Medical Branch (UTMB)
  - McAllen Clinic
- UT Mobile Clinic
- UT Rio Grande Valley (UTRGV)

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A world away from MD Anderson…..

Photo: Marie D. De Jesus, Houston Chronicle

Multi-Pronged Approach

- **School-based HPV vaccination program**
- **Community education and outreach**
- **Increased access to cervical screening with patient navigation**
- **Training, education and support of local providers to manage abnormal results (colposcopy and LEEP)**
- **Point-of-care (POC) technologies to allow for single visit screen/diagnose/treat**

School-Based HPV Vaccination

- First school-based HPV vaccination program in the RGV – Rio Grande City (2017)
- Collaborative effort led by UTMB (Dr. Ana Rodriguez)
  - Middle school children vaccinated at school, free of charge
  - Parent/school staff education events
  - Careful tracking and f/u for 2nd dose
- >1,000 kids vaccinated to date
- Expanding to 24 middle schools (2020)

Supported by CPRIT PP160097/190023
Kaul *et al.*, *Papillomavirus Res*, 2019

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Community Education & Outreach

- **Led by Promotoras/Community Health Workers**
  - **Cervical screening and HPV vaccination**
- **Outreach and inreach (within the clinics)**
  - ***Cultivando la Salud***
- **Navigation to appointment and follow-up with appropriate documentation**

Cervical Cancer Screening

- **Provide free screening with Pap +/- HPV testing (covered by CPRIT)**
- **Challenges:**
  - **Undocumented women afraid to travel to clinics for screening and/or follow-up**
  - **Patients with abnormal screening results are often lost to follow-up**
  - **CPRIT grant only covers cervical screening (not diabetes, mental health, etc.)**
  - **Sustainability – assisting participating clinics to maximize BCCS/state/federal funding to continue screening when grant ends (documentation)**

Supported by CPRIT PP150012/190014

Provider Training & Education

- **Shortage of providers in RGV (public system)**
  - **Lack of training and support to manage women with abnormal results per evidence-based guidelines**

- **Approach:**
  - **Hands-on training for colposcopy and LEEP (locally held)**
  - **Project ECHO for ongoing telementoring and support of providers working in RGV**
  - **Send providers to national course (ASCCP) and mentoring for certification**

Supported by Prevent Cancer Foundation, Raul Tijerina Foundation, CPRIT PP190014

Colposcopy & LEEP Training

Locally-held hands on training courses

Parra *et al.*, *Obstet Gynecol*, 2019
Lopez *et al.*, *J Glob Oncol*, 2016

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Project ECHO

- Videoconference every 2 weeks (1 hour)
- Providers from the RGV present de-identified patient cases
- Feedback provided by the University specialists (MD Anderson, UTMB, UTRGV)
- Community providers and specialists work together to provide quality care
- Telementoring not Telementoring not Telemedicine

Results (2015-Present)

- **Educated 10,849 women on HPV vaccination and cervical cancer screening (inreach vs. outreach)**
- **Screened 19,560 women (baseline=12,460)**
- **Performed 2,795 colposcopies (baseline=945)**
- **Performed 544 LEEPs (baseline=322)**
- **Diagnosed:**
  - **1,074 women with cervical dysplasia (CIN2/3/AIS=395)**
  - **35 women with invasive cervical cancer**
  - **4 women with endometrial cancer**

Results (2015-Present)

- **Held 6 hands-on training courses**
  - **Average of 20 providers per course (total of 126)**
- **Five providers completed the ASCCP course and completed/ undergoing certification process**
- **101 Project ECHO sessions:**
  - **Average 22 participants/session**
  - **>200 patient cases presented and discussed**
  - **>220 CME/CNE credits awarded**
- **Program expanding to 5 other regions in Texas (CPRIT Expansion-PP190014)**

Novel Tools for POC Cervical Cancer Screening & Diagnosis in Low-Resource Settings

Rebecca Richards-Kortum, PhD
Dept of Bioengineering, Rice University

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Cervical Cancer Prevention in USA

Three Clinical Visits:

1. **Pap test +/- HPV testing**
2. **Colposcopy with cervical biopsies if abnormal Pap**
3. **If significant precancerous lesions (<5%) - conization/LEEP/cryotherapy**
   - **Removal or ablation of precancerous lesion**

**** Pathology/lab services required at each step**

**** Women lost to follow-up at each step**

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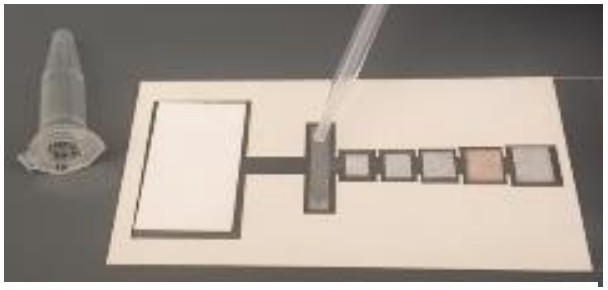
Paper Based DNA HPV Test



- Lateral flow test
- <US$2
- No laboratory personnel required
- Limited equipment needed
- Test takes <1 hour (allows for a single *Screen & Treat* visit)
- Can run one test at a time
- Similar sensitivity and specificity to hybrid capture assays
- Can be performed by nurses, community health workers (usability evaluations performed in Mozambique and El Salvador)

Supported by Prevent Cancer Foundation, NAS/USAID/PEER

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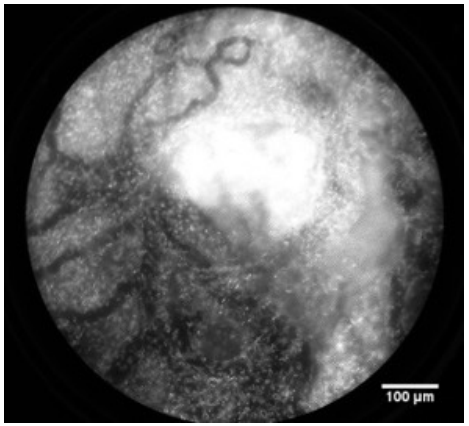
High-Resolution Microendoscope (HRME)

- Novel cervical visualization technique
- Assesses morphologic features typically evaluated by pathologists in-vivo in real-time:
  - N/C ratio, nuclear size, atypia
- Goal is to perform a “visual biopsy”, replacing colposcopy and cervical biopsies to diagnose pre-cancerous lesions
- Studies ongoing in Houston, Brazil, El Salvador, Mozambique, RGV



Supported by NCI UH2/3CA189910-05 (Brazil), R01CA186132-05 (El Salvador), NAS/USAID/PEER (Mozambique)

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Hunt *el al.*, *Cancer Prev Res*, 2018

Mobile Unit Study in Brazil

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What Texas is learning from Brazil…..

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Conclusions/Next Steps

- **Continue to expand access to cervical screening**
  - **Self-sampling HPV testing**
  - **Integration with family planning**
- **Further develop point-of-care technologies for low-resource settings in US and globally**
  - **Collaborations with bioengineers and industry**
- **Training & Education to provide quality diagnosis and treatment**
  - **Locally-held hands-on training courses**
  - **Project ECHO**

Thank You

Project ECHO MD Anderson Cancer Center

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