

REPORT OF THE LATIN AMERICAN SUBREGIONAL MEETING ON CERVICAL CANCER PREVENTION

2-3 JUNE 2010
PANAMA CITY, PANAMA



NEW
TECHNOLOGIES
FOR CERVICAL
CANCER
PREVENTION:
FROM SCIENTIFIC
EVIDENCE
TO PROGRAM
PLANNING

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The staff of the Pan American Health Organization in Panama deserves special mention for its work and dedication in organizing the meeting. The participation of representatives from different units of PAHO Headquarters in Washington D.C. such as the chronic diseases, immunization, adolescent health, and sexual and reproductive health units, was also important. The organizing committee also wishes to acknowledge the dedication and work of the speakers and representatives from several international organizations, academic institutions, and research centers such as the World Health Organization, the Centers for Disease Control and Prevention, the International Union Against Cancer, the Center for Studies on State and Society CEDES/CONICET (Argentina), the National Institute of Oncology (Colombia), the INCIENSA Foundation (Costa Rica), the Max Foundation (Seattle, United States), Cancer Research UK, and Basic Health International.

Finally, this meeting was made possible by the collaboration and enthusiasm of the representatives from the 13 participating countries in Latin America. Their effort and motivation to improve programs for prevention and control of cervical cancer support the contents of this report and offer an opportunity for change and to have a positive impact on the health of women in the region.



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ABBREVIATIONS

| | |
|-------|---|
| ASCUS | Atypical squamous cells of uncertain significance |
| CDC | Centers for Disease Control and Prevention |
| CEA | Cost-effectiveness analysis |
| CIN | Cervical intraepithelial neoplasia |
| CNCD | Chronic noncommunicable disease |
| EMEA | European Medicines Agency |
| EPI | Expanded Program on Immunization |
| FDA | Food and Drug Administration |
| GES | Explicit health guarantees |
| HBV | Hepatitis B virus |
| HDI | Human development index |
| HIV | Human immunodeficiency virus |
| HPV | Human papillomavirus |
| IM | Intramuscular |
| LA | Latin America |
| PAHO | Pan American Health Organization |
| Pap | Papanicolaou test |
| PCR | Polymerase chain reaction |
| STI | Sexually transmitted infection |
| UICC | International Union Against Cancer |
| VIA | Visual inspection with acetic acid |
| VILI | Visual inspection with Lugol's iodine |
| WHO | World Health Organization |



EXECUTIVE SUMMARY

Cervical cancer is a major public health problem in the Latin American region. It is the second most common malignant neoplasm in women of all ages in terms of incidence and mortality, with an estimated 63,068 new cases and 29,222 deaths in 2008. In response to this high burden of disease and in view of the development and availability of new technologies for primary and secondary prevention of cervical cancer, the Pan American Health Organization (PAHO) prepared a Regional Strategy and Plan of Action for Cervical Cancer Prevention and Control, which was approved by the Ministers of Health of the Americas at the PAHO Directing Council in 2008.

As part of the activities for implementing the Regional Strategy and to promote the introduction of changes that will improve the effectiveness and impact of cervical cancer programs, PAHO held a meeting for Latin America in Panama on 2-3 June 2010 entitled “New Technologies for Preventing Cervical Cancer: From Scientific Evidence to Program Planning.” The purpose of this subregional meeting, organized in collaboration with PATH and the Ministry of Health of the host country, was to review the current scientific evidence on the use of new technologies for preventing cervical cancer, share the positive experiences in Latin American countries, and begin planning activities that promote collaboration and the strengthening of programs based on an interprogrammatic approach, seeking synergies between the cancer, immunization, sexual and reproductive health, and adolescent health programs.

Seventy-three representatives from 13 Latin American countries and 15 partner organizations, associations, universities, and research centers participated in the meeting. The Vice Minister of Health of Panama was also present. During the meeting, he announced the official launch of the National Plan for the Prevention and Control of Cancer and the National Palliative Care Program of Panama.

During the first day of the meeting, roundtables were held with presentations on the scientific evidence on HPV vaccines, new technologies for cervical cancer screening, planning cancer prevention and control strategies based on the availability of resources, and communication strategies to improve women’s participation in screening programs. Each series of presentations was accompanied by a presentation on successful experiences in the countries of the region, as well as a question-and-answer period. On the second day, the initiatives and resources available for the prevention and control of cervical cancer were reviewed in a roundtable followed by questions and answers. The rest of the day was structured around joint project planning to strengthen the programs in the three working groups established to identify short-, medium-, and long-term priorities and activities, as well as opportunities for collaboration with partner



organizations and other countries in the region. The results of the working groups were presented at the plenary session.

In conclusion, throughout the meeting it was shown that there is clear, well-established scientific evidence in favor of the new technologies for preventing cervical cancer and that the implementation of these technologies is feasible, as shown by the successful experiences in some Latin American countries. In addition, the participants showed great interest, motivation, and enthusiasm about introducing new technologies in cervical cancer programs to improve their effectiveness and impact. In this process of change, one of the main barriers identified was the high cost of HPV vaccines and the HPV DNA screening test. However, the availability of resources was demonstrated and the international partner organizations that are willing to support the countries in strengthening their programs were identified. All of the above suggests that the region is at a turning point in which the conditions are ripe for introducing changes in the programs that will lead to a positive impact on the burden of disease associated with cervical cancer in Latin America.



1. INTRODUCTION

1.1 Background

Cervical cancer is the second most common malignant neoplasm in terms of incidence and mortality in women of all ages in the Latin American region. Each year, an estimated 63,068 women are diagnosed with cervical cancer in Latin America, with 29,222 deaths from this disease. The highest age-adjusted incidence rates are recorded in El Salvador, Honduras, Bolivia, Peru, and Paraguay, whereas Chile, Mexico, Uruguay, and Costa Rica have the lowest rates (*Annex 1*) [1,2].

The primary underlying cause of cervical cancer is persistent human papillomavirus (HPV) infection. This is a very common sexually transmitted infection (STI) that affects 50-80% of women at least once in their life after they become sexually active. Fortunately, most HPV infections are transient, since the natural immune response is able to eliminate the virus, which is undetectable after 6 to 18 months.

However, in a small percentage of cases, persistent infection causes precancerous lesions that can develop into invasive cancer if they are not diagnosed and treated in time. Over 100 types of HPV are currently known, some of which have a high potential for causing cancer (oncogenic types). In the Americas, oncogenic HPV types 16 and 18 are responsible for approximately 70.7% of all invasive cancers diagnosed [2].

The high burden of cervical cancer in Latin America represents a major public health problem that could be prevented by effective primary and secondary prevention strategies in conjunction with appropriate diagnostic and therapeutic case management. Although cytology has been used as a screening technique in many Latin American countries for over 30 years, a reduction in incidence and mortality comparable to that recorded in developed countries has not been achieved. The failure of the screening programs in Latin America is due not only to the limitations of cytology as a screening technique but also to the organization of the health system, as well as cultural and community factors. In this context, the development and availability of new screening technologies and prophylactic vaccines for HPV offer unprecedented new opportunities to achieve prevention and control of cervical cancer.

The Regional Strategy and Plan of Action for Cervical Cancer Prevention and Control were prepared by the Pan American Health Organization (PAHO) in response to the high incidence and mortality rates in the region. After it was reviewed by the PAHO Directing Council in 2008, the Ministers of Health of the Americas resolved to urge the Member States to apply the measures recommended in the strategy. The aim is to improve the capacity of countries to implement sustainable and effective programs for the prevention of cervical cancer and generate synergies with the adolescent health,



immunization, and sexual and reproductive health programs.

In this context, in order to promote the introduction of changes that improve the effectiveness and impact of cervical cancer programs, PAHO, in collaboration with the Ministry of Health of Panama and the Program for Appropriate Technology in Health (PATH), convened a meeting on cervical cancer prevention for Latin America entitled “*New Technologies for Preventing Cervical Cancer: From Scientific Evidence to Program Planning*” (Annex 2). The meeting, which was held in Panama City on 2-3 June 2010, offered participating countries the opportunity to consider some of the objectives and lines of action of the Regional Strategy in light of the scientific evidence presented and the successful experiences of some countries in the region. It also facilitated identification of opportunities for collaboration, not only with partner organizations, research centers, and academic institutions, but also among the countries of the region. This report describes the structure, contents, and results of the subregional meeting, as well as the main conclusions and commitments made by the participants.

1.2 Purpose

The purpose of the subregional meeting was to review current scientific evidence on the use of new technologies for cervical cancer prevention, share the positive experiences in Latin American countries, and plan activities that promote collaboration and the strengthening of cervical cancer programs.

1.3 Objectives

1. Show the scientific evidence available on new technologies for cervical cancer screening (e.g., HPV DNA test, visual inspection techniques) and discuss the most appropriate screening strategies based on the resources available.
2. Review the available scientific evidence on HPV vaccines in terms of cost-effectiveness and strategies for distribution, evaluation, and monitoring of vaccination.
3. Share successful experiences in Latin American countries in pilot testing and the introduction of new technologies for preventing cervical cancer in public health programs.
4. Plan activities that facilitate collaboration with partner organizations in order to strengthen cervical cancer prevention programs and support the introduction of new approaches and technologies.

1.4 Participants

Seventy-three representatives from 13 Latin American countries and 15 partner organizations, associations, universities, and research centers participated in the meeting (*Table 1*). In addition, they were honored by the participation of the Vice Minister of Health of Panama, Dr. Julio Santamaría, as well as members of the National Cancer Commission, during the two days of the meeting.



The main audience of the meeting consisted of representatives from the ministries of the countries in the region, which have prioritized the prevention of cervical cancer by demonstrating their commitment, interest, and capacity to strengthen their national programs. In fact, the meeting was attended by the managers of the cancer programs in seven countries (Argentina, Chile, El Salvador, Honduras, Panama, Paraguay, and Costa Rica), the managers of the immunization programs in two countries (Honduras and Peru), and the managers of the sexual and reproductive health programs or women's health programs in seven countries (Bolivia, Chile, Nicaragua, Panama, Peru, the Dominican Republic, and Mexico).

In order to reinforce the interprogrammatic nature of the meeting, there was participation by representatives from different areas of PAHO (e.g., cancer, sexual and reproductive health, immunization, adolescent health) and staff from the Representative offices.

The complete list of participants is shown in *Annex 3*.

1.5 Preparatory work

Prior to the meeting, a SharePoint site was created on the PAHO intranet to circulate the agenda for the meeting, relevant documents on the prevention and control of cervical cancer (e.g., Regional Strategy for Cervical Cancer, key WHO documents on the HPV vaccine and cervical cancer, monograph on HPV and cervical cancer in the Region of the Americas in the journal

Vaccine), and links to partner organizations and Internet resources. The presentations by the speakers and the posters presented by the participants were also available on the SharePoint site. The SharePoint contents are available at PAHO's website (<http://new.paho.org>). Finally, as preparation for the working groups, the managers of the cancer programs were asked to complete a brief situation analysis on their programs (*Annex 4*). These surveys were also shared with the participants on the SharePoint site.



Table 1. Participants at the Latin American subregional meeting on the prevention of cervical cancer

| | |
|---|--|
| COUNTRIES | South America: Argentina, Bolivia, Chile, Colombia, Paraguay, Peru México, Central America and the Latin Caribbean: Mexico, Costa Rica, El Salvador, Guatemala*, Honduras, Nicaragua, Panama, Dominican Republic |
| ASSOCIATIONS | National Cancer Association, Panama |
| UNIVERSITIES | McGill University, Montreal, Canada Universidad de Antioquia, Colombia Universidad Pontificia Católica, Chile |
| RESEARCH CENTERS AND FOUNDATIONS | Center for Studies on State and Society, CEDES/CONICET, Argentina National Institute of Oncology, Colombia INCIENSA Foundation, Costa Rica Max Foundation Cancer Research UK |
| PARTNER ORGANIZATIONS | World Health Organization (WHO) Program for Appropriate Technology in Health (PATH) Basic Health International Centers for Disease Control and Prevention (CDC) International Union Against Cancer (UICC) Pan American Health Organization (PAHO) |

* The participants from Guatemala were unable to attend the meeting. However, they completed the preparation prior to the meeting and contributed by preparing a poster.



2. CONTENTS

2.1 Agenda and planning

The meeting was a two-day event. On the first day, roundtables were organized with presentations on scientific evidence for HPV vaccines, new technologies for cervical cancer screening, planning cancer prevention and control strategies adapted to available resources, and communication strategies to improve women's participation in screening programs. Each series of presentations was accompanied by presentation of successful experiences in countries of the region as well as an opportunity for questions and answers. On the second day, the initiatives and resources available for the prevention and control of cervical cancer were reviewed in a roundtable followed by questions and answers. The rest of the day was organized around joint project planning in three working groups formed to identify short-, medium-, and long-term priorities and activities, as well as opportunities for collaboration. After presentation of the working groups' results in the plenary session, the final conclusions were presented and the meeting was concluded.

During the two days of the meeting, the posters prepared by the participants were displayed. These posters showed their experiences with introducing new technologies for primary and secondary prevention of cervical cancer in the

countries of the region (*Annex 5*). In addition to organizing the traditional roundtables and working groups, this attempted to create a venue for promoting discussion and interaction among the participants.

Finally, another noteworthy event at this meeting was the official launch of the National Plan for the Prevention and Control of Cancer and the National Palliative Care Program of Panama by the Vice Minister of Health of Panama, Dr Julio Santamaría.

The complete agenda of the meeting is provided in *Annex 2*.

2.2 Inauguration of the meeting

The inauguration of the subregional meeting was presided over by Dr. Julio Santamaría, Vice Minister of Health of Panama, who jointly welcomed the participants to Panama City with Dr. Aisha Jumaan, PATH representative, and Dr. Joaquín Molina, PAHO/WHO Representative in Panama.



2.3 Introduction to the meeting



► *Work on the prevention and control of cervical cancer by the World Health Organization (WHO)*

Dr. Nathalie Broutet, Sexual and Reproductive Health Programme, WHO, Geneva

Dr. Nathalie Broutet opened the meeting with a presentation on WHO's work on the prevention and control of cervical cancer.

The epidemiological data shows that cervical cancer is an inequitable disease that especially affects the most vulnerable women. Unlike the situation with other common types of cancer such as breast, skin, or lung cancer, the mortality associated with cervical cancer is up to six times higher in women aged 24-65 years in developing countries than in developed countries. In this context, a comprehensive approach is required, which includes

prevention and early detection as well as appropriate screening, treatment and access to palliative care. For this purpose, WHO has prepared a series of manuals and support tools such as the Comprehensive Cervical Cancer Control guide to essential practice and the six-module series on Cancer Control, all of which can be accessed on the Internet. In addition, in April 2009 the first WHO position paper on HPV vaccines was published. Table 2 shows the main recommendations found in this document.

Table 2. WHO recommendations on the introduction of HPV vaccines

WHO recommendations

WHO recommends inclusion of HPV vaccination as part of the national vaccination programs based on the following key assumptions:

- Prevention of cervical cancer and other HPV-related diseases is a public health priority;
- The introduction of these vaccines is feasible from a planning standpoint;
- Sustainable financing can be guaranteed;
- The cost-effectiveness of the vaccination strategies in the country or region has been considered; and
- HPV vaccination focuses on adolescents prior to the start of an active sex life (e.g., 9-13 years of age).



Dr. Broutet noted the imminent need to update the Comprehensive Cervical Cancer Control guide to include the following:

- **HPV vaccines.** She stated the WHO position on HPV vaccines, emphasizing that administering the vaccine can offer the opportunity to provide adolescents with a comprehensive information packet on health and services. Adolescents represent one-fifth of the world population. Adolescent girls are a highly vulnerable group that deserves special attention.
- **New evidence on alternative screening tests.** Visual inspection of the cervix (VIA), the HPV DNA test, and new and simplified rapid HPV tests such as *CareHPV*, which contribute to surmounting certain structural barriers while maintaining sensitivity and specificity.
- **New procedures for screening and treatment,** such as:
 - HPV test as primary screening, followed by triage with conventional or liquid-based cytology in middle- or high-income countries.
 - HPV test followed by treatment or triage based on visual inspection with acetic acid (VIA) or Lugol's iodine (VILI).
 - New procedures and recommendations for cohorts of vaccinated girls.

- **Use and safety of cryotherapy compared to other techniques.**

- **HIV and cervical cancer,** with special emphasis on how HIV infection can change the natural history of cervical cancer and the impact this can have on the age of onset and frequency of screening, the importance of knowing one's HIV status, as well as the management and follow-up of HIV-positive women with abnormal screening results.

Finally, Dr. Broutet stressed the importance of a comprehensive approach with the participation of all of the programs involved (i.e., adolescent health, sexual and reproductive health, chronic noncommunicable diseases, immunization, HIV), identifying the following as pending issues to ensure access to effective prevention and control programs:

- Strengthen health systems to guarantee prevention and treatment and be able to reach adolescent girls.
- Increase access to more sensitive and specific rapid (in situ) screening tests that facilitate better coverage by the screening programs.
- Ensure equitable access to services and affordable vaccines.
- Develop a basic package of services that facilitates a comprehensive approach to improving adolescent health.
- Guarantee access to treatment and palliative care.





► *PAHO Regional Strategy and Plan of Action for Cervical Cancer Prevention and Control*

Ms. Silvana Luciani, Regional Advisor on Chronic Diseases, Health Surveillance and Chronic Disease Prevention and Control Area, PAHO, Washington, D.C.

Ms. Silvana Luciani, Regional Advisor on Cervical Cancer Prevention and Control, PAHO (Washington, D.C.), began her presentation on the Regional Strategy and Plan of Action for Cervical Cancer Prevention and Control by reviewing the cervical cancer burden in the region. An estimated 63,068 new cases and 29,222 deaths associated with this disease are recorded each year. The factors that influence the success of cervical cancer programs include their structure, the type of test or technology used for screening, and certain sociocultural factors. Several tools are also available to improve the cervical cancer programs in the countries of the region: HPV vaccines, new screening tests (HPV DNA tests, VIA) and “screen-and-treat” strategies (VIA and cryotherapy).

In response to the high cervical cancer incidence and mortality rates in the region, the Pan American Health Organization developed the Regional Strategy and Plan of Action for Cervical Cancer Prevention and Control, which was adopted by the Ministers of Health of the member countries at the PAHO Directing Council in 2008. The Regional Strategy proposes a comprehensive interprogrammatic approach (e.g., cancer, sexual and reproductive health, immunization and

adolescent health programs) that covers the entire natural history of the disease, from education and the screening of precancerous lesions to diagnosis and treatment of invasive cancer, including access to palliative care. The Regional Strategic Plan of Action are organized around seven points (*Table 3*).

The subregional meeting takes place in this political framework, with the objectives of reviewing the scientific evidence on new technologies, sharing experiences in Latin American countries, and planning activities to strengthen cervical cancer prevention programs.

As part of the cervical cancer prevention and control measures taken by PAHO, the inclusion of HPV vaccines in the Revolving Fund is noteworthy. This will facilitate procurement for countries in the region that are negotiating more affordable prices.

Finally, Ms. Silvana Luciani noted the need to prioritize the strengthening of cervical cancer prevention programs in the region, emphasizing that there is clear evidence in favor of the new approaches and technologies. Thus, there is no need to wait, but rather, to take action.



Table 3. Points of the Regional Strategy Plan of Action for Cervical Cancer Prevention and Control

PAHO STRATEGIC PLAN OF ACTION FOR CERVICAL CANCER PREVENTION AND CONTROL

The following 7-point Plan of Action is proposed for the Regional Strategy:

1. **Assess the situation**, compiling strategic information to be used as the basis for decisions on whether standards and procedures in connection with cervical cancer should be changed and in what way. This analysis can serve as point of comparison to observe the effects of the program.
2. **Increase information, education, and orientation**, promoting knowledge about HPV and cervical cancer as well as sex education, with special emphasis on the most disadvantaged and vulnerable groups of women.
3. **Strengthen the programs for the detection and treatment of precancerous lesions**, adapting the strategy to the resources:
 - *In environments with sufficient resources* to maintain quality cytology screening with appropriate and timely follow-up of women: 1) Improve quality and consider the possibility of introducing the HPV DNA test; 2) increase screening coverage in women at risk (over 30 years of age); and 3) increase the percentage of women with abnormal results who receive timely and appropriate follow-up.
 - *In environments with insufficient resources* to maintain quality screening and where there is a high percentage of women with insufficient follow-up, consider introducing the single-visit approach to screening and treatment by performing screening (VIA) followed by immediate treatment of precancerous lesions with cryotherapy.
4. **Establish or strengthen cancer registries and information systems.**
5. **Improve the access to and quality of cancer treatment and palliative care.** Surgery and radiation therapy are the treatments of choice for invasive cervical cancer, with cure rates of 85-90% in the initial stages. Palliative care is an integral component of the programs. It includes pain control, palliative radiation therapy, and family and psychological support.
6. **Generate information to facilitate decisions about the introduction of HPV vaccines.**
7. **Promote equitable access as well as affordable comprehensive prevention of cervical cancer.**



2.4 Scientific evidence

The introduction in recent years of new technologies for primary and secondary prevention of cervical cancer, such as HPV vaccines, VIA, or HPV DNA screening, makes it necessary to review and synthesize the scientific evidence available. The aim of this approach is to provide decisionmakers with useful up-to-date information that will enable them to make changes to enhance the effectiveness and impact of cervical cancer programs.



► *Scientific evidence on HPV vaccines*

Dr. Rolando Herrero, Guanacaste Epidemiological Project, INCIENSA Foundation

Dr. Rolando Herrero, a researcher at the Guanacaste Epidemiological Project, Costa Rican Institute for Research and Education on Nutrition and Health (INCIENSA) (Costa Rica), gave a presentation on the scientific evidence for HPV vaccines. The presentation began with a review of the characteristics of the natural history and epidemiology of cervical cancer, which demonstrate the importance of the discussions on HPV vaccines.

Around 16% of all cases of cervical cancer worldwide occur in Latin America, a trend that is expected to increase in the future due to the region's population structure. Persistent HPV infection is the underlying cause of all cases of cervical cancer. In addition, the risk of other types of cancer attributable to HPV ranges from 10% for cancer of the larynx or oral cavity to 86% for anal cancer. This information is important, since it implies that the impact of the HPV vaccine is not limited to cervical cancer or even exclusively to women.

Over 100 types of HPV are currently known. HPV types 16 and 18, which belong to the A9 and A7 species respectively, account for 60-70% of the cases of invasive cancer. The filogenetic grouping of HPV types is important in terms of the cross-protection provided by the vaccine. It should be pointed out that the studies on the prevalence of HPV in invasive cancer that have been performed in different locations in the world invariably show that HPV types 16 and 18 are isolated most frequently. Minor differences have been recorded with regard to the third most common type. Furthermore, higher prevalence of infection is usually associated with higher frequency of multiple infections, which means that other types tend to be isolated.

With regard to the natural history of disease, the importance of clarifying certain basic concepts was emphasized. Firstly, HPV is a very common STI that is acquired by nearly all people at least once in their life after becoming sexually active. Most infections are transient. However, in a small



percentage of cases they may persist, with the consequent risk of precancerous lesions that can develop into invasive cancer if they are not detected and treated in time.

Next, Dr. Herrero presented the current evidence on HPV vaccines. There are two types of vaccines, prophylactic and therapeutic. The prophylactic vaccines provide protection mediated by neutralizing antibodies that target structural proteins in the form of virus like particles (L1 VLP). They act when they come into contact with the virus, not when infection has already occurred. On the other hand, therapeutic vaccines, even those that are currently being developed, are effective in persons that have already been infected. They act by generating a cell-mediated immune response against the E2, E6, and E7 proteins that are necessary to maintain the infection and for transformation.

Two HPV vaccines are currently sold, Cervarix® (GSK) and Gardasil® (MSD). Cervarix® is a bivalent vaccine produced in baculovirus that contains HPV types 16 and 18 and the adjuvant ASO₄ (AIOH and MPL₃). Administration is intramuscular (IM), in a 0-1-6 month regimen. Gardasil® is a tetravalent vaccine produced in yeast that contains HPV types 6, 11, 16, and 18, and aluminium salts as adjuvant. By including types 6 and 11, Gardasil® offers protection from the genital warts produced by these types of HPV. Administration is also IM, in a 0-2-6 month regimen.

Gardasil® was approved by the Food and Drug Administration (FDA) in 2006 for use in women aged 9 to 26 years. In October 2009

it was approved for the prevention of genital warts in men. Cervarix® was authorized by the FDA in October 2009 for use in women aged 10 to 25 years.

In terms of the duration of protection, the longer studies show protective antibody levels after 5 to 7 years.

With regard to the therapeutic efficacy of the HPV vaccines, several studies have confirmed that they are not therapeutic. They have been shown to be highly effective in women that have not been previously infected with oncogenic types of HPV.

The two HPV vaccines are considered to be safe by different organizations and regulatory agencies such as WHO, FDA, CDC, and the European Medicines Agency (EMA). The clinical trials have recorded local reactions and higher probability of post-administration syncope, but no significant differences have been found with regard to incidence of serious adverse effects.

The cost-benefit studies conducted in Latin America indicate that HPV vaccination would be cost-effective at a cost of US\$ 10-25 for each woman vaccinated. In addition, it has been estimated that vaccination of 70% of adolescents in 72 countries of the Global Alliance for Vaccines and Immunization (GAVI), China, Thailand, and Latin America for 10 years would prevent more than 4 million deaths and over 10 million orphans. Moreover, since the vaccination of men does not appear to be cost-effective, the resources should be



assigned to achieving high coverage in women.

Finally, studies are being conducted to evaluate the effectiveness of a regimen with a lower dose, which would facilitate reduction of the cost and planning difficulties. Some reports (e.g., British Columbia) show comparable immunogenicity.

Dr. Herrero finished his presentation with the following two conclusions:

1. HPV vaccines will not have an impact on incidence and mortality associated with cervical cancer at the global level until they are administered on a wide scale in countries with high incidence.
2. Since they will benefit women that develop cancer in the future, after many years, screening programs should be set up or continued for groups of women that will not benefit from the vaccine.



► *Scientific evidence on new technologies for cervical cancer screening*
Dr. Eduardo Franco, Division of Cancer Epidemiology McGill University, Montreal (Canada)

Dr. Eduardo Franco, Professor in the Departments of Epidemiology and Oncology and Director of the Division of Cancer Epidemiology at McGill University, Montreal (Canada), began his presentation on the scientific evidence on new technologies for cervical cancer screening by analyzing the success and failure of cytology screening as a paradigm for secondary prevention. Although cytology has been used for years as a screening technique in many Latin American countries, a reduction in incidence and mortality comparable to that recorded in developed countries has not been achieved. In fact, the cytology coverage attained in Latin America is not associated with lower mortality in all countries. This can be attributed to the fact that, without an organized program,

coverage figures can lead to confusion, since they reflect access to health services by women at lower risk of having cervical cancer. Furthermore, the screening programs consist of several different interrelated components, such as quality assurance of the test used, patient treatment and follow-up, and sustainability. All of these must be operative in order to obtain acceptable results.

Cytology has high specificity (96-98%) and low sensitivity (51-53%) [3,4]. However, it should be pointed out that these data refer to the developed countries. To compensate for the low sensitivity, cytology-based screening programs should perform the test annually for 2-3 years and then less often.



Some of the controversial aspects of cervical cancer screening are mentioned below. For the current paradigm, in which cytology is used as the screening test, there is no clear consensus on issues such as the age to begin the tests (at 18, 21, 25 years or over), the frequency of screening (annually or at 2, 3, or 5 year intervals) or whether liquid-based cytology is more accurate than conventional cytology. In areas with limited resources, there is a discussion on the effectiveness and sustainability of VIA

screening followed by cryotherapy. Finally, certain issues have been discussed with regard to whether a new paradigm based on molecular tests such as the HPV DNA test should be used as triage for low-grade abnormalities or should replace cytology as the primary screening test.

Table 4 shows the main characteristics of the screening tests in terms of sensitivity, specificity, and the number of visits required.

Table 4. Main characteristics of screening tests in terms of sensitivity, specificity, and the number of visits required

| Characteristics | Pap smear | HPV DNA Test | VIA |
|------------------|-----------|--------------|--------|
| Sensitivity | 47-62% | 66-100% | 67-79% |
| Specificity | 60-95% | 62-96% | 49-86% |
| Number of visits | 2 or more | 2 or more | 1 |

Source: Sankaranayaran et al. Int J Obstet Gynaecol, 2005

With regard to evidence on use of the HPV DNA test as the cervical cancer screening test, two types of approaches are being evaluated or have already been implemented: parallel and sequential. The first option consists of simultaneous performance of cytology and the HPV DNA test. Administration of the sequential test may consist of a cytology screening first, followed by the HPV DNA test in order to perform triage for atypical squamous cells of uncertain significance (ASCUS), or vice versa.

The HPV DNA test is an attractive option as a cervical cancer screening test for several reasons:

- It is more sensitive and reproducible than cytology and more useful in the

earliest stages of carcinogenesis. Consequently, the screening intervals can be established with greater margins of safety.

- Large numbers of samples can be processed automatically, using a centralized method, with quality assurance.
- It can be more cost-effective than cytology if it is used for a high number of samples, as occurs in primary screening.
- It is the most logical screening option for women that have been vaccinated against HPV.



The evidence on the HPV DNA test shows:

- Higher sensitivity and acceptable specificity compared to cytology. In fact, a combined analysis of studies conducted in Europe and North America [3] showed that the HPV DNA test was more sensitive (96.1% vs. 53%) than cytology screening for the detection of CIN2+, but less specific (90.7% vs. 96.3%). Another meta-analysis published in 2006 [5] found that the HPV test was 1.23 times more sensitive and 0.94 less specific than cytology.
- Higher reproducibility in different scenarios.
- Greater probability of detecting high-grade intraepithelial neoplasms (CIN) with potential persistence or progression.
- Greater safety during follow-up for women with negative results in the initial screening.
- Lower advanced cervical cancer and mortality.

In this context, since cytology has not had the desired impact in Latin America and in view of the imminent introduction of HPV vaccination, the need for a change of paradigm is being considered. Use of the HPV DNA test as the primary screening test, followed by triage with cytology, is proposed as a potential solution for several reasons. First, when it is used in earlier phases of carcinogenesis, it provides a higher margin of safety. It is also a more

sensitive and reproducible test that is less dependent on subjective interpretations. Furthermore, it is less probable that the sensitivity and specificity of the test will decrease as the prevalence of HPV infections and related lesions falls. Finally, cytology is preferable in contexts with a greater artificial prevalence of lesions when it is used for triage in women with positive HPV test results. Some of the additional benefits of the HPV test followed by cytology in populations with high vaccination coverage are:

- It can be used for an additional purpose: as a monitoring system that is integrated with the vaccine registries in order to conduct follow-up of vaccine efficacy, duration of protection, and cross-protection.
- Impact on adenocarcinomas, since it has a greater capacity to detect glandular lesions.
- The potential use of self-sampling can make it possible to extend coverage and reach remote areas.
- The proposed approach is also applicable to unvaccinated populations, which will help simplify clinical practice guides.
- Screening intervals can be increased with greater safety.
- It facilitates better use of human resources: cytology would be reserved as a test for diagnostic triage.

In conclusion, in spite of its limitations, cytology is still an option in countries with organized opportunistic screening. It must be borne in mind that the use of cytology as the primary screening test requires an



organized program with a quality assurance system and adequate response times. Over time, HPV vaccination will have a negative impact on the cytology performance, placing even greater pressure on the already limited effectiveness of screening programs in low or middle-income areas. In this context, the HPV DNA test is shown to be a more robust and effective screening

test than cytology, especially after vaccination. Furthermore, VIA is a promising strategy in low-income areas. Finally, a new paradigm consisting of the HPV test followed by triage with cytology or VIA could play a dual role as a screening method and a surveillance system for evaluating the effectiveness of the HPV vaccine.

► **QUESTIONS AND ANSWERS**

In the question-and-answer session held after the presentations by Dr. Rolando Herrero and Dr. Eduardo Franco, the following questions were considered:

- The types of HPV isolated most frequently in women with cancer in prevalence studies conducted throughout the world are invariably types 16 and 18. Therefore, it is not necessary to replicate prevalence studies in each country of the region as a prerequisite to introducing the vaccine.
- With regard to vaccines, the budget barrier was identified as the main obstacle to introducing the HPV vaccine in national programs. For the new vaccines under development, the 9-valent HPV vaccine was mentioned. It was pointed out that it would not be justified to wait for it to be marketed prior to the introduction of HPV vaccination at the national level, given the significant impact already associated with the bivalent and quadrivalent vaccines. The second-generation vaccines were also mentioned. These vaccines will be independent of the cold chain and will require a single dose, but they are still in the initial phases of research.



► **QUESTIONS AND ANSWERS**

In the question-and-answer session held after the presentations by Dr. Rolando Herrero and Dr. Eduardo Franco, the following questions were considered:

- With regard to cytology, it was indicated that centralization of the tests leads to greater sensitivity since it improves the quality of interpretation. In addition, the use of cytology as a triage test for positive cases after HPV DNA screening will also lead to improvements in quality since the cytotechnologist will know the sample is from a woman with a positive test result when analyzing it.
- It is important to bear in mind that the predictive values for cervical cancer screening tests are associated with the prevalence of disease. This will be relevant when the cohorts of girls vaccinated reach the age to begin screening. The HPV DNA screening tests are expected to be more tolerant of the changes occurring as a result of the introduction of the vaccine.
- Finally, the cost of the different cervical cancer screening tests was mentioned.



► ***Scenarios for cervical cancer prevention by resource level***
Dr. Raúl Murillo, Assistant Director of Research, National Institute of Oncology, Colombia

Dr. Raúl Murillo, Assistant Director of Research, National Institute in Colombia, gave a presentation on different scenarios for the prevention and control of cervical cancer.

The reduction in mortality associated with cervical cancer is influenced by three aspects of the prevention and control programs: level of coverage, quality of the screening test, and follow-up of patients with abnormal results. Some models have shown that better follow-up can reduce

mortality more than better coverage. Indeed, the reduction in mortality achieved in the developed countries may be associated with greater access to treatment services.

With regard to the performance of conventional cytology, sensitivity ranging from 26.2% to 59.4% and specificity from 93.7% to 98.7% have been recorded in Latin American studies. European and North American studies show similar figures, with



sensitivity ranging from 22.5% to 64.8% and specificity from 84.2% to 98%.

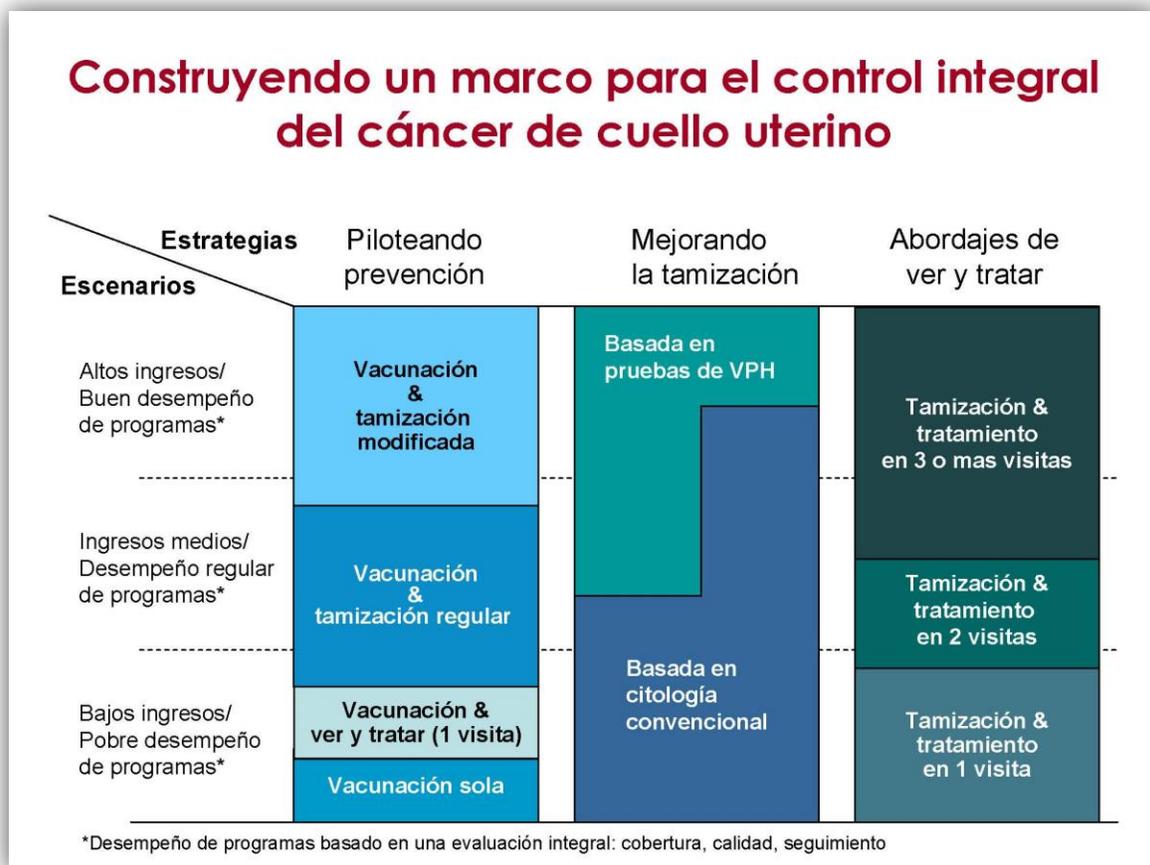
There may be regional variations in mortality associated with cervical cancer. Therefore, it is very important to consider the different screening scenarios and understand what the new technology contributes to each scenario.

The HPV DNA screening test can improve the quality of cervical cancer screening by

contributing greater sensitivity and improved standardization. It also allows for less frequent follow-up (every 3 or 5 years) and offers the possibility of self-sampling. However, it does not reduce the number of visits.

Finally, a framework for comprehensive cervical cancer control can be constructed by adapting the strategies to the different scenarios (*Figure 2*).

Figure 2. Framework for a comprehensive cervical cancer prevention and control, adapting strategies to the different scenarios¹.



¹ Courtesy of Dr. Raúl Murillo, Instituto Nacional de Cáncer, Colombia





► Communication strategies to improve participation in cervical cancer screening programs

Dr. Silvina Arrossi, Researcher, Center for Studies on State and Society CEDES/CONICET. Argentina

Dr. Silvina Arrossi, researcher at the Center for Studies on State and Society CEDES/CONICET made a presentation on communication strategies for greater participation in screening programs and the importance of considering the perspective of women and the community when developing cervical cancer programs. She began by describing the results of several studies performed in Argentina to ascertain women's knowledge of different aspects of cervical cancer.

In a case-control study conducted to analyze the relationship between women's knowledge of the Pap test for cervical cancer and how the test is done, it was shown that the probability that the test had been done within the past 3 years was 2.6 times higher in women with adequate knowledge of its use versus women without such knowledge ($p=0.002$).

In addition, in a project on the population's knowledge about HPV and HPV vaccines, 1,200 women in the city of Buenos Aires were surveyed. It was found that only 57% of the women had heard of HPV. Moreover, in this subgroup, only 39% associated HPV with cervical cancer. With regard to the treatment options for this disease, 78% stated that it can be treated, 19% indicated

that they did not know, and only 3% said that they believed that it cannot be treated.

In light of these results, it can be concluded that communication and education are a key component in a comprehensive cervical cancer prevention strategy. It is necessary to educate and provide clear, accurate, evidence-based scientific information that is specific to each social, local, and cultural context. In addition, informed decision-making should be allowed, limiting the negative impact of improper screening and overtreatment, and reinforcing the concept of rights.

An important consideration when it comes to communication strategies is that they include components for health care professionals. Such professionals have not always received adequate training in public health and evidence-based medicine or adequate knowledge about cervical cancer epidemiology and the effectiveness of different prevention strategies.

Nevertheless, communication in itself is not enough. Other aspects such as social and gender inequities; geographical, organizational, and economic barriers to accessing services; and the quality of the services should also be considered.



Therefore, communication includes the relationship between the population and the services and the quality of that relationship.

In 2008 the National Program for the Prevention of Cervical Cancer (2008-2011) was launched in Argentina. In the first phase of this program, a priority activity was conducted in the five provinces with the highest burden of disease: Misiones, Salta, Formosa, Chaco, and Jujuy. Extension of the activities to the remaining national jurisdictions is planned in a second phase. It is important to point out that in Argentina there are significant inequalities among the different jurisdictions when it comes to mortality and screening coverage.

The main lines of work of the National Program for Prevention of Cervical Cancer are to achieve institutionalization and high screening and treatment coverage, improve the quality of cytology, and have an information and monitoring system. As to the goals of the program, during the three-year period from 2009-2011 the aim is to ensure that 60% of women aged 35 to 64 have had a Pap test and 100% of women with precancerous lesions and cancer receive treatment within 6 months of diagnosis.

In order to facilitate achievement of these goals, it will first be necessary to identify the women that do not visit the preventive screening services and the reasons why. In Argentina, studies have been conducted to develop a profile of the women who do not have the Pap test. They are primarily over 40 years of age who lack a primary

education, have no life partner and no health coverage, do not use contraceptives, and live in poverty. The reasons for the limited demand for preventive care by women in the target age group include the fact that the hours are not adapted to the women's needs, the long wait, lack of facilities with extended hours, lack of care for spontaneous demand, rejection of male gynecologists, and the lack of Pap tests at the primary care level. There is a need for educational activities, dissemination of information, and an anthropological approach to the problem.

In a second step, after acquiring knowledge of the reasons why women do not use the screening services, several different strategies need to be adopted to attract these women to such services. They include the preparation of educational

Materials; optimum use of opportunistic screening; active recruitment of women, taking their needs into account, reduction of geographical barriers, and adjustment of the days and hours of operation to community customs.



► QUESTIONS AND ANSWERS

After the presentations by Dr. Murillo and Dr. Arrossi, the future of cytology in Latin America and the Caribbean was discussed. The critical condition of cytology, the low sensitivity of this method, and the need for a cancer prevention and control program with a more complex structure were emphasized once again. If there is an abnormal result after cytology is done, at least five additional visits are required. In addition, cytology, colposcopy, and treatment are usually provided in centers located in places other than where the patient resides.

With regard to communication strategies, participation in cervical cancer prevention and control by couples was discussed. It was pointed out that some studies have shown that the couples' degree of knowledge about the subject has an impact on women's visits to preventive services.

Finally, the possibility of vaginal self-sampling at home for HPV DNA detection was discussed. Chile was cited as an example, where this was done as part of the 2003 national survey.



2.5 Experiences of the countries in the region

Successful experiences regarding the introduction of new technologies for primary and secondary prevention of cervical cancer in different Latin American countries were showcased in this section. These case studies demonstrate the feasibility of introducing new approaches to prevention in cervical cancer programs in the region, while facilitating the identification of opportunities for collaboration among countries



► *Panama: Cervical cancer situation in Panama and experience with the HPV vaccine*

Dr. Julio Santamaría, Oncologist, Vice Minister of Health, Panama

Dr. Julio Santamaría, Vice Minister of Health of Panama, began his presentation by reviewing the epidemiology of cervical cancer in Panama. According to data from the country's national cancer registry, cervical cancer is the second most common neoplasm in women of all ages. A total of 491 cases were recorded in 2005. Cervical cancer related mortality held fairly stable from 1995 to 2005, with 8 to 10.3 deaths per 100,000 women. With regard to the incidence rate, a pronounced decrease was recorded in 1999-2004, from 79.8 to 47.8 cases per 100,000 women. Analysis of the distribution of cases by age group shows the highest incidence from 30 to 39 years. This means that cervical cancer is a disease that affects young women in the prime of their family and productive lives.

On 28 October 2008, the Ministry of Health of Panama added the bivalent HPV vaccine (Cervarix®) to its Expanded Program on Immunization for girls aged 10 years. Dr.

Santamaría then discussed vaccination coverage data from the program's implementation until the first quarter of 2010. The figures showed that in 2008 the coverage rates for the target population of 31,348 girls aged 10 years were 52.8%, 18%, and 0% for the first, second, and third doses, respectively. Dr. Santamaría pointed out that low compliance with the second and third doses of the vaccine could be attributed to the fact that vaccination began in October, near the end of the school year. Therefore, vacations may have had a negative influence on adherence to the regimen. In 2009, the percentages for administration of the three doses of the vaccine were better: 89.06%, 75.8%, and 45.6%, respectively.

Next, after reviewing the primary benefits and limitations of the HPV vaccine, Dr. Santamaría described the results of a study on HPV prevalence in women over 15 years of age conducted by the Gorgas Institute in



Panama. This study is being conducted in 5,000-6,000 women from every province and region in the country. It includes screening and genotyping for HPV and other STIs such as HIV. To date, the samples from around 2,000 women from the general

population have been processed, yielding an HPV prevalence of approximately 61%.

Finally, Dr. Santamaría concluded his presentation by emphasizing the need to promote health education and communication on cervical cancer.



► Mexico: National program's experience with the introduction of HPV screening and the HPV vaccine

Dr. Susana Cerón Mireles, Assistant General Manager for Reproductive Health, National Center for Gender Equity and Reproductive Health, Ministry of Health, Mexico

Dr. Susana Cerón began her presentation by offering an introduction to the epidemiology of cervical cancer in Mexico. Up until 2006, cervical cancer was the leading cause of death in women aged 25 years or over. After 2006 it was replaced by breast cancer. In 2008 mortality in this age group was 14 deaths per 100,000 women. Each year, a total of 9,227 cases are diagnosed and 4,082 deaths are recorded, which represents 25 new cases and 11 deaths from cervical cancer daily. In addition, approximately 120,000 cases of precancerous lesions or in situ cancer are diagnosed: one every 12 minutes. It is particularly noteworthy that the deaths occur in rural women with low educational level and no Social Security.

Although the epidemiological data show a downward trend in mortality due to cervical cancer from 1980 to 2008, it is not as

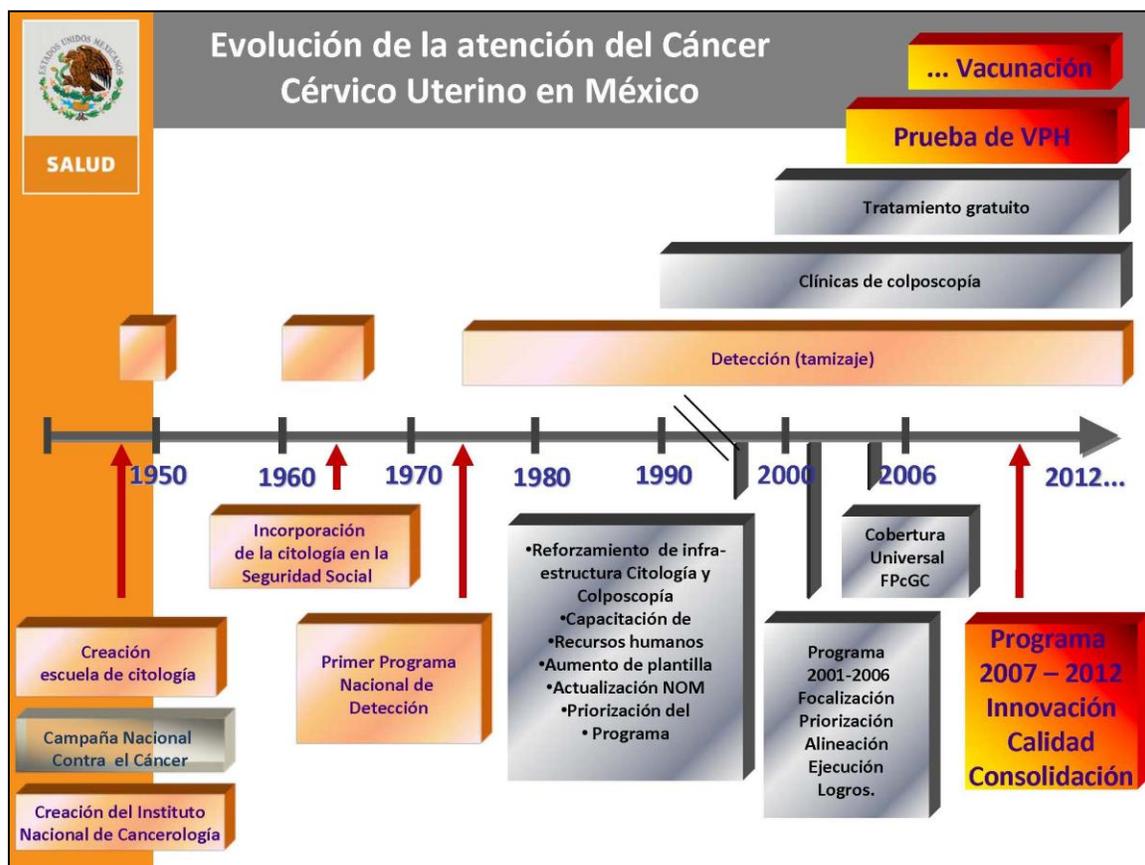
pronounced as expected for the country's development level. Mexico has had an active national program for the prevention of cervical cancer since the 1950s. Although some progress has been made, some of the challenges that cervical cancer program will continue to face are low screening coverage in marginalized urban and rural areas, cultural barriers, the higher frequency of risk factors in marginalized areas, poor quality detection and diagnosis, and insufficient patient follow-up.



The primary objective of the 2007-2012 sectoral health program is to improve the health conditions of the population. Its goals include reducing mortality from cervical cancer by 27%. This goal has been classified as strategic, and it will be monitored by the Office of the President. The goal of the 2007-2012 Cervical Cancer Action Program is to increase cytology and HPV screening coverage to 85% by 2010. Some of the most important milestones in the evolution of cervical cancer in Mexico

have been the strengthening of infrastructure and human resources training for cytology and colposcopy in the 1990s, as well as the expansion of coverage, which will be universal for all women in 2006 through the Fund for the Protection Against Catastrophic Cases (*Figure 1*).

Figure 1. Progress of cervical cancer treatment in Mexico



Dr. Cerón went on to describe the work that was performed at the institutional level prior to the introduction of HPV vaccination. Since 2006, the National

Committee on Women's Cancer has been monitoring preventive vaccines for HPV. At this time both have been approved by the regulatory authorities and are included in



the basic table and catalogue of drugs for the country. This national committee is an interinstitutional entity chaired by the Minister of Health. Its objective is to contribute to a reduction in mortality from cervical and breast cancer by increasing preventive action and controlling risk factors and the development of strategies for early detection. In 2008, expert working groups were established to develop an HPV vaccination policy. The high cost of the vaccine has been the most complex barrier. In addition, certain questions have been raised about the vaccine, such as the ethical and social implications of procuring such an expensive product (with more cost-effective interventions available), the appropriate age of vaccination, the duration of

immunity, and the level of protection obtained with only one or two doses.

In this context, the Ministry of Health's Economic Analysis Unit began cost-effectiveness studies for the HPV vaccine and HPV DNA screening. In view of the results (*Table 5*), after consideration of the impact on the annual budget, it was decided, based on the principle of equity, to implement a comprehensive prevention strategy in the 125 municipalities with the lowest human development indexes (HDI). This implies direct benefits for a population of 286,394 women and girls that are especially vulnerable and are less able to access the health services.



The comprehensive strategy, called “All women, a prevention alternative” was approved by the National Committee on Women's Cancer on 26 February 2008 with the following objectives for the 125 municipalities with the lowest HDI:

- Achieve over 70% vaccination coverage in girls aged 12 to 16.
- Subsequent vaccination of cohorts as they turn 12 years old in the municipios with the lowest HDI.
- Achieve 80% coverage for the HPV DNA test in women aged 35 to 64.
- Reduce the barriers to access, diagnosis, and treatment in highly marginalized populations.
- Contribute to equity in health and the improvement of living conditions.
- Promote sexual and reproductive health in these areas.

The vaccination coverage achieved in 2008-2009 was over 90% in the seven federal entities in which the first dose of the

vaccine was administered. Although coverage was lower for the subsequent doses, it was not less than 70% in any of the entities, with the exception of Chiapas, where the level of adherence for the third dose was 55.4%. It is interesting to point out that a phase IV clinical trial has been introduced to evaluate the use of an extended 0-6-60 month regimen, which will have follow-up for approximately 5 years.

HPV DNA tests are currently performed in the 192 municipios with the lowest HDI. There are nine regional molecular biology laboratories for HPV and three laboratories under development. In 2008 the three-year cytology coverage achieved at the national level in women aged 25 to 64 was 67%.

To be able to introduce the vaccine at the national level, the price of a dose would have to be reduced to US\$ 16.



► *Peru: Pilot study on the HPV vaccine*
Dr. Irma Ramos, Epidemiologist, Cancer Research UK
Mrs. Ana Maria Mendoza Araújo, Coordinator of the National Immunization Strategy, Ministry of Health, Peru

Dr. Irma Ramos began her presentation on the PATH pilot study of the vaccine in Peru by offering a brief introduction to the epidemiology of cervical cancer in this country. Cervical cancer is the second most common neoplasm in Lima (1994-1997). Moreover, it is the most common neoplasm in Trujillo (1991-1995) and Arequipa (2002-

2003), according to the cancer registries in these cities in the years cited.

The HPV vaccination project implemented in Peru consisted of the following phases:

1. Preparatory phase, in which educational research was conducted at



different levels (i.e., individual, interpersonal, community, institutional, political) to subsequently apply the research findings to the strategy design (system for vaccine distribution and delivery, communications strategy, and advocacy strategy).

2. Operational phase, with implementation of the demonstration project. In 2007 school-based vaccination was begun for a total of 3,000 girls in the three regions selected: Piura, Ucayali, and Ayacucho. In a second phase in 2008, vaccination was provided in the health centers, expanding administration to 1,000 girls in the Ucayali and Ayacucho regions and 8,000 girls in Piura. By 2010 it is expected that an additional 8,000 girls will be vaccinated in Piura.
3. End of the project, with circulation of the results and lessons learned.

It is important to point out that strengthening secondary prevention has been promoted throughout the project with activities such as the preparation of a Guide to the Prevention and Treatment of Precancerous Lesions, the design of a model for early diagnosis with VIA and immediate treatment with cryotherapy, the opening of a training center with VIA and cryotherapy at the National Institute of Neoplastic Disease (INEN) and San Juan de Lurigancho. This model has been implemented in four regions. A national plan for secondary prevention is being drawn up to facilitate institutionalization and ensure the sustainability of the project's achievements.

Mrs. Mendoza continued her presentation by offering a detailed description of the demonstration project.

In 2007 two school-based vaccination strategies were compared. The vaccine was administered to girls in fifth grade aged 9 years or over using a strategy consisting of school visits, referral to health centers, and another strategy in which active extramural follow-up was performed in addition to the school visits and health center referral. Coverage was similar with both strategies. Therefore, it was decided that it was not necessary to make home visits.

In the 2008 demonstration project, three doses of the vaccines were administered to all eligible girls aged over 9 years in the fifth year of primary school. For this purpose, the current health and education systems and structures were used for vaccine delivery and maintenance of the cold chain. The Institute of Nutritional Research (IIN) evaluated coverage, acceptability, and feasibility. The Ministry of Health, through the National Health Strategy on Immunization, and PATH collaborated in estimating the cost.

Regional trainers received training on the information, education, and communication activities, which were replicated in the participating districts. Fifth grade teachers received training on providing information on cervical cancer prevention and the HPV vaccine to parents and girls. Training was also provided for health center professionals, local leaders, and members of the community.



Parents gave a written consent for vaccination and the girls provided verbal authorization before receiving the vaccine. The monitoring and supervision activities included a daily log, rapid coverage monitoring, pharmacovigilance, and follow-up on adverse events following the usual procedures. The total coverage achieved was 87.2%.

In conclusion, given the results of the project it can be stated that:

1. Information and training ensure an appropriate response to needs, questions, and concerns.
2. The school-based vaccination strategy can be used to achieve good coverage. Early planning with the educational authorities facilitates vaccination.
3. In general, there is good acceptance of the HPV vaccine.
4. The individual decision to agree to the vaccine is dynamic. It involves different persons and factors.
5. Vaccination on a larger scale like that of the hepatitis B vaccination campaign was feasible and did not reduce routine vaccine coverage.
6. The progressive training system emphasizes quality and motivation, and uses a protocol. It was effective at the health sector level, but it needs to be simplified.
7. Lack of accurate information on the girls enrolled is an obstacle to planning and reporting coverage.
8. In remote rural areas there are different challenges for the achievement of the goals compared to rural and urban areas with higher population densities.
9. Pharmacovigilance requires accurate indications and specific training to ensure consistency.



► *Chile: Experience of the national program*

Mrs. Marta Prieto (Mat-MSP), Head of the National Cervical Cancer Program, Chile

Mrs. Marta Prieto (Mat-MSP) began her presentation with a brief description of the geopolitical and demographic characteristics of Chile. The country has a population of 17 million inhabitants, 50.5% of which are women and 15% live in rural areas. The public health system is made up of 29 health services. A total of 73.5% of the

population is enrolled in public insurance, 16.3% in private insurance, and 12.2% in other systems.

With regard to the epidemiology of cervical cancer, 1,150 new cases of invasive cancer are recorded each year. The estimated incidence rate in the over-15 age group is 23.8 per 100,000 women. Chile has had a



National Program for Cervical Cancer Research and Control since 1987. This program was launched to reduce the incidence and mortality associated with invasive cancer through early detection and timely treatment. The main strategies of the program are:

- Organization of national and local activities in the sexual and reproductive health program, in coordination with the adult program.
- Focus on women aged 25 to 64, with emphasis on women over 35 who have never had a Pap test.
- A Pap test every 3 years, ensuring its reliability.
- Diagnosis and timely treatment in the cases detected.
- Promotion in women at risk

After an initial implementation phase in a demonstration area, expansion of the program to the rest of the country began in 1994. There are currently 29 health services. In each of these, there is a physician and a matron in charge of program management. At the primary care level, there are 620 physician's offices. In each of these, there is a matron in charge of the program. At the secondary care level, there are 22 cytopathology laboratories. The national reference laboratory for cytopathology is responsible for quality control of the laboratories. Finally, at the tertiary care level there are 196 hospitals. Each hospital has a pathology unit with a trained team. In addition, a chemotherapy and radiation therapy referral network is available. Specific registries are kept at each level of care. An important milestone in the

history of the cervical cancer program since its launch in 1987 was the introduction of explicit health guarantees (GES) in the system in 2003, which guarantee maximum time periods for access to diagnosis, treatment, and follow-up.

Cervical cancer detection in the preventive medical examination, which is free for public as well as private patients, is conducted according to the following schedule: Pap test every 3 years in women aged 25-64. Cases with a positive test result or clinical suspicion are referred to the cervical pathology unit as indicated in the Clinical Guide on Cervical Cancer. Coverage of female beneficiaries age 25 to 64 with the current Pap test (i.e., performed within the last 3 years) was 68% in 2008. The 62.8% decrease in mortality associated with cervical cancer in the 25-64 age group between 1987 and 2008 is remarkable.

Despite this progress, the program faces the following challenges:

- Maintaining and improving the achievements attained.
- Achieving and maintaining coverage with the current Pap test greater than or equal to 80% of the women at risk.
- Implementing the current software for work performed by the cytology laboratories, support for program management and for the national cervical and breast cancer registry.
- Ensuring quality control of cytology at the national level.
- Maintaining ongoing training of human resources for the program.



- Evaluating the introduction of new cost-effective, evidence-based technologies to supplement the program (detection of markers and HPV vaccines) with all of the parties involved.



► *Nicaragua: START-UP project with the careHPV test*
Dr. José Jerónimo, START-UP Project, PATH, Seattle. Also presenting:
Dr. Juan José Amador, START-UP Project, PATH, Nicaragua

The purpose of the PATH START-UP project is to evaluate a new HPV DNA test, the *careHPV*. This test, which is still in the research phase, is designed for areas with limited resources. The project is under way in Nicaragua, with the participation of approximately 2,000 women, as well as in other countries. The objectives of this work are:

1. Provide decision makers with practice-based evidence on the use of the *careHPV* test and other screening options.
2. Compare the VIA, Pap smear, and *careHPV* detection indices with vaginal self-sampling and cervical *careHPV* collected by health care workers.
3. Generate evidence for the Ministry of Health (MINSa) to decide on appropriate methods for cervical cancer screening programs.

For the study, women that met the following criteria were selected: age between 30 and 49, intact uterus, history of previous sexual activity, no previous

screening or most recent Pap test over one year ago, informed consent.

The study protocol consisted of screening by Pap test, VIA, or *careHPV*, with collection by self-sampling or health care providers. Follow-up was conducted in women with negative test results for 5 years.

Women with positive results were sent for colposcopy, biopsy, cryotherapy, or referral, as appropriate. The test of cure was conducted each year by colposcopy.

In view of the preliminary results of the START-UP project in Nicaragua, it can be concluded that:

1. *CareHPV* has greater sensitivity for detection of CIN2+ than VIA or Pap smear.
2. Self-sampling is very well-accepted. It facilitates wide-scale community-based screening, ideally in the women's homes.
3. High quality HPV DNA screening examinations can be conducted by using *careHPV* in urban and rural areas.



► **QUESTIONS AND ANSWERS**

After the presentations on the country experiences, the following issues were discussed:

- None of the experiences with vaccine implementation had difficulties achieving good compliance due to fear of side effects or encountered rejection for religious or other reasons. All of the participants agreed on the positive effect of the information campaigns prior to the introduction of the vaccine, focusing on the message that it is a vaccine for cervical cancer.
- The opportunity that vaccination provides to offer adolescents other health services was emphasized.
- With regard to budget allocations, the need to switch from a curative model to a preventive model was stressed, increasing the percentage of resources invested in health.
- It was underscored that there is currently sufficient evidence to guarantee the effectiveness and safety of the vaccine and confidently support its introduction in the countries of the region. Issues of cost and distribution have yet to be resolved. In order to achieve cervical cancer prevention and control, all the available tools need to be used, including HPV vaccines.

2.6 Review of the initiatives and resources available

Finally, the work in cervical cancer carried out by some international organizations in the countries of the region was described in order to provide information on the resources available and the possibilities of technical cooperation.



► **ProVac Initiative and associated tools**
Dr. Bárbara Juaregui, Immunization Project, PAHO/WHO, Washington D.C.

The ProVac Initiative is a PAHO project financed by the Gates Foundation that seeks to strengthen the countries' technical

capacity to make evidence-based decisions on the introduction of new vaccines. The initiative currently focuses on four vaccines:



rotavirus, pneumococcal conjugate, influenza, and HPV.

The objectives of the ProVac Initiative are as follows:

1. Strengthen the infrastructure and decision-making processes.
2. Develop tools for economic analysis and provide training to national multidisciplinary teams.
3. Collect data, conduct analyses, and bring together the entire framework of evidence.
4. Advocate evidence-based decision-making.
5. Plan for effective introduction when the evidence supports introduction.

The ProVac method for cooperation with the countries of the region consists of joint work by the main ProVac team and centers of excellence with the Ministry of Health of the country, the National Committee on Immunization, and the ProVac National Committee.

The framework of evidence for decision-making is made up of technical criteria (e.g., burden of disease, characteristics of the vaccine, adverse events and post-marketing surveillance, cost-effectiveness analysis, and other economic considerations), planning and financial criteria (e.g., supply, logistical and operational issues, financing strategies), and social criteria (e.g., perception of risk, political commitment, equity of access).

Since the launch of the initiative, analyses of the pneumococcal conjugate vaccine have been conducted in Argentina, Bolivia,

Nicaragua, Brazil, and El Salvador. The rotavirus vaccine has been studied in Guatemala, Brazil, and Argentina. In July 2010, the post-introduction study of the pandemic flu vaccine will begin in the Central American countries. As to the progress achieved by ProVac in HPV, the

following are worth mentioning: workshop on HPV financing in the Caribbean, held in July 2009; pilot testing of a tool to estimate the cost of introducing the HPV vaccine in Barbados; development of methodological guides to estimate the cervical cancer burden and the cost of managing this disease; development of a simplified model for an HPV cost-effectiveness analysis to be used by national teams, which will begin pilot testing in October 2010.

A cost-effectiveness analysis (CEA) at the national level is necessary because the vaccination strategy, cost of implementation, and cost forecast for the health system vary from country to country.

Dr. Juaregui went on to present the ProVac tool for estimating the cost of introducing HPV vaccines and explained how it works using an example.





▶ ***Cervical Cancer Prevention Action Planner***

Scott Wittet, Lead for Advocacy and Communication, Cervical Cancer Prevention Projects, PATH, Seattle

The Cervical Cancer Prevention Action Planner is an interactive tool designed by PATH for public health officials seeking guidance and resources on the development of cervical cancer prevention programs in their countries, based on the available evidence.

It includes brief video conferences and other recordings, impact models, and a large library of relevant information and resources. This tool can be used to design a personalized action plan. It is available in English and Spanish on the Web (www.rho.org/aps) and on CD-ROM.



▶ ***Latin American Consortium for the Prevention of Cervical Cancer***

Dr. Maribel Almonte, Epidemiologist, Cancer Research UK

Dr. Maribel Almonte gave a presentation on the Latin American Consortium for the Prevention of Cervical Cancer, which is made up of eight health care professionals and researchers from the region. Its mission is to compile and circulate the research in progress, evaluate and promote use of new technologies, and propose simple and less costly vaccination regimens. The objectives of the consortium are:

1. To contribute to creation of effective screening programs.
2. To contribute to interpretation of the results published for health decision-making and policies.
3. To compile information on the situation in each country: screening programs and research in progress.

4. To share and improve the methods used in research in order to ensure the comparability of results.
5. To support the training of researchers in the region.

Dr. Almonte went on to present a summary of the screening recommendations published by the consortium in the journal *Vaccine* in 2008. These recommendations are summarized below:

1. Establish a central group that works on cervical cancer control and is responsible for developing and monitoring program activities, including the rigorous evaluation of suppliers.
2. Each country should classify the different areas by development level



and infrastructure to develop specific interventions.

3. In locations where there is no screening or the current screening test is of poor quality and there is limited coverage, use VIA followed by treatment with cryotherapy after referring probable cases of cancer. It is important to bear in mind that VIA still requires a complex quality control system. This should be considered a temporary strategy until the HPV DNA test can be adopted.
4. In locations where there is high-quality cytology screening that has had an impact on cancer incidence and mortality, establish and maintain a quality control system and ensure follow-up of women with abnormal cytological screening results. In addition, sufficient personnel and resources must be allocated to the colposcopy services in order to evaluate and, if appropriate, provide timely treatment for women with abnormal Pap smears.
5. Prepare for introduction of the HPV test in primary care screening.
6. Establish procedures that use cytology or VIA as triage techniques depending on local resources and infrastructure.
7. Ensure that only tests that have been properly validated are used.

With regard to the new paradigms and challenges in cervical cancer prevention, Dr. Almonte began by mentioning the screening studies in progress. Three studies on primary care screening are being conducted in Santiago, Chile (VIA, HPV, and cytology) and Bogotá (HPV, cytology). In addition, three demonstration projects are in progress in Mexico (HPV, cytology). In Medellín, Colombia, a study is being conducted on ASCUS triage.

For introduction of VIA, the lessons learned include the need to standardize the diagnostic criteria for VIA, introduce immediate treatment for VIA-positive women, and establish uniform systems for training and monitoring the professionals that perform VIA. With regard to introduction of the HPV DNA test, the conclusions gained from experience are the possibility of considering the use of self-sampling, the need to establish a procedure for managing HPV-positive women, standardization of the information that should be provided to HPV-positive women, and the need for sufficient trained personnel and infrastructure in the colposcopy services.





► *UICC: Initiative to develop capacities in Latin America*
Ms. Stella de Sabata, Program Manager, UICC

The International Union against Cancer (UICC) is an international nongovernmental organization devoted to the prevention and control of cancer throughout the world. Its mission is to connect, mobilize, and provide assistance for organizations, experts, interested parties, and volunteers in a dynamic community that works together to eliminate cancer as a potentially fatal disease in future generations. The UICC currently has 378 members in 117 countries throughout the world.

Ms. Stella de Sabatta went on to discuss the World Cancer Declaration, a tool created to bring the problem of cancer to the attention of decision-makers and politicians at the national, regional, and global levels. The declaration represents the consensus between government organizations, professional associations, the private sector, academic centers, and civil society from the all over the Hemisphere. It includes 11 objectives for 2020 that focus on: health systems, cancer registries, risk factors, screening and vaccines (HBV, HPV), perception of disease, early detection, treatment, pain control, professional training, retention of trained staff, and survival. The UICC has a 4-year project that focuses on cervical cancer. This cervical cancer initiative focuses on:

- Advocacy with partners and organizations to achieve complete prevention programs that are adapted to local conditions. This involves coordinated work to maximize the impact of activities at the national and international levels, complementing rather than duplicating resources.
- Increasing awareness through information for the population and campaigns.
- Preparation of educational resources and training for health care providers and decision makers.
- Complete pilot testing in collaboration with member organizations and partners in some developing countries. Two projects are being conducted, one in Tanzania and the other in Nicaragua.

In addition, the UICC organizes 2-day workshops to provide training and technical assistance on the use of scientific evidence for the development and evaluation of cancer prevention programs in low- or middle-income countries. The organization also has a program with over 100 annual fellowships that offers an opportunity for cancer-related professional development for researchers, clinicians, nursing staff, and volunteers.



Finally, she pointed out the need for advocacy to mobilize resources to combat chronic noncommunicable diseases (CNCDs), which account for 60% of global mortality and represent less than 2% of the percentage of aid spent on health. The Millennium Development Goals promote the global development agenda. However,

they do not explicitly include CNCDs, which would be considered “other diseases.” A high-level meeting of the United Nations General Assembly has already been convened for September 2011, which will represent an important milestone in the calendar of advocacy for CNCDs.



2.7 Working groups

► Purpose

On the second day of the meeting, working groups were organized to plan activities that can be implemented in each country, recognizing and including the new approaches and technologies insofar as possible and considering the support of the collaborating organizations.

Three groups were formed as follows with representatives from the countries and collaborating organizations:

- Group A: Argentina, Bolivia, Chile, Paraguay, and Peru
- Group B: Costa Rica, Mexico, and Panama
- Group C: Colombia, El Salvador, Honduras, Nicaragua, and the Dominican Republic

Each of the groups had a moderator, a rapporteur, and a representative from PAHO/WHO.



► Methodology

Within the framework of the Regional Strategy for Cervical Cancer Prevention and Control and with the support of the PATH Cervical Cancer Action Planner, the following work methodology was used:

- The session began with presentation of the results of the situation analysis survey completed earlier by the representatives from each country.
- Next, there was time to share ideas, and a list of priorities was prepared for each country to improve the impact of the program, using the seven points of the Regional Strategic Plan of Action as a reference:
 1. Evaluate the situation and impact of the cervical cancer program.
 2. Increase information, education, and orientation activities.
 3. Strengthen the precancerous lesion treatment and screening programs.
 4. Improve the access to and quality of cancer treatment and palliative care.
 5. Establish and strengthen cancer registries and information systems.
 6. Generate information to facilitate decisions on the introduction of the HPV vaccine.
 7. Promote equitable access and comprehensive, accessible cervical cancer prevention.
- After the priorities were established for each country, the participants were asked to identify the short-term (1 year), medium-term (2-5 years) and long-term



(>5 years) activities required to guarantee their achievement.

- Throughout the process, the participants were asked to identify the need for technical assistance and opportunities for collaboration with neighboring countries and partner organizations such as PAHO, PATH, UICC, CDC, or the Latin American Consortium.
- Finally, each group was asked to prepare a presentation in order to describe the results of the work performed in the plenary session. This presentation was to communicate to the other participants the common challenges as well as priorities, activities, and opportunities for collaboration identified by each of the countries in the group.
- During the working groups the participating countries were asked to complete a brief survey about the ProVac Initiative. The ProVac Initiative provides technical cooperation and strengthens national capacity to make informed, evidence-based decisions on the introduction of new vaccines, including HPV vaccines. As part of the ProVac Initiative a working group on HPV has recently been formed that will provide support for the staff from the Ministries of Health on performance of the cost-effectiveness analysis for cervical cancer prevention strategies, including HPV vaccines. The objective of the survey provided was to facilitate the work performed by this working group and collect the opinion of

the participants on the type of information that would be valuable for performance of a cost-effectiveness analysis.

Three hours were provided for the work conducted by the working groups, which met on the second day of the meeting.



► Results

The results of the working groups are summarized below, broken down according to the points in the Regional Strategic Plan of Action:

- All of the countries with the exception of Chile and Nicaragua proposed an evaluation of different aspects of the cervical cancer program as a priority.
- Bolivia, El Salvador, Honduras, and Mexico considered it a priority to increase information, education, and orientation for women and the community.
- The 13 participating countries identified strengthening of the precancerous lesion screening and treatment programs as a priority for their



programs. With regard to the activities proposed to achieve this:

- Six countries proposed strengthening cytology by training activities for cytotechnologists (Argentina, El Salvador, Nicaragua, Dominican Republic), improvement of the cytology laboratory equipment (Honduras), and establishment of quality control (Dominican Republic).
- Nicaragua, Colombia, Bolivia, and Panama proposed the use of VIA as a screening test in selected remote areas. Bolivia identified the need to develop and implement a national standard for performing VIA.
- Argentina, Bolivia, and Costa Rica considered short-term implementation of HPV DNA test demonstration projects, whereas El Salvador and Honduras proposed its introduction in the medium term (2-5 years). Mexico proposed medium-term institutionalization of the primary care HPV screening strategy. Colombia proposed the establishment of a reference laboratory for the test.
- All of the countries, with the exception of Chile, Honduras, and Costa Rica, identified the need to educate human resources as necessary for strengthening the programs.
- Bolivia, Colombia, Costa Rica, Paraguay, and the Dominican Republic considered it necessary to prepare or update national standards and/or guidelines for comprehensive management of cervical cancer.
- Seven countries (Bolivia, Chile, Costa Rica, Mexico, Nicaragua, Panama, and the Dominican Republic) proposed the establishment or strengthening of cancer registries and information systems as a priority. The activities linked to this point were the creation or strengthening of cancer registries (Bolivia, Costa Rica, and the Dominican Republic), strengthening of the information systems to improve patient follow-up (Bolivia, Costa Rica, Mexico, Nicaragua, and Panama), and the creation of a surveillance system for women who receive HPV vaccines and those who have had an HPV screening test.
- Only El Salvador and Nicaragua considered better access to and quality of cancer treatment and palliative care a priority. This would involve strengthening the health care network to ensure the continuity of care, according to El Salvador, and expansion of palliative care services, according to Nicaragua.
- Six countries (Bolivia, Colombia, El Salvador, Honduras, Nicaragua, and the Dominican Republic) considered the generation of information to facilitate decision-making with respect to the introduction of HPV vaccines a priority.
- For this point, five countries (Colombia, El Salvador, Honduras, Nicaragua, and



the Dominican Republic) proposed cost-effectiveness analyses.

Annex 6 gives a detailed account, by country, of the priorities identified and the short-, medium-, and long-term activities.



2.8 Launch of the National Plan for the Prevention and Control of Cancer and the National Palliative Care Program of Panama

In the context of the subregional meeting, the Ministry of Health of Panama called a press conference to launch the National Plan for the Prevention and Control of Cancer and the National Palliative Care Program of Panama. The event, which was held on 2 June, included participation by all of the health care professionals that contributed to development of the plan. The Vice Minister of Health, Dr. Santamaría, gave a presentation generally describing the formation of the multidisciplinary working groups responsible for identifying the actions and strategies required for

implementing a comprehensive national program that includes prevention, early detection, treatment, and palliative care. The PAHO/WHO representative in Panama, Dr. Molina, congratulated the Vice Minister and his team for the leadership and initiative they have shown in supporting the development of the plan. The media that attended the launch provided the opportunity to promote and lend visibility to this new initiative.



3. RESULTS

Through the roundtables, the discussions in the plenary session, and the working groups, the subregional meeting achieved the following results:

1. Deepened knowledge of the available scientific evidence regarding new technologies for cervical cancer prevention, including new screening tests and HPV vaccines.
2. Knowledge of the tools available for decision-making on the introduction of new technologies, including new screening tests and HPV vaccines.
3. Strengthening and/or creation of partnerships and alliances that help promote synergies among the directors of public health programs and collaborating organizations working in the field of cervical cancer prevention.
4. Identification of priorities and planning of short, medium, and long term activities that enable the program directors to buttress their cervical cancer prevention strategies and introduce new approaches and/or technologies for cervical cancer prevention.



4. CONCLUSIONS

The main conclusions from the meeting are:

- There is clear and well-established scientific evidence to support the introduction of the new technologies for preventing cervical cancer. In addition, there is enough quality research in Latin American countries to support these results with data from the region.
- Implementation of these new technologies is feasible, as demonstrated by the successful experiences in some Latin American countries.
- The participating countries have shown great interest, motivation, and enthusiasm for the introduction of new technologies in their cervical cancer programs to improve their effectiveness and impact.
- The clear scientific evidence, history of successful experiences, and positive attitude of the countries seen throughout the meeting indicate that the region is at a turning point in which the conditions are ripe for introducing changes in the programs that will have an impact.
- In this process of change, one of the main barriers identified has been the high cost of the HPV vaccines and the HPV DNA screening test. On this point, the mediation and leadership of PAHO in negotiating more affordable prices was requested.
- The availability of resources has been demonstrated, and the international partner organizations that are willing to assist the countries in strengthening cervical cancer programs have been identified.



5. REFERENCES

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6. ANNEXES

- **ANNEX 1:** Age-adjusted cervical cancer incidence rate in Latin America.
- **ANNEX 2:** Agenda of the meeting.
- **ANNEX 3:** List of participants.
- **ANNEX 4:** Situation analysis of cervical cancer programs.
- **ANNEX 5:** Abstracts of the posters.
- **ANNEX 6:** Priorities and activities resulting from the working groups, by country.



CERVICAL CANCER INCIDENCE IN WOMEN OF ALL AGES IN LATIN AMERICA BY COUNTRY¹:

| COUNTRY | Number | Crude rate ^a | ASR (age standardized rate) ^b | Cummulative risk ^c |
|--------------------|--------|-------------------------|--|-------------------------------|
| Dominican Republic | 1.299 | 26,2 | 29,7 | 3,25 |
| Costa Rica | 403 | 18,1 | 17,5 | 1,70 |
| El Salvador | 1.145 | 35,4 | 37,2 | 3,60 |
| Guatemala | 1.530 | 21,8 | 30,5 | 2,93 |
| Honduras | 1.014 | 27,7 | 37,8 | 3,83 |
| Mexico | 10.186 | 18,5 | 19,2 | 1,94 |
| Nicaragua | 869 | 30,4 | 39,9 | 4,10 |
| Panama | 426 | 25,3 | 25,3 | 2,45 |
| Argentina | 3.996 | 19,7 | 17,5 | 1,77 |
| Bolivia | 1.376 | 28,3 | 34,9 | 3,52 |
| Chile | 1.478 | 17,4 | 14,4 | 1,52 |
| Colombia | 4.736 | 20,7 | 21,5 | 2,23 |
| Paraguay | 792 | 25,7 | 31,5 | 3,31 |
| Peru | 4.446 | 30,9 | 34,5 | 3,62 |

Notes: **a.** Number of new cases of cervical cancer in a given period divided by the corresponding number of person years in the population at risk; **b.** Summary measure of the rate that a population would have if it had a standard age structure. Standardization is necessary when comparing several populations that differ with respect to age because age has a powerful influence on the risk of cancer; **c.** Probability or risk of women getting cervical cancer during a specified period.

¹ Source: Globocan 2008. Available at URL:<http://globocan.iarc.fr/>

AGENDA FOR THE LATIN AMERICA SUBREGIONALE MEETING ON CANCER PREVENTION

Latin America Subregional Meeting on Cervical Cancer Prevention: “New Technologies for cervical cancer prevention: from scientific evidence to program planning”

Panama City, Panama

2-3 June 2010

WEDNESDAY, 2 JUNE 2010

- 8:00 am PARTICIPANT REGISTRATION
- 9:00 am OPENING CEREMONY
*Dr. Joaquin Molina Leza. PAHO/WHO Representative in Panama.
Dr. Aisha Jumaan. PATH Representative.
Dr. Julio Santamaría. Vice minister of Health, Panama.*
- 9:30 am INTRODUCTORY PRESENTATIONS
- World Health Organization’s work in Cervical Cancer Prevention and Control. *Dr. Nathalie Broutet.*
 - Regional Strategy on Cervical Cancer Prevention and control for Latin America and the Caribbean. *Ms. Silvana Luciani.*
- 9:45 am REVIEW OF SCIENTIFIC EVIDENCE ON NEW TECHNOLOGIES AND APPROACHES
- The evidence on HPV vaccines. *Dr. Rolando Herrero.*
Questions and Answers
 - The evidence on new screening technologies. *Dr. Eduardo Franco.*
Questions and Answers
- 11:00 am COFFEE BREAK and view Posters in the Poster Gallery
- 11:30 am ROUNDTABLE: PRESENTATION ON COUNTRY EXPERIENCES
- Panama: experience of the national program to introduce HPV vaccines as part of cervical cancer prevention. *Dr. Julio Santamaría.*
 - Mexico: experience of the national program to incorporate HPV testing and HPV vaccines. *Dr. Susana Cerón Mireles.*

- Demonstration project on HPV vaccines in Peru. *Dr. Irma Ramos; Ms. Maria Ana Aruajo.*
Questions and Answers
- 12:30 pm Discussion on challenges and opportunities for improving programs
- 1:00 pm LUNCH
- 2:00 pm REVIEW OF SCIENTIFIC EVIDENCE CONT'D
- Cervical cancer screening scenarios for various resource levels. *Dr. Raul Murillo.*
 - Communication strategies to improve women participation in cervical cancer screening programs. *Dr. Silvana Arrossi.*
Questions and Answers
- 2:30 pm ROUNDTABLE: PRESENTATION ON COUNTRY EXPERIENCES
- Chile: experiences from the national cervical cancer program. *Dr. Marta Prieto.*
 - STARTUP project, using CareHPV in Nicaragua. *Dr. Juan Jose Amador; Dr. José Jerónimo.*
Questions and Answers
- 3:30 pm COFFEE BREAK and view Posters in the Poster Gallery
- 4:30 pm Discussion on challenges and opportunities for improving programs
- 5:00 pm Adjourn

THURSDAY, 3 JUNE 2010

- 8:30 am ROUNDTABLE: REVIEW OF AVAILABLE RESOURCES
- PROVAC initiative and tools. *Dr. Barbara Juaregui.*
 - Action Planner for Cervical Cancer Prevention. *Mr. Scott Wittet.*
 - Latin American Consortium on Cervical Cancer. *Dr. Maribel Almonte.*
 - UICC: Initiative for capacity building in Latin America. *Ms. Stella de Sabata.*
- 9:30 am PLANNING JOINT PROJECTS: Introduction to work group objectives and tasks
- 9:45 am WORKING GROUPS:
- Grup A. Argentina, Bolivia, Chile, Paraguay, Peru
 - Grup B. Costa Rica, Guatemala, Mexico, Panama
 - Grup C. Colombia, El Salvador, Honduras, Nicaragua, Dominican Republic
- 11:00 am COFFEE BREAK and view Posters in the Poster Gallery
- 11:30 am WORKING GROUPS CONT'D
- 1:00 Pm LUNCH
- 2:00 pm BRIEF PRESENTATION FROM EACH WORKING GROUP
- Grup A. Argentina, Bolivia, Chile, Paraguay, Peru
 - Grup B. Costa Rica, Guatemala, Mexico, Panama
 - Grup C. Colombia, El Salvador, Honduras, Nicaragua, Dominican Republic
- Discussion on working Group reports
- 3:30 am COFFEE BREAK and view Posters in the Poster Gallery

- 4:00 pm Summarize agreements on plans for countries to improve their cervical cancer programs, with support from partners
- 4:45 pm Closing remarks on the 2010 Sub-regional Meeting on new technologies for primary and secondary prevention of cervical cancer
- 5:00 pm ADJOURN

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SITUATION ANALYSIS

CERVICAL CANCER PREVENTION AND CONTROL PROGRAM

COUNTRY:

Contact information for the person responsible for completing the survey

| | |
|--------------------------|-----|
| Name : | |
| Position: | |
| Organization: | |
| Address: | |
| E-mail: | |
| Telephone number: | |
| Date of survey: | / / |

This survey has been prepared as a basic data collection instrument that can be used to gain knowledge about the situation of cervical cancer prevention and control programs in Latin America and the Caribbean. For this purpose, five sections have been considered: (I) Demographic data; (II) Burden of disease; (III) Cervical cancer prevention and control program; (IV) Information and monitoring systems; (V) Financing.

SECTION I

| DEMOGRAPHIC DATA | |
|---|--|
| 1. Total population | |
| 2. Total men | |
| 3. Total women | |
| 4. Urban population | |
| 5. Rural population | |
| 6. Number of women aged 30-59 | |
| 7. Number of girls aged 9 | |
| 8. Number of girls aged 10 | |
| 9. Number of girls aged 11 | |
| 10. Number of girls aged 12 | |
| 11. Percentage of girls that completed primary school education | |
| Note: Indicate year and source | |

SECTION II

| BURDEN OF DISEASE | |
|--|--|
| 1. Incidence of cervical cancer | |
| 2. Mortality associated with cervical cancer | |
| 3. Number of cases per year | |
| 4. Number of deaths per year | |
| 5. Has any HPV infection prevalence study been done in your country? | |
| If so, provide reference: | |

| 2. PRIMARY PREVENTION: HPV VACCINATION | |
|--|---|
| 2.1. Is there an HPV vaccination program financed by the government? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 2.2. Are there any nongovernmental agencies or organizations that have begun demonstration projects for introducing the HPV vaccine in a region in the country? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If so, specify: | |
| 2.3. If there is no national HPV vaccination program, do you intend to begin a program? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If so, indicate the needs identified for introducing the vaccine: | |

| 3. SECONDARY PREVENTION: SCREENING TESTS AND TREATMENT OF PRECANCEROUS LESIONS | | | |
|---|-------------------------|-------------------------|-------------------------|
| Which screening test is used in the country? | | | |
| SCREENING TEST | PAP SMEAR | VIA | HPV DNA TEST |
| 3.1. What is the age of the target population group? | | | |
| 3.2. How often is screening recommended? | | | |
| 3.3. How much screening coverage is there?* What is the program's objective? | Coverage: Objective: | Coverage: Objective: | Coverage: Objective: |
| 3.4. What percentage of women with precancerous lesions receive treatment? | | | |

Remarks:

4. TREATMENT AND PALLIATIVE CARE

| | |
|---|--|
| 4.1. What percentage of women diagnosed with cervical cancer receives surgical treatment? | |
| 4.2. What percentage of women diagnosed with cancer receives radiation therapy? | |
| 4.3. What percentage of women with cancer agrees to palliative care? | |

Remarks:

SECTION IV

MONITORING

| | |
|--|---|
| 1.1. Is evaluation of the cervical cancer program (e.g., coverage, impact) performed with a standardized method and at established intervals? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If so, indicate the date of the last evaluation report and the agency in charge of preparing it: | |
| 1.2. Is there a cancer registry? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If so, specify whether it is a hospital- or population-based registry and the location: | |
| 1.3. Is there an information system that provides for registry of women with abnormal screening results in order to ensure follow-up? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 1.4. Is there a system that guarantees the quality of cytology during all stages of the screening test (i.e., sampling, transportation, processing, interpretation, reporting results) and the maximum time for each step? | <input type="checkbox"/> Yes <input type="checkbox"/> No |

Remarks:

Situation Analysis

Cervical Cancer Prevention and Control Program
May 2010

SECTION V

| FINANCING | |
|---|--|
| 1.1. Is there a specific budget for the cervical cancer prevention and control program? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| 1.2. Is the collaboration of international and local agencies/organizations available in order to strengthen the cervical cancer prevention and control program? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| If so, list these agencies/organizations and the areas in which they work: | |
| 1.3. Should women pay out-of-pocket for the cervical cancer screening test? | <input type="checkbox"/> Full payment <input type="checkbox"/> Partial payment <input type="checkbox"/> Free-of-charge |
| 1.4. If the screening test result is abnormal, should women pay for the diagnostic tests (i.e., colposcopy, biopsy)? | <input type="checkbox"/> Full payment <input type="checkbox"/> Partial payment <input type="checkbox"/> Free-of-charge |
| 1.5. Must women pay out-of-pocket for treatment of cervical cancer? | <input type="checkbox"/> Full payment <input type="checkbox"/> Partial payment <input type="checkbox"/> Free-of-charge |
| 1.6. Must women pay out-of-pocket for access to palliative care? | <input type="checkbox"/> Full payment <input type="checkbox"/> Partial payment <input type="checkbox"/> Free-of-charge |
| Remarks: | |

SECTION VI

GENERAL EVALUATION OF THE SITUATION

After analysis of the different components of the cervical cancer prevention and control program has been completed in the previous sections, you are requested to do a general evaluation of the situation. Complete the following questions by marking one of the 4 options:

- **H:** High; **M:** Moderate; **L:** Low; **U:** Unknown
- **VS:** Very satisfactory; **S:** Satisfactory; **UN:** Unsatisfactory; **U:** Unknown

| | |
|--|---|
| 1.1. The burden of cervical cancer in your country is considered to be: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.2. The need to improve the health services provided to women is: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.3. The need to improve the health services provided to adolescents is: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.4. The possibility of receiving external support and collaboration by organizations is: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.5. How would you rate the current screening policies? | <input type="checkbox"/> VS <input type="checkbox"/> S <input type="checkbox"/> UN <input type="checkbox"/> U |
| 1.6. The success of the current screening policies is: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.7. How would you rate the current adolescent immunization policies? | <input type="checkbox"/> VS <input type="checkbox"/> S <input type="checkbox"/> UN <input type="checkbox"/> U |
| 1.8. The success of the current adolescent immunization policies is: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.9. The political interest in improving cancer control is considered to be: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.10. The political interest in improving cervical cancer control is considered to be: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.11. The possibility that the government will finance strengthening of the screening services is: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.12. The possibility that the government will finance introduction of the HPV vaccine is: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.13. The feasibility of strengthening the screening programs in the future is: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |
| 1.14. The feasibility of introducing HPV vaccination programs in the future is: | <input type="checkbox"/> H <input type="checkbox"/> M <input type="checkbox"/> L <input type="checkbox"/> U |

Situation Analysis

Cervical Cancer Prevention and Control Program
May 2010

POSTER ABSTRACTS

1. Almonte M ¹, Jeronimo J ², Ferreccio C ³, Luciani S ⁴, Gonzales M ⁵, Delgado JM ⁵, Sasieni P¹. **Cervico-photography and visual inspection in cervical screening.**

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Introduction: Visual inspection of the cervix (VIA) is being used as a screening technique in low-resource settings. Women positive on VIA are generally treated with cryotherapy or referred for colposcopy, but those negative are asked to come back 3-5 years later.

Objectives: To evaluate the use of cervico-photography as quality control of VIA.

Methods: 1268 women were screened by 13 midwives with Pap smear, liquid-based cytology (LBC), HPV testing, VIA and magnified inspection (VIAM) if VIA positive. A midwife (who did not perform VIA) took photos of the cervix before and after application of acetic-acid using a camera with a 100mm lens and a circular flash. Photographs taken after application of acetic-acid were classified as normal, abnormal or deficient independently by two gynaecologists with expertise in colposcopy. A third expert reviewed images with discordant results. Consensus diagnosis between pairs of reviewers was used as an overall cervico-photography diagnosis. High-grade lesions (CIN2+) on histology were considered true disease to evaluate the performance of cervico-photography.

Results: There were 1105 normal, 93 abnormal and 23 images that were deficient. The first two reviewers agreed on 82% of 1268 photos ($\kappa=0.1943$). The third reviewer agreed with either reviewer 1 or reviewer 2 on 94% of 192 images. Agreement between consensus cervico-photography and VIA was 65%, ranging between 39% and 83% among midwives. VIA detected 17 (74%) CIN2+, and considered 722 (60%) women free-of-disease. If cervico-photography had been used in VIA negative women, 703 would have been recalled, two of the six CIN2+ missed by VIA would have been detected, one of them had high-grade LBC and the other was negative on all initial screening tests (detected because of second out-of-protocol screening).

Conclusions: If quality of cervico-photos can be improved, cervico-photography can represent a feasible way to identify lesions missed by VIA.

2. Álvarez, E J¹. **Programa de prevención y control de lesiones pre-neoplásicas del cuello uterino**
Ministerio de Salud Pública y Asistencia Social Programa Nacional de Salud Reproductiva
Guatemala.

¹Componente Cáncer, PNSR-MSPAS.

Introducción: El Instituto de Cancerología de Guatemala, reporta que el cáncer de cérvix sigue siendo la principal causa de consulta, 6 de cada 10 mujeres son atendidas por problemas de patología cervical. La mayor incidencia se presenta entre los 35 y 54 años. Ocupa el primer lugar, como causa de muerte por cáncer en la mujer El Tamizaje y Control del Cáncer Cervicouterino constituye una de las actividades prioritarias del Ministerio de Salud, por su trascendencia, magnitud y posibilidades de detectarlo y tratarlo oportunamente.

Objetivos: Normatizar las acciones de detección y tratamiento de lesiones preneoplásicas del cuello uterino.

Metodología: La red de servicios del Ministerio de Salud Pública capacita al personal para emprender acciones encaminadas a:

1. Prevención primaria: educación en salud para reducir conductas sexuales de alto riesgo y el conocimiento de la existencia de las vacunas profilácticas contra el VPH.
2. Detección precoz: Toma de citología exfoliativa estandarizada (Papanicolaou) y técnica de Inspección Visual con ácido acético y conocimiento de otras pruebas: la inspección visual con solución yodada y HPV DNA test.
3. Diagnóstico, tratamiento y seguimiento de las lesiones intraepiteliales: colposcopia, crioterapia, conización.
4. Establecimiento de Clínicas de detección temprana.
5. Referencia efectiva y oportuna

El programa de cáncer cérvico uterino se organiza mediante las siguientes acciones:

- Incrementar la cobertura de toma de pruebas de tamizaje cérvico uterino en las 29 áreas de salud del país, enfatizando aquellas con mayor incidencia.
- Reforzar la calidad en la toma de la muestra y en la lectura de las laminillas en el caso de los Papanicolaou.
- Capacitar y certificar al personal en la técnica Visual con ácido acético (IVAA). Técnica de ver y tratar.
- Mantener una comunicación efectiva entre la población y los servicios de salud.

Resultados: En el año 2009, a nivel nacional (excepto sector privado) 45% de cobertura en tamizaje de 25-54 años de edad. El 34% de las Áreas de Salud del país, cuentan con clínicas de detección temprana.

Conclusión: Para un país, con características de ruralidad, dispersión geográfica y escasez de recursos, como Guatemala, la metodología de ver y tratar, está demostrando ser una alternativa importante para el abordaje de la prevención del cáncer del cuello uterino.

3. Arrossi S¹, Paolino M¹. **Conocimiento de las mujeres sobre VPH y vacuna contra el VPH: estudio caso control en un Hospital Público en la Provincia de Buenos Aires.**

¹CEDES/CONICET

Introducción: Las nuevas tecnologías basadas en la detección del test del Virus del Papiloma Humano (VPH) y la vacuna contra el VPH para la prevención del cáncer cérvico-uterino plantean nuevos interrogantes acerca del conocimiento que tiene la población sobre el rol causal del virus, de manera de poder desarrollar estrategias educativas que promuevan la adecuada utilización de estas tecnologías.

Objetivos: Describir los conocimientos de las mujeres acerca del VPH entre mujeres con y sin Papanicolaou.

Metodología: Estudio caso-control de base hospitalaria. Casos: 100 mujeres con Pap en los últimos tres años. Controles: 100 mujeres sin Pap en los últimos tres años o que nunca hayan realizado Pap. Técnica: entrevistas cara a cara en servicios del hospital (excluyendo el servicio de ginecología). Se realizó firma del consentimiento informado y finalizada la entrevista se brindó información sobre cáncer cervicouterino y VPH.

Resultados: El 47% de los casos y el 30% de los controles habían escuchado hablar del VPH. De las mujeres que conocen el VPH (47 casos y 30 controles – Tabla 1):

- El 79% de los casos y 63% de los controles menciona que el VPH es un virus de transmisión sexual.
- El 49% de casos y 57% de controles menciona no saber si el VPH produce síntomas.
- El 23% de los casos conoce la relación entre VPH y cáncer cérvico-uterino. Ninguna de las mujeres del grupo control menciona la relación del VPH con el cáncer cérvico-uterino.
- El 36% de los casos y el 10% de los controles posee información sobre la vacuna contra el VPH.

Conclusiones: En la población entrevistada es escaso el conocimiento sobre VPH y la vacuna contra el VPH. Es necesario implementar acciones para brindar información sobre VPH que aclare confusiones y favorezca la toma de decisiones de la población. Es necesario un diagnóstico poblacional sobre este tema que amplíe los resultados de este estudio.

Tabla 1. Tipo de conocimiento sobre VPH. Mujeres que mencionan haber escuchado sobre VPH. Casos y controles.

| | | Realización de Pap en los últimos tres años | | |
|--|---------------------------|---|-------------------------|---------|
| | | Casos (%) n = 47 | Controles (%) n = 30 | P-valor |
| ¿A quienes afecta el VPH? | Ambos | 68,1 | 46,7 | 0,039 |
| | Sólo a mujeres | 12,8 | 16,7 | |
| | Sólo a hombres | - | 3,3 | |
| | No sabe | 19,0 | 33,3 | |
| ¿Cuál es la vía de transmisión del VPH? | Relaciones sexuales | 78,7 | 63,3 | 0,037 |
| | Saliva | - | 3,3 | |
| | No sabe | 21,0 | 33,3 | |
| ¿Tiene síntomas? | Si | 25,5 | 30,0 | 0,077 |
| | No | 25,5 | 13,3 | |
| | No sabe | 49,0 | 56,7 | |
| ¿Cuáles son las consecuencias a largo plazo? | Cáncer | 19,1 | 30,0 | 0,006 |
| | Cáncer de cuello de útero | 23,4 | - | |
| | Muerte | 10,6 | 6,7 | |
| | No sabe | 38,3 | 63,3 | |
| | Otras | 9,0 | 0,0 | |
| ¿Escuchó hablar acerca de una vacuna contra el VPH? | Si | 36,2 | 10,0 | 0,003 |
| | No | 59,6 | 90,0 | |
| | No responde | 4,3 | - | |

4. Baena A^{1,2}, Almonte M³, Acevedo L⁴, Valencia ML⁴, Martínez S¹, Quintero K¹, Sanchez GI¹. **Social determinants of cervical cancer mortality from 2000 to 2006 in Antioquia, Colombia.**

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2. School of Microbiology, Universidad de Antioquia, Medellín, Colombia

3. Cancer Research UK Centre for Epidemiology, Mathematics & Statistics, Wolfson Institute of Preventive Medicine, Queen Mary University of London

4. Secretaría de Salud Municipio de Medellín, Medellín, Colombia

Introduction: There is a wide gap within and between countries in cervical cancer mortality rates in Latin America. There is need to understand the causes of these inequities in order to address them.

Objective: To estimate cervical cancer mortality rates from 2000 to 2006 and explore variables that explain the differences on rates in the estate of Antioquia, Colombia.

Methods: Cancer mortality and population data were obtained from the national vital statistics office of the *Departamento Administrativo Nacional de Estadística* (DANE) for the period 2000-2006. DANE provided causes of death already classified using the International Classification of Diseases, 10th revision (ICD-10). Unspecified cancer deaths of the genito-urinary system (ICD-10 C55) were proportionally reassigned to either deaths of the cervix uteri (ICD-10 C53) or corpus uteri (ICD-10 C54). Age-standardized rates (ASR) were calculated using the world standard population. Multivariate linear regression was used to evaluate the relationship between mortality rates and literacy rate, percentage of population with unsatisfied basic needs and percentage of population living in extreme poverty.

Results: The overall cervical cancer mortality rate in Antioquia for 2000-2006 was 9.4 per 100 000 women (95%CI 9.2-9.5). Mortality rates in Medellin (capital of the state) and the rest of the state were 7.1 (95%CI 7.0-7.3) and 11.7 (95%CI 11.4-11.9), respectively. Geographic regions with high (>17), intermediate (10-17) and low (≤ 10) cervical cancer mortality rates were clearly distinguished. The highest mortality rates were observed in regions with the highest levels of extreme poverty (p -value < 0.001). There was a consistent decreasing trend of cervical cancer mortality in Medellin declining from 8.4 (95%CI 7.9-8.9) in 2000 to 5.1 (95%CI 4.7-5.4) in 2006. In contrast, rates on the rest of the state have remained constant (range: 11.5-12.8) over the last decade.

Conclusions: There is widely geographic variation in the cervical cancer mortality rates in Antioquia with highest rates observed in regions with extreme poverty. Further research to clarify the contribution to inequity by overlapping determinants of social conditions and health may be helpful to improve cervical cancer prevention in the state of Antioquia.

5. Benard VB, Saraiya M, Roland KB, Hawkins N, Ekwueme D, Manninen D. **CDC's Cervical Cancer Study (Cx3): An Intervention Pilot Study of HPV in Illinois.**

Research Objective: The National Breast and Cervical Cancer Early Detection Program (NBCCEDP) is the only organized national screening program in the U.S. that offers breast and cervical cancer screening to underserved women. HPV test is not currently a reimbursable expense under NBCCEDP guidelines. Adopting HPV testing along with Pap testing in women over 30 could help the program better utilize resources by extending the screening interval of women who have a normal Pap test and negative HPV test, estimated to be 80-90% of women. The proposed study will examine whether select NBCCEDP providers adhere to the recommended 3-year cervical cancer screening interval for women in the target age range with a normal Pap test and negative HPV test.

Study Design: The proposed pilot intervention study will be conducted in 6 health systems (with 14 NBCCEDP clinics) in Illinois in the summer of 2009. The 6 health systems will be assigned to one of two study arms. Patients of providers in both arms will receive an HPV test in addition to the Pap test at the time of routine cervical cancer screening. Both arms will be matched on geographical location (urban/rural), racial/ethnic diversity, HPV policy, hospital versus non-hospital, provider specialty mix, and patient volume. Clinics in the intervention group will receive HPV tests to administer to eligible patients presenting for a routine Pap test PLUS a multi-component educational intervention involving both providers and patients. Clinics in the comparison group will receive the HPV tests but will not receive the educational intervention.

Population Studied: Women 35 to 60 years of age who are visiting one of 14 participating clinics for routine cervical cancer screening

Principle Findings: Clinic Coordinators at each of the 14 participating clinics will be surveyed monthly for the first year of the study to obtain information regarding resources associated with participating in the study. Approximately 8,000 women will be tested with the HPV test and their follow-up will be reviewed via medical records at the end of the study. All providers in both study arms (n= 70) who routinely perform Pap tests at the participating clinics will be surveyed at four points in time to assess knowledge, attitudes, and beliefs regarding cervical cancer screening practices. A sample of 2,600 patients (1,300 in each arm) will be asked to complete a baseline survey and two follow-up surveys to assess knowledge, attitudes, beliefs, and behavior regarding cervical cancer screening.

Conclusion: The results of this study will provide information regarding the extent to which providers are willing to extend the cervical cancer screening interval to 3 years for women in the target age range with a normal Pap test and a negative HPV test.

Implications for Policy, Practice and Delivery: The findings from this study will help set policy regarding the HPV test on a national level for cervical cancer screening in the NBCCEDP.

6. Codina A¹. **Secretaría de salud de honduras, programa nacional para el control del cáncer. Incorporación de nuevas tecnologías: a) Nueva Técnica de Fijación y Tinción de la Muestra de Citología; b) Sistema de Registro de Producción de Citología.**

1. Coordinadora Componente Cáncer Cérvico-Uterino y el Equipo Técnico del Programa Nacional para el Control del Cáncer

Introducción: La Secretaría de Salud de Honduras, con el fin de establecer criterios homogéneos de los procedimientos de toma y lectura de muestras de citología implementó un proyecto piloto en la Región Metropolitana, de Marzo a Julio 2010, con el objetivo de mejorar la calidad de las muestras e impulsar un sistema unificado para el registro de citologías, para así establecer parámetros de cobertura y de calidad en las actividades de prevención y control.

Objetivos:

- a) Mejorar calidad en la toma y lectura de las muestras que permita una adecuada interpretación diagnóstica de lesiones precursoras y su tratamiento oportuno.
- b) Establecer un sistema unificado de registro de producción de citologías.

Metodología

- a) Nueva técnica de toma y lectura:
 - Elaboración de protocolo piloto para los lineamientos.
 - Selección de las unidades de salud, muestra poblacional y personal participante.
 - Capacitación del personal.
 - Implementación, monitoreo y evaluación del proyecto.
- b) Sistema de información:
 - Análisis y diseño de base de datos.
 - Reunión de coordinación interinstitucional.
 - Capacitación del personal.
 - Implementación, monitoreo y evaluación del proyecto.

Resultados:

1. Control de calidad por médicos patólogos, a un total de cinco mil muestras procesadas.
2. Capacitación continua en la nueva técnica de fijación de la muestra a nivel nacional, previa revisión y modificación del manual de normas.
3. Sistema de registro de citologías, instalado y personal capacitado.

Conclusiones:

1. Demostrar las mejoras en la calidad de la muestra y la disminución de costos en las actividades de detección.
2. Obtención de la información de forma expedita y sistematizada para elaboración de informes.

7. Garcia-Gonzalez P¹. Programa de Adherencia al Tratamiento Mediante Apoyo Social para Pacientes con Cáncer.

1.Pat, The Max Foundation, Seattle WA, USA.

Introducción: Las barreras para el éxito del tratamiento contra el cáncer en países en desarrollo, van más allá del acceso al tratamiento en sí. La falta de apoyo social contribuye a que los pacientes no puedan completar sus tratamientos. Se postula que el apoyo emocional y social puede traer gran beneficio en prevenir el abandono del tratamiento.

Los resultados obtenidos en este proyecto fueron aplicados a pacientes diagnosticados con leucemia mieloide crónica (LMC) en Latino América. El tratamiento para la LMC es similar a la intervención para la prevención primaria y secundaria del cáncer cervicouterino, desde dos puntos de vista: 1., que son tratamientos ambulatorios; 2., que requieren que los pacientes acudan a una serie de visitas al consultorio médico.

Objetivos: Establecer nuevas relaciones sociales dirigidas a familias de pacientes diagnosticados con cáncer; proveer apoyo práctico para facilitar la adherencia al tratamiento; incrementar la adherencia al tratamiento para optimizar los resultados clínicos.

Metodología: Se identificaron, entrenaron y apoyaron a 4 asesores locales para apoyar y abogar por las familias afectadas con cáncer. Trabajando en conjunto con los centros médicos participantes, los asesores: 1., establecieron contacto personal o telefónico periódico con los pacientes; 2., identificaron a pacientes líderes y con ellos iniciaron reuniones de pacientes y familiares; 3., proveyeron apoyo logístico, práctico y financiero para la creación de grupos locales de apoyo al paciente.

Resultados y Conclusiones: Durante el marco del proyecto, 3,300 pacientes recibieron intervención de apoyo social en forma paralela al tratamiento médico. El tratamiento requirió asistencia al hospital cada tres meses en forma continua. En un tiempo promedio de 3 años de tratamiento, solo el 5 por ciento abandonaron el tratamiento. La metodología de este programa puede considerarse en la prevención del cáncer cervicouterino.

8. Herrero R¹. El Proyecto Epidemiológico Guanacaste: investigación sobre la historia natural y prevención del cáncer de cérvix en una región de alto riesgo de Costa Rica

1. Fundación INCIENSA, Costa Rica.

Como resultado de una amplia colaboración con el Instituto Nacional de Cáncer de los Estados Unidos, desde 1985 venimos realizando una amplia serie de estudios sobre la historia natural y formas de prevención del cáncer de cuello uterino en Costa Rica. El primero fue un estudio multicéntrico de casos y controles realizado en 4 países de América Latina (Colombia, México, Panamá y Costa Rica), que investigó en detalle los factores de riesgo (comportamiento sexual, paridad, anticonceptivos, tabaquismo, dieta, niveles de micronutrientes, etc.) para este tipo de cáncer y fue el primer estudio epidemiológico que incorporó la detección del virus de papiloma humano (VPH) en células del cuello uterino de casos y controles.

Este estudio fue seguido del establecimiento de una cohorte poblacional de 10.000 mujeres adultas en la Provincia de Guanacaste en Costa Rica para investigar en detalle la epidemiología y la historia natural de la infección por VPH y diversos métodos de tamizaje para la prevención del cáncer de cérvix. Este estudio incluyó el seguimiento periódico de las participantes por 7 años y ha permitido el análisis de múltiples aspectos de la historia natural de la enfermedad incluyendo una descripción detallada de la misma así como sus determinantes virológicos (e.g., variantes virales), genéticos (e.g., historia familiar, HLA), inmunológicos (serología, respuesta inmune celular), hormonales (e.g., uso de anticonceptivos, niveles séricos de hormonas) y otros (e.g., inflamación, tabaquismo, comportamiento sexual). Asimismo, esta investigación permitió la evaluación de diversas técnicas de tamizaje (citología convencional, citología de monocapa, cervicografía, inspección visual y diversas pruebas de VPH).

Actualmente estamos realizando un ensayo clínico aleatorizado, doble ciego de la vacuna bivalente contra VPH 16 y 18 en una cohorte poblacional de 7.500 mujeres de 18 a 25 años, que serán seguidas por 10 años para determinar eficacia, impacto poblacional, duración de la protección y seguridad de la vacuna, a la vez que se estudiarán los determinantes inmunológicos, genéticos y ambientales de las mismas.

9. Lopez L¹. Desarrollando un modelo de gestión de la vacuna contra el HPV en Bolivia.

1.CIES, Bolivia

Introducción: Bolivia tiene una de las tasas más altas de incidencia del cáncer cervicouterino en la región con más de 58/100.000. Cada día mueren de 4 a 5 mujeres por cáncer cervicouterino. La población más vulnerable es Tiene anualmente una cobertura real de PAP de 5,2 %.

El 2008 el MSD¹ y la ONG CIES Salud Sexual y Reproductiva, implementan el proyecto “Desarrollando un modelo de gestión de la vacuna contra HPV “. Con apoyo técnico de IPPF se logró la donación de 12000 dosis de vacuna Gardasil de Laboratorios Merck.

Objetivos:

- Mejorar el acceso a la información en las comunidades meta y entre los responsables de formular políticas sobre la vacuna contra el VPH en el contexto de un enfoque integral para la prevención del cáncer cervical.
- Generar conciencia y demanda de la vacuna entre los padres, las niñas y los profesores.
- Mejorar los conocimientos y las habilidades de los prestadores de servicios del MSD y CIES sobre la vacuna VPH y su provisión segura y eficaz.

Metodología:

- Coordinación y Planificación
- Sensibilización, Información y Capacitación
- Vacunación
- Seguimiento y monitoreo

Estrategias: El Proyecto fue diseñado para asegurar el más alto nivel de la cobertura de la vacuna del VPH con tres estrategias operacionales diferentes:

- i. Vacunación en las escuelas con equipos medico educativo a niñas de 9 a 13años, en base a un cronograma consensuado con los Directores de establecimiento o los padres de familia
- ii. En servicios de salud a solicitudes de las usuarias, en los casos que por alguna circunstancia no hubiesen podido acudir a la vacunación o que hubieran estado con alguna contraindicación o fuerza mayor que les imposibilitó estar el día y la hora señalada.
- iii. Desplazamiento de Unidades Móviles de salud para el área rural. Que se efectivizó con vehículos, equipo médico educativo, logística de apoyo y con una red y cadena de frio que cumplieran con las normas del programa Ampliado de Inmunizaciones del Ministerio de Salud y Deportes, como ente rector en Bolivia.

La principal meta era mejorar la aceptabilidad de la vacuna integrando a programas y esfuerzos más amplios para fortalecer la prevención y educación en cáncer cervicouterino.

¹ MSD Ministerio de Salud y Deportes

Vacunación: De manera conjunta con el MSD se organizó toda la parte logista, desde la recepción de las vacunas, almacenamiento en la cadena de frío, almacenes nacionales, garantizando su conservación de los biológicos de acuerdo a normas del fabricante. De esta instancia se realizó la distribución a las Regionales en cuyos lugares fueron recibidos por el/la responsable regional del programa ampliado de inmunizaciones (PAI).

La distribución de biológicos el día de la vacunación se realizó bajo cuidado de la responsable del PAI de la Gerencia de Red, entrega y distribución de biológicos a los equipos de vacunación de las comunidades y unidades educativas.

Resultados de proceso:

En la capacitación: 38 Líderes juveniles entrenados y capacitados

| Quiénes la realizaron | Número y tipo de público meta |
|--|---|
| Nivel Nacional | 52 RRHH CIES (Médicos, enfermeras, auxiliares de enfermería y educadores) |
| Nivel Nacional y CIES Regional. | 96 Personal médico, enfermería, vacunadores. Registradores del sistema public |
| CIES Regional y RRHH del SERES y SEDES | 597 profesores sensibilizados; 3.321 padres de familia; 6.494 niños y niñas. Realizadas en las 21 escuelas y 16 unidades educativas |

Logros:

- 95,9 % de cobertura de vacunación a la 3era dosis.
- Aceptabilidad social del 99%, expresada en consentimientos firmados por parte de los padres de familia.
- 35 reacciones adversas que representa un 0,30 % del total de veces que las niñas recibieron la vacuna.
- Ministerio de Salud y Deportes que introduce en el plan estratégico de cáncer cervicouterino la vacuna contra el HPV.

Conclusiones:

1. El modelo es factible y viable técnicamente.
2. Aceptada socialmente.
3. El MSD incluyó en el Plan Nacional de cáncer cervicouterino la vacuna HPV.

Lecciones aprendidas:

- Los contenidos desarrollados en las sesiones informativas y de capacitación fueron los adecuados sin embargo, se debe abordar con mayor profundidad el tema de cáncer de cuello uterino.
- La capacitación continua en la implementación y desarrollo del PAI permite un manejo adecuado de los protocolos y estándares.
- La confianza y aceptación de nuevas vacunas se logran con procesos orientados a la decisión voluntaria de participar que se expresaron en la firma de los consentimientos informados.
- La planificación logística adecuada para la provisión de insumos y biológicos con la oportunidad necesaria garantiza el éxito de la campaña de vacunación.
- La continuidad de los procesos de información y comunicación a los y las beneficiarias permiten mejores desempeños en la realización de la 2ª y 3ª dosis.
- La participación de los actores claves (MSD, SEDES, Municipios, padres de familia y niñas) da legitimidad a los procesos, como la alineación a las políticas, normas y protocolo oficiales.

10. Maza M¹, Ditzian L^{1,2}, Cremer M^{1,2}. **Implementation of an Alternative Cervical Cancer Screening in El Salvador.**

1. Basic Health International, San Salvador, El Salvador.

2. The Mount Sinai Medical Center, Department of Obstetrics, Gynecology, and Reproductive Science, New York, New York.

Introduction: El Salvador has one of the world's highest cervical cancer incidence and mortality rates, at 45.6/100,000 and 23.5/100,000 respectively[1]. Of all Latin American countries reporting cytology coverage, El Salvador exhibits the lowest coverage rate at 19% [2]. In addition, the Salvadoran Ministry of Health (MOH) does not have the capacity to provide adequate laboratory support to the cytology program. In 2007, over 20% of MOH Pap smears taken were not read [3].

Objectives: To integrate a public sector "see-and-treat" cervical cancer prevention program, using visual inspection with acetic acid (VIA) and cryotherapy, into the pre-existing cytology program.

Methods: Consensus amongst stakeholders from the Ministry of Health, Social Security System, PAHO and the OBGYN Society was obtained to develop and support national guidelines. Training of public sector physicians, nurses, and health promoters in the see-and-treat method was conducted. Research on VIA and cryotherapy has been conducted to identify best practices.

Results: In 2008 the MOH implemented national cervical cancer screening guidelines for the use of VIA and cryotherapy in the Outreach program in the Paracentral region for the country. Two Cervical Cancer Symposiums were held in El Salvador to introduce and reinforce the guidelines on a national level. Eight healthcare-provider trainings were conducted from 2006 and 2010. Currently there are 16 physicians and nurses actively practicing this modality. We have published nine manuscripts on cervical cancer prevention in El Salvador.

Conclusion: Implementation of an Alternative Cervical Cancer Screening program is possible through proper research, policy change and training with adequate monitoring & evaluation.

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11. Sánchez GI¹, Almonte M², Baena A^{1,3}, Bedoya AM^{1,3}, Álvarez CM¹, Villa L¹, Monsalve C¹, Borrero M^{1,4}, Córdoba CM^{1,4}, Rojas F⁵, Pareja R⁵, Buitrago C⁶, Gómez LJ⁷, Valencia ML⁸, Ortiz N⁹, Gonzalez M⁹, Herrero R¹⁰. **Diseño del estudio: Evaluación de estrategias para el manejo clínico óptimo de mujeres con células escamosas atípicas de significado indeterminado (ASCUS).**

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6. Centro Integral de Prevención (CIPRE), EPS Comfenalco – Antioquia
7. IPS Dinámica – EPS Sura - Antioquia
8. Secretaría de Salud Municipio de Medellín, Medellín, Colombia
9. Instituto Nacional de Cancerología, Bogotá, Colombia
10. Proyecto Guanacaste, Guanacaste, Costa Rica

Introducción: La colposcopia inmediata o citología a los 6 o 12 meses es el esquema actual para el manejo de mujeres con citología ASCUS en Colombia. La prueba de VPH es superior que la citología para detección de lesiones del alto grado y estudios de modelación muestran que una estrategia con esta prueba puede representar una alternativa mas favorable y costo-efectiva que las estrategias actuales.

Objetivo: Comparar la efectividad de tres estrategias para el manejo clínico de las mujeres con citología de ASCUS: 1. (CITO) Triaje con citología seguida de colposcopia si citología anormal a los seis y/o doce meses, 2. (COLPO) Colposcopia inmediata, y 3. (VPH) Triaje con prueba de VPH seguida de colposcopia en VPH positivas; para reducir la prevalencia de neoplasia intra-epitelial grado dos o lesión más severa (NIC2+) después de dos años.

Métodos: Estudio clínico aleatorizado. 2.868 mujeres con resultados de citología ASCUS (de acuerdo a los laboratorios de los proveedores de servicios de salud) están siendo reclutadas y aleatorizadas con una razón 1:1:1 a recibir Citología a los 6 y/o 12 meses (CITO), Colposcopia inmediata (COLPO) o prueba de VPH (VPH). Todas las mujeres con prueba positiva (ASCUS+ ó VPH+) serán remitidas a colposcopia con sus respectivos proveedores de servicios. Las mujeres diagnosticadas con CIN2+ serán remitidas a ser tratadas con asa electro-quirúrgica (LEEP) o referidas para manejo hospitalario si fuera necesario a través de sus respectivos proveedores de servicio. Todas las participantes tendrán una prueba de VPH a los 24 meses después de su ingreso al estudio y aquellas que resulten VPH positivas recibirán colposcopia y adecuado tratamiento.

El principal desenlace del estudio será la prevalencia de lesiones NIC2+ en cada uno de los brazos de manejo clínico al final del estudio. Además se evaluarán otros desenlaces secundarios como: i) las tasas de referencia a colposcopia en cada brazo, ii) la aceptabilidad de la prueba de VPH por las mujeres con citología ASCUS, iii) la aceptabilidad del uso de la prueba por los médicos especialistas encargados de la evaluación y tratamiento de mujeres con citología ASCUS, iv) la eficiencia de acceso a los servicios de salud de acuerdo a las estrategias v) el análisis costo-efectividad de cada estrategia.

Avances del estudio: Se establecieron convenios de colaboración con 4 empresas y 4 instituciones prestadoras de servicios de salud, que afilian al 60% de la población de Medellín. El estudio ha sido aprobado por el Comité de Ética de la Universidad de Antioquia y de las instituciones participantes. Se ha implementado métodos de recolección y manejo de datos siguiendo las Buenas Practicas Clínicas. Actualmente se esta llevando a cabo un estudio piloto, que se inició el 15 de marzo de este año, para evaluar los instrumentos de recolección de información y de reclutamiento. Una vez reclutadas 100 mujeres, se llevara a cabo un análisis preliminar para realizar los ajustes necesarios. Se espera completar el reclutamiento durante el 2010.

12. Saraiya M¹, Unger E¹, Lyu C², Peters E³, Copeland G⁴, Christian C⁵, et al. **Prevalence of HPV types in cancers in the united states 2000-2005.**

¹Centers for Disease Control and Prevention, Atlanta, GA ; ²Battelle, Charlotte, NC; ³Louisiana State University Health Science Center School of Public Health, New Orleans LA; ⁴Michigan Department of Community Health, Lansing MI ⁵ University of Kentucky, Lexington KY.

Objective: To determine the baseline prevalence of HPV types in cancers commonly associated with HPV using population-based cancer registry samples from regions of the United States representing regions with high cervical cancer rates or with unique racial/ethnic distributions: Hawaii, Louisiana, Michigan, Florida, and Kentucky

Methods: Central cancer registries identified all cases of invasive cancer from eligible primary sites [cervix, vagina, vulva, penis, anus, tongue, tonsil, oropharynx, other head and neck] diagnosed in 2000-2005. Archived tissue was retrieved from a representative sample of eligible cases, and one diagnostic block per case was serially sectioned for DNA extraction with H&E confirmation of histology in sections immediately preceding and following. Histology review, extraction and testing were performed at CDC. All samples were tested using the Linear Array HPV Genotyping Test (Roche Diagnostics), and those negative for HPV or failing to amplify endogenous control were re-tested with INNO-LiPA HPV Genotyping Assay (Innogenetics). Samples failing to amplify control sequences in both assays were considered inadequate and excluded from analysis.

Results: To date HPV testing was performed in 615 cancers; 596 (96.9%) yielding adequate results. HPV was detected in 81.3% of adequate samples; HPV 16 or 18 in 63.4%. HPV detection stratified by anatomic site: Cervix (n=205) 90.2% [67.3% 16/18]; Anus (n= 63) 87.3% [77.8% 16/18]; Vulva (n=46) 78.3% [56.5% 16/18]; Tongue/tonsil/oropharynx (n=190) 77.3% [64.7% 16/18]; Vagina (n=27) 70.4% [55.6% 16/18]; Other head and neck (n=28) 67.8% [35.7% 16/18]; Penis (n= 37) 64.9% [45.9% 16/18]. Multiple HPV types were detected in 9.4% of tumors overall, ranging from 22.2% for vagina to 5.3% for tongue/tonsil/oropharynx.

Conclusion: If vaccine coverage is high and reaches those at highest risk, an efficacious HPV16/18 vaccine could prevent the occurrence of a large proportion of HPV-associated cancers in the United States. Periodic measurement of HPV distribution will be an important monitoring step.

13. Terrazas S, Barriga MI, Lagos M, Poggi H, Bañez C, Cook P et al. **Ensayo clínico de tres métodos de tamizaje de cáncer cervicouterino. Santiago, Chile 2009-2010.**

Antecedentes: El proyecto, financiado por fondos competitivos del estado de Chile (Fondecyt), es una colaboración entre el grupo de estudio de VPH-Chile de la Pontificia Universidad Católica de Chile (PUC), el Servicio de Salud Metropolitano Sur Oriente (SSMSO) del Ministerio de Salud, el Departamento de Salud de la Comuna de Puente Alto, el personal del Programa Nacional de Prevención de Cáncer Cervicouterino del Hospital Público de referencia del área (Hospital Sótero del Río) y de 3 centros de salud de la comuna de Puente Alto. La comuna de Puente Alto tiene una población asignada de 700.000 habitantes, siendo una de las más pobladas de Chile, con estructura socioeconómica más pobre que la media nacional; NSE comunal (nacional) alto 4,3% (7,2%), medio 51,6% (37,8%) y bajo 44,1% (55,1%); la mayoría de su población es beneficiaria del sistema público de salud. El SSMSO tiene una cobertura de Pap de 60%, mueren anualmente aproximadamente 100 mujeres por cáncer cervicouterino.

Objetivos:

1. Comparar los exámenes de VPH, Papanicolaou y la inspección visual con ácido acético (IVA) en su capacidad para detectar lesiones precancerosas (CIN2 o peor) en 9000 mujeres consecutivamente estudiadas simultáneamente con los tres métodos en centros de atención primaria de salud (APS) de Chile.
2. Medir la aceptabilidad y tasa detección de lesiones precancerosas de la autotoma vaginal en domicilio, en 1.000 mujeres inasistentes al Programa Nacional por más de 5 años.
3. Realizar colposcopia y si es necesario biopsia en todas las mujeres con algún examen positivo más una muestra seleccionada de mujeres de alto riesgo que tengan los tres tamizajes negativos.

Métodos: Implementación del Estudio

El estudio se insertó en la infraestructura del Programa Nacional. Se implementó el método de HCII de detección de VPH, para lo cual se contó con la donación de los insumos y material de toma de muestras de Qiagen y con el apoyo del Servicio de Laboratorios Clínicos de la PUC que facilitó la infraestructura y personal de su Laboratorio de biología molecular. Para las muestras cervicales y vaginales se usa el dispositivo del hc2 DNA Collection Device y se sigue el mismo procedimiento de laboratorio. El equipo de gineco-oncólogos del proyecto capacitó a las matronas en IVA, con el apoyo de PATH para el material docente y los instrumentos de registro de la IVA y colposcopia. Se desarrolló un programa de capacitación y difusión del estudio y los principios de prevención del cáncer cervicouterino dirigido a las autoridades, profesionales y la población general; se desarrollaron materiales audiovisuales y material gráfico. Se reforzó el nivel secundario de atención mediante la compra de algunos materiales, insumos, pinzas de biopsias y colposcopios. El equipo activamente involucrado está compuesto por: 18 matronas y 4 técnicos paramédicos a nivel primario, 4 ginecooncólogos, 1 matrona y 3 auxiliares en el nivel secundario, el personal del laboratorio de patología del HSR donde se realiza el Pap y las biopsias, la matrona del Programa de la mujer del SSMSO, y el equipo de coordinación PUC, compuesto por 3 epidemiólogas, dos enfermeras matronas, 1 bioestadística y dos digitadoras. El estudio fue aprobado por los comités

de ética de las instituciones participantes. Las mujeres son ampliamente informadas y firman un consentimiento si aceptan participar.

Resultados: El trabajo de campo se inició en Agosto 2009 y hasta abril 2010 se han ingresado al estudio 7.000 mujeres en los centros de salud (78% de la meta) y 1.050 mujeres en sus domicilios (100% de la meta). En el encuentro se discutirá la experiencia de implementación y sus implicancias para los programas nacionales de prevención de cáncer cervicouterino y se presentarán los resultados preliminares en términos de: velocidad de obtención de los resultados, tasa de positividad total de cada examen, la tasa de detección de lesiones precancerosas de cada uno, concordancia entre los tres métodos y la mejor combinación de éstos para detectar la mayor proporción de lesiones.

PRIORITIES AND ACTIVITIES FROM THE WORKING GROUPS, BY COUNTRY

| ARGENTINA | |
|---|--|
| PRIORITIES | SHORT- (STA), MEDIUM- (MTA) AND LONG- (LTA) TERM ACTIVITIES |
| P1. Training for epidemiologists and cyto-technologists, scientific basis for prevention | <p>STA1. Professional training seminars, courses for cytotechnologists, and training on cytology and cervical pathology services</p> <p>MTA1. Continuing education program (distance education) for the health team and training course for cytotechnologists</p> <p>LTA1. Implementation of higher-level technical degree for cytotechnologists in collaboration with the Ministry of Education.</p> |
| P2. Process quality control (laboratories, colposcopy, HPV test) | <p>STA2. Quality control for cytology and cervical pathology laboratories</p> <p>MTA2. Development of mechanisms for quality control of the HPV test</p> <p>MTA2. Evaluation of performance of colposcopy</p> |

| BOLIVIA | |
|---|---|
| PRIORITIES | STA, MTA y LTA |
| P1. Increase coverage and access to cytology | <p>STA1. Development of information and surveillance systems (national tumor registry)</p> <p>STA2. Development of centers of excellence and training</p> <p>STA3. Development and implementation of a national performance standard for VIA</p> <p>STA4. HPV serotyping</p> <p>STA5. Preparation of health educational materials on cervical cancer</p> <p>MTA1. Pilot testing of the <i>careHPV</i> test</p> <p>MTA2. HPV vaccine management model</p> |
| P2. Human resources development | <p>MTA3. Develop a national standard for colposcopy</p> <p>MTA4. Manage implementation of the vaccine</p> <p>LTA1. Update the standard for comprehensive evidence-based management of cervical cancer</p> <p>LTA2. Monitoring and surveillance</p> |

| CHILE | |
|--|---|
| PRIORITIES | STA, MTA y LTA |
| P1. Increase coverage and access to screening for high-risk women | <p>STA1. Identify areas with a high burden of disease using the health determinants method</p> <p>STA 2. Use focus groups to identify the most appropriate strategies for improving access to screening services</p> <p>STA 3. Create a surveillance system for women that receive HPV vaccines and women that take the HPV screening test</p> <p>MTA1. Develop local strategies that are appropriate for each population</p> <p>MTA 2. Promote mass communication strategies for the HPV vaccine, including women's rights on the subject</p> <p>LTA1. Universal HPV vaccination and HPV screening that supplement the cervical cancer program</p> |

COLOMBIA

- Train health professionals on problems and techniques
- Consolidate and institutionalize VIA and cryotherapy in populations with access problems
- Review the technical standards
- Establish a reference laboratory for the HPV test
- Evaluate the cervical cancer program and circulate the results
- For the HPV vaccine:
 - Train health professionals and the community on HPV, the natural history of associated diseases, and the HPV vaccine
 - Evaluate cost-effectiveness and feasibility
 - Demonstration study of implementation prior to future introduction
 - Strengthen partnerships and international pressure to achieve a reduction in the price of vaccines

COSTA RICA

| PRIORITIES | STA, MTA y LTA |
|--|--|
| P1. Health information systems | STA1. Finish the health policy for cancer STA 2. Update the cervical cancer standard STA 3. Prepare national cancer standards |
| P2. Modify health standards and policies | MTA1. Strengthen the information system of the national tumor registry and service providers MTA 2. Implement the HPV screening test on the basis of feasibility criteria |
| P3. Implement HPV tests following a feasibility study | MTA 3. Evaluate the health impact MTA 4. Evaluate the quality of the services LTA1. Study and evaluate implementation of new technologies for screening and HPV vaccine |

EL SALVADOR

- Establish a cytotechnology school to increase the number of cytotechnologists
- Conduct a HPV prevalence study in the country
- Evaluate the cost-effectiveness of the HPV vaccine in the country
- Strengthen the health care network to improve the flow of care from screening to detection and treatment (guarantee the continuity of care).
- Information, education, and communication for health professionals and women
- Introduce the HPV screening test within 2-5 years

HONDURAS

- Implement an HPV prevalence study
- Advocacy to ensure that cervical cancer becomes a public health priority
- Introduce the HPV screening test during the course on HPV (2-5 years)
- Purchase equipment to strengthen the cytology laboratories
- Information, education and communication in the community
- Develop evidence to accelerate the introduction of the vaccine: national group, work plan, cost-effectiveness analysis

MEXICO

STA1. Training

STA2. Quality control

STA3. Communication to the population

STA4. Strengthen the information system to improve patient follow-up

MTA1. Institutionalize the HPV strategy

LTA1. Cost of the vaccine. If it is low, it could be introduced

NICARAGUA

- Support preparations for introduction of the HPV vaccine, including cost-effectiveness studies
- Introduce VIA as the screening test in 10 comprehensive health service systems (SILAIS)s
- Expand palliative care services in 3 SILAIS
- Strengthen the pathology services
- Revitalize the school of cytology to increase the number of cytotechnologists
- Extend the information system for the cervical cancer program in other SILAIS

PANAMÁ

STA1. Introduce screening through the HPV screening test

STA2. Introduce VIA in remote areas

STA3. Monitoring and evaluation system

STA4. Human resources training

MTA1. Strengthen the information system

MTA2. Conduct prevalence studies

MTA3. Monitoring and evaluation system

MTA4. Regional cytology centers

LTA1. Decentralized budget for program

PARAGUAY

| PRIORITIES | STA, MTA y LTA |
|---|---|
| P1. Integrate planning activities in primary health care (PHC) units | <p>STA1. Introduce cervical cancer management guides in PHC</p> <p>STA2. Train human resources in PHC and other network services on current standards</p> <p>MTA1. Introduce contents in a permanent training program</p> <p>MTA2. Consolidate PHC evaluation instruments</p> |

PERU

| PRIORITIES | STA, MTA y LTA |
|---|--|
| P1. Define the leadership of the cervical cancer program in the Ministry of Health | <p>STA1. Advocacy in order to determine the responsibilities and functionality of the program</p> <p>MTA1. Define roles for implementing the program</p> <p>LTA1. Leadership role in cervical cancer</p> |
| P2. Strengthen competencies of screening and treatment professionals | <p>STA1. Prepare a training plan</p> <p>MTA1. Hold of national and regional workshops</p> <p>LTA1. Consolidate training for screening and diagnosis through training entities for health care professionals</p> |
| P3. Strengthen competencies of screening and treatment professionals | <p>STA1. Review the scientific evidence in order to prepare a rationale for giving priority to cervical cancer as a public health problem</p> <p>STA1. Implement an information system through epidemiological surveillance</p> <p>LTA1. Sustainability and operation of the system at the national and regional levels</p> |

DOMINICAN REPUBLIC

- Establish a cervical cancer working group to collaborate with multiple institutions
- Strengthen the current program through: training, cytology quality control, standards, guidelines, and logistics
- Evaluate the cost, cost-effectiveness and feasibility of introducing the HPV vaccine
- Establish a cancer registry