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Cervical Cancer Control in Latin America and the Caribbean

ROUNDTABLE POLICY BRIEF

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ABBREVIATIONS

CIN	Cervical Intraepithelial Neoplasia
DIRAC	Directory of Radiotherapy Centres
HPV	Human Papillomavirus
IAEA	International Atomic Energy Agency
IARC	International Agency for Research on Cancer
LAC	Latin America and the Caribbean
LEEP	Loop Electrosurgical Excision Procedure
LMIC	Low- and Middle-Income Country
MoH	Ministry of Health
NCCP	National Cancer Control plan
NCI	U.S. National Cancer Institute
NGO	Non-Governmental Organisation
PAHO	Pan-American Health Organisation
RINC	Network of National Cancer Institutes
TEC	Training Excellence Centre
VIA	Visual Inspection with Acetic Acid
VIL	Visual Inspection with Lugol
WHO	World Health Organization

FIGURES

With thanks to Roche

CONTENTS

SUMMARY

Despite the preventable nature of invasive cervical cancer, nearly 70,000 new cases and more than 28,000 deaths occur annually in the Latin American and the Caribbean (LAC) region placing cervical cancer incidence and mortality second highest among cancers in women in the region. Infection with human papillomavirus (HPV) is associated with virtually all cervical cancers. Approximately 5 to 10% of women infected with high-risk HPV types develop persistent infections, which can lead to precancerous lesions; HPV types 16 and 18 are associated with about 70% of cervical cancers. The long delay between time of infection and development of cancer explains the effectiveness of screening as a prevention strategy. Vaccination of adolescent girls against HPV and screening of women are the best ways of preventing this disease. Cytology-based screening programmes have been implemented in most of the LAC region, but the success of these programmes has been very limited.

Three countries from the region (Panama, Mexico and Peru) were pioneers in introducing the HPV vaccine in their national immunisation programmes. The WHO recommends the use of a two-dose schedule for girls ages 9-13 and recognises the safety of the vaccines. Currently 21 countries in the region include HPV vaccination in their national programmes or are implementing pilot projects. Many in the region recognise that the HPV vaccine should be part of national immunisation programmes and that a well-designed monitoring plan is crucial to success. The main challenge to introducing the vaccine is coverage. Barriers include lack of education about the vaccine among decision makers, health professionals, and the population, and the cost of the vaccine itself plus implementation expenses.

There are several major issues to consider in launching a national cervical cancer screening programme, but the success of such an initiative rests primarily on the strength of the health care system to cover the population at risk and to guarantee proper follow-up and treatment of screen-detected lesions and cancer. Clear and accepted cervical cancer screening guidelines are necessary for programme implementation, and the introduction of new screening technologies represents opportunities for countries to update their national guidelines. Experts in the region, backed by technical and financial support from international organizations and lessons learned in other LAC countries, were able to develop and revise national cervical cancer screening guidelines, advocate with the Ministry of Health (MoH) and other national authorities, disseminate guidelines among health professionals and key opinion leaders, train heath care providers, and secure a high degree of commitment from the MoH.

Given their complexity, cytology-based screening programmes have been very difficult or impossible to implement in the region and have failed to achieve high coverage, ensure quality control of the laboratories, and conduct follow-up of the abnormalities detected. There are also limitations to the test itself, including a high rate of false negatives, sampling technique, subjective results, and the need for close follow-up. Despite screening efforts, according to a recent publication, cervical cancer incidence rates in the region have decreased in only a few countries and mortality rates declined only in Costa Rica and Chile.

New screening options such as visual inspection with acetic acid (VIA) and HPV DNA testing have been shown to be effective and cost-efficient. VIA has been recommended by WHO guidelines and introduced in the national programmes of 10 countries in the region, but has not been fully accepted and is therefore not widely extended. Very few countries have trained sufficient staff to perform VIA. Peru created a training centre for VIA and cryotherapy in 2009 and has trained staff from neighbouring countries. Since VIA has limitations as a subjective test, projects that focus on training, quality control, and evaluation are a priority. Single-visit approaches using screen-and-treat strategies, consisting of HPV DNA tests for primary screening and VIA with or without a triage test, may be the standard in the near future in many countries. The long-term negative predictive value of HPV testing can allow for extension of screening intervals. The higher detection rates of HPV testing also result in a higher rate of false positives; triage of HPV-positive women addresses this limitation.

Mexico was the first country in the region to introduce HPV testing for cervical cancer screening into the public health system. In Argentina's public health programme, HPV tests and cytology tests are both collected; cytology samples are read only in cases with HPV positive results. Women with abnormal test results are sent for colposcopy and evaluation, and health navigators ensure women receive follow-up care.

HPV testing offers an opportunity to simplify the screening process and improve screening coverage, follow-up care, and effectiveness. The Pan American Health Organization (PAHO), in collaboration with the Network of National Cancer Institutes (RINC), the U.S. National Cancer Institute (NCI), and other institutions, has been convening regional meetings to address challenges and solutions for integrating HPV test-based screening into health systems following WHO cervical cancer guidelines' recommendation of HPV testing for cervical cancer screening. Projects such as Scale-Up, ESTAMPA, FRIDA, and HPV-FASTER, some of which involve many countries, are improving and expanding HPV test-based screening in the region and substantially increasing the expertise of national professionals. However, the cost of HPV tests continues to be a challenge for public health programmes in countries with limited health resources and competing public health priorities.

The performance of the screening test, while important, is only one component of a programme that reduces cervical cancer incidence and mortality. A manual for programme managers on cervical cancer screening with HPV testing is under development by a PAHO working group and will be a practical tool for guiding implementation. Regardless of which test is used for screening, the health system needs to be structured to ensure that women have equitable access to screening, follow-up, and treatment of all women with positive results, including precancerous lesions and invasive cancer. Experts in this area have identified as priorities the need for expanding opportunities for treatment of precancerous lesions including training a wider range of health care professionals for that service and training for surgical treatment for early stages of invasive cancer. Most countries in the region have enough facilities to provide radiotherapy, but at least 40% cannot cover 80% of their needs.

THE PROBLEM

GLOBAL BURDEN

Unless effective action is taken, cervical cancer will kill more than two million women of low socioeconomic status around the world in the next 10 years [1]. Globally, cervical cancer is the fourth most commonly diagnosed cancer in women and the fourth leading cause of cancer death in women, with approximately 530,000 new cases and more than 270,000 deaths per year. Approximately 90% of cases occur in developing countries, where access to cervical cancer programmes is limited [2,3]. Given the preventable nature of cervical cancer and the successful impact of screening programmes linked to treatment, these alarming statistics signal an urgent need to scale up cervical cancer control programmes in low-resource settings.

REGIONAL BURDEN

Latin America and the Caribbean continue to bear a substantial cervical cancer burden. In 2012, cervical cancer incidence and mortality rates were second only to breast cancer among women, with nearly 70,000 new invasive cases and more than 28,000 deaths reported [1,2]. Recent projections indicate the number of cases will nearly double in the next 15 years unless interventions are implemented and improved [3]. Incidence and mortality rates for Latin America and the Caribbean are shown in Figure 1.

Cervical cancer is the leading cause of cancer-related death among women in nine of the 33 countries in Latin America and the Caribbean [1]. Incidence of cervical cancer increases rapidly after age 30 in these countries. The age group 15-25 showed incidence rates not higher than 10 per 100,000 [2].

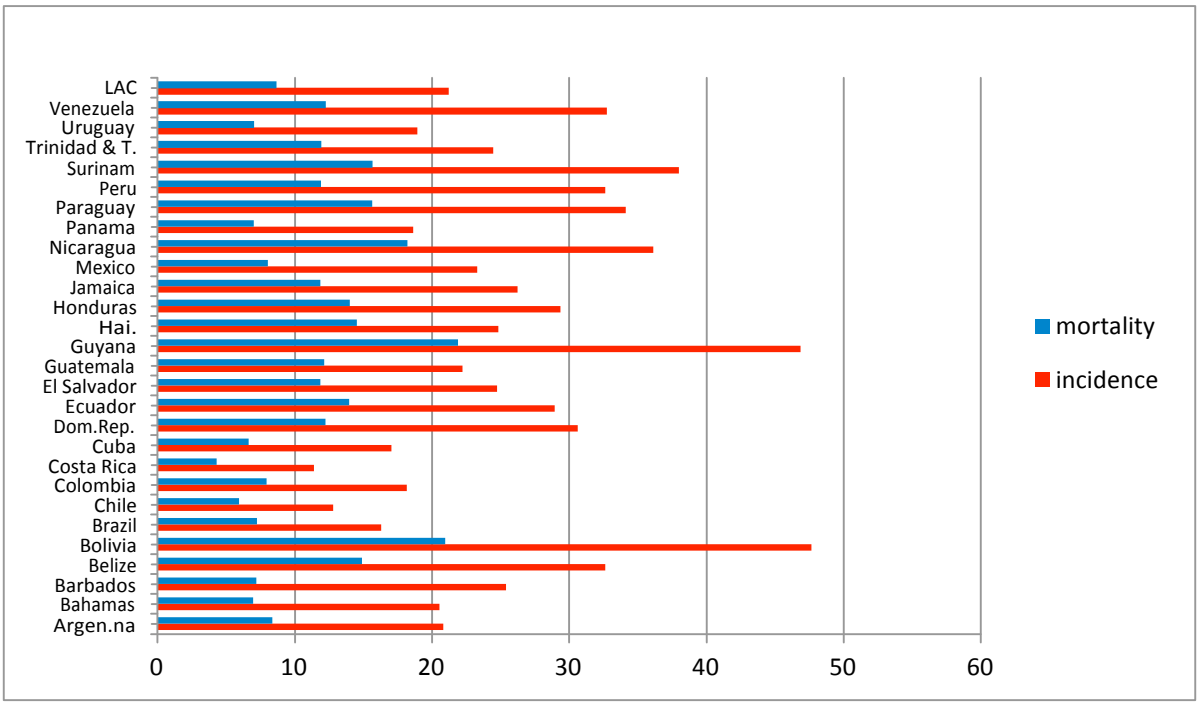

Figure 1 - Cervical Cancer Incidence (ASR-W)* in LAC Region

*ASR-W: Age standardised Rate adjusted to the world population
Source: IARC Globocan 2012

MECHANISM TO DEVELOP CERVICAL CANCER

Persistent infection with HPV is associated with virtually all cases of cervical cancer [4]. There are more than 100 known types of HPV and at least 14 of these are related to cervical cancer. Together types 16 and 18 are associated with about 70% of cervical cancers and 80–90% of HPV-related tumours in other anatomical sites. Other types, particularly 45 and 31, are also considered high-risk [5,6,7,8,9].

Globally, more than 600 million people are infected with HPV, with 50-80% of sexually active women infected at some point in their lives [8,10,11,12,13]. Around 5-10% of women infected with high-risk types of HPV will have persistent infections that can lead to cervical intraepithelial neoplasia (CIN). Low-grade CIN [7,14], CIN 1, may regress spontaneously or progress to higher-grade CIN 2 or 3 [8,15,16]. These precancerous lesions may also regress spontaneously, but can progress into invasive cancer if untreated. The years-long delay between time of infection and development of precancerous lesions and invasive cancer presents an opportunity for prevention programmes to intervene with screening and treatment, reducing the cancer burden [5,17,18].

HPV 16/18 prevalence in Latin America and the Caribbean is 4.9% for women with normal cytology, 25.1% for women with low-grade lesions, 52.5% for women with high-grade lesions, and 62.6% for women with cervical cancer [19]. Since HPV infection is necessary but not sufficient for development of cervical cancer, HPV vaccination and screening programmes are the most effective tools for preventing this disease [20,21]. While cytology programmes have been standard practice for decades, they are complex, more expensive than what are commonly perceived, and generally unfeasible in developing countries [6,22]. The introduction of accessible new screening modalities could changed the landscape of cervical cancer prevention in Latin America and the Caribbean [23,24,25].

IMPLEMENTING ACTION

NATIONAL CANCER CONTROL PROGRAMMES IN LAC

Since the 1980s, the WHO and PAHO have provided guidance and supported member states in establishing comprehensive national cancer control plans (NCCP), including cervical cancer screening [26]. Despite resource limitations, most of the countries in the region have reported developing and implementing NCCPs; however, implementation is a particular challenge and has not been assessed in these reported NCCP [27,28]. In order to achieve the NCCP's objectives, health disparities must be addressed and efforts must be made to coordinate partnerships among national stakeholders. Additionally, successful programmes are contingent on identification of priorities, budgeting and securing funding, and evaluation of NCCP performance. Early detection, particularly cervical cancer screening, is one of the components present in every country's NCCP [28,29].

CONTROLLING CERVICAL CANCER

It is common for cervical cancer control programmes to be limited to screening and treatment of premalignant lesions, while other services are available at centralized cancer treatment facilities that are not equally accessible to the whole population. Cervical cancer control programmes can have a greater impact if they are organised and pursue an approach consisting of all efforts to control the disease: primary prevention (education, vaccination); screening; diagnosis and treatment of premalignant lesions; invasive cancer diagnosis and treatment; patient support and palliative care [3,31,32].

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PRIMARY PREVENTION

HPV VACCINES

The first vaccine against HPV infection was approved and marketed in June 2006 [33]. Currently there are three vaccines in use around the world: a bivalent vaccine that protects against high-risk HPV types 16 and 18; a quadrivalent vaccine that protects against high-risk HPV types 6 and 11 in addition to 16 and 18; and a nonavalent vaccine that protects against these four as well as high-risk types 31, 33, 45, 52, and 58 [8]. Vaccine efficacy greater than 80-90% has been reported in women who were not previously infected [34,35]. Recent studies have found no evidence of waning protection in nine years of follow-up, indicating that vaccine effectiveness is potentially long lasting [36,37, 38,39].

In December 2015, the WHO's Global Advisory Committee on Vaccine Safety reaffirmed the safety of HPV vaccines [40,41]. The WHO recommends the use of a two-dose schedule within a six-month period for girls ages 9-13 [42]. The two-dose schedule has the potential to increase vaccination coverage by reducing costs and decreasing the number of doctor visits necessary for completion [43,44]. This modality has been approved by regulatory agencies in North America and Europe.

The primary target group in most countries endorsing HPV vaccination is girls ages 9-13. Although vaccination earlier in life poses no theoretical risk, no studies have yet been published to support vaccination of very young girls or infants [41]. Recent results of Phase III HPV vaccination trials documented that the vaccine's efficacy among adult women is excellent. Still, there is no evidence to justify changing the WHO-recommended age range on HPV vaccination. The most widely reported adverse events following immunisation have been injection-site reactions, dizziness, and headache [45,46,47].

Reducing the number of doses and the recommended age of vaccination has the potential to impact public health programmes by lowering the cost of delivering the vaccine and increasing uptake.

Proposed improvements to current vaccines include: more affordable pricing, longer shelf life; improving stability at a range of temperatures and the effectiveness of a single dose for long-lasting immunity; and new options for administration. Continuing research is needed to investigate these enhancements [45,48].

HPV VACCINATION IN LAC

Participants at the regional meeting on HPV testing and vaccine organised by PAHO in June 2014 recognised that the vaccine should be introduced as part of a national programme and that a well-designed monitoring plan is crucial for the programme's success. The main challenge identified for HPV vaccine implementation programmes was achieving high coverage, especially in countries that have experienced negative, erroneous media reports related to the vaccine. The communication strategy between health care workers and the population, providing information on the vaccine's effectiveness and safety, was acknowledged as a key element for success [49].

During the November 2015 review and update of cervical cancer prevention and control in Latin America, the RINC Cervical Cancer Working Group agreed to keep as a priority strategic exe the implementation of the HPV vaccine in the region [50].

Currently 18 countries in the region have national HPV vaccination programmes: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Guyana, Mexico, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, and Uruguay. Pilot projects are in progress in three countries: Bolivia, Haiti, and Honduras [51,52].

Countries must consider the costs of organizing an implementation programme along with the cost of the vaccine. Sufficient resources for micro-planning, outreach, sensitization, and supervision will be needed, especially if the goal is to maintain high coverage rates. PAHO's Revolving Fund provides HPV vaccines to participating governments in Latin America and the Caribbean for the significantly reduced price of less than $10.00 apiece [53].

COUNTRY SPECIFIC VACCINATION PROGRAMMES

In 2008, Panama became the first middle-income country to provide universal access to the HPV vaccine. Mexico was also one of the earliest middle-income countries to introduce a public-sector HPV immunisation programme on a pilot basis [51]. In 2008, Mexico introduced the quadrivalent vaccine in the 125 municipalities with the lowest human development index and the highest incidence of cervical cancer. A year later this effort was expanded to 182 municipalities and an extended three-dose schedule was implemented. By 2010, 67% of targeted girls received the first two doses and the vaccine is now available nationwide through school-based programmes for all girls aged nine [54]. (this is what stated the reference, please David confirm if 9 or 13 or 15)

Peru implemented a demonstration project in 2008-2009 in selected areas of the country. The HPV vaccine was made available through schools for all girls aged nine or older in grade five. Coverage reached over 80% and there was a low loss of follow-up recorded at all project sites [55].

In Argentina, a project is underway to monitor vaccination of uninsured girls. In vaccinated populations, HPV tests should be available to avoid subjective interpretation of cytology and colposcopy results. Argentina already has experience coordinating the components required namely vaccination, screening, and laboratory testing [49].

In general national vaccination programmes follow the dosing schedules indicated by the vaccine manufacturers. However Colombia and Brazil use an extended three-dose schedule at 0, 6, and 60 months, and Mexico and Chile use a two-dose schedule at 0 and 6 months [56].

The targeted age for vaccination ranges from 9 to 13 years in eight countries in Central and South America that implemented HPV vaccination programmes for girls. In order to reach this population, the vaccine delivery strategy in Peru, Paraguay, and Colombia is school-based, and Argentina, Brazil, Mexico, and Panama introduce the vaccine at both schools and health centres. Uruguay's HPV vaccine programme is focused on health centres [57].

Vaccination of adolescent girls and screening of adult women with HPV tests followed by appropriate management of precursor lesions in the populations at the highest risk have generated a realistic expectation for cervical cancer control in the near future, if the political will and resources are available. The development of more affordable technologies for both HPV vaccination and screening will significantly contribute to the success of comprehensive cervical cancer control programmes [2].

ADVOCACY FOR PREVENTION AND SCREENING

Although the new HPV vaccines are expected to significantly reduce the incidence of cervical cancer they will not replace screening; rather the use of the vaccines in partnership with screening will maximize effectiveness. Accurate information is necessary to convey the importance of HPV and cervical cancer prevention to health professionals, educators, policymakers, parents, and patients. Many do not know the cause and burden of cervical cancer and may not appreciate the positive impact of HPV vaccines and cervical screening. Since clinicians are often the primary source of information for parents and adolescents educating clinicians in particular will further help parents to understand the benefits of vaccination. Without this understanding and strong advocacy individuals are unlikely to support vaccination and screening.

Countries should not stop screening programmes already in place after vaccination programmes are introduced. Developed countries such as the United Kingdom, the United States, and Canada have made major achievements in screening following the introduction of the HPV vaccine [58,59,60,61,62].

SCREENING

The most important elements in a national organised cervical cancer screening programme are efforts to achieve maximum coverage of the population at risk and to ensure proper follow-up and treatment of precancerous lesions and invasive cancer [31]. These goals rest on the strength of the health care system [3,31,32,63].

Cervical cytology has long been the standard screening test, but new options including VIA and HPV DNA tests have been shown to be effective and cost-efficient when properly implemented. Both cytology-based screening programmes and HPV testing require highly organised laboratories with rigorous quality control, but in addition to this cytology-based screening also needs coordination between health care facilities given the multiple visits necessary to complete the screening process [64,65]. These requirements are impediments to implementation of screening programmes in developing countries. There are also limitations to cytology testing itself, such as a high rate of false negatives, sampling technique, subjective readings, and the need for close follow-up [18,24,31,66]. Regardless of which test is used, cervical cancer screening programmes need clear and accepted guidelines for successful implementation.

SCREENING PROGRAMMES IN THE REGION

Guidelines

There are several examples of well-developed screening guidelines in the region, including in Argentina, Chile, Cuba, Mexico, Peru and Uruguay. The WHO guidelines [67] on comprehensive cervical cancer control issued in 2015 in Spanish and English provide updated scientific evidence and practical information for health providers and were the impetus for countries such as Guatemala, El Salvador and Honduras to update their national guidelines on cervical cancer programmes. Some programmes are limited to screening while others also include vaccination and cancer treatment.

National guidelines were revised and developed with the support of international organisations and experts from countries in the region. International organisations (PAHO, PATH, and UICC, among others) performed several functions: provide technical and financial support; advocate for cervical cancer prevention with the MoH and other national authorities; disseminate the guidelines among health professionals and key opinion leaders; train heath care providers, and secure strong commitment from the MoH. Updated cervical cancer screening guidelines reflect evidence presented in the WHO guidelines with adaptations suited to the local context and can serve as models for other countries planning to update or develop their own guidelines [68,69].

Cytology-based screening

Latin America and the Caribbean region mainly have free health care systems with the participation of the private sector, and the MoH responsible for developing and implementing health policy, including for cervical cancer control. According the above mentioned RINC Cervical Cancer Working Group meeting, most countries' representatives reported having either organised or opportunistic cervical cancer screening programmes with Pap as the standard test. In general screening is free, frequency of testing is variable (usually every three years after two annual negative tests), and the most common target age group is 25-64. Reported coverage varies between 13 and 90% [2,3,57,70]. There are national guidelines for laboratories processing Pap tests in all countries except Peru, and external quality control audits are performed to certain extents in all countries [70]. Follow-up rates among women with positive screening tests vary from <60% to >90% [2].

Recent studies have reported decreasing cervical cancer incidence rates in Argentina, Brazil, Chile,

Costa Rica, Ecuador, and in areas of Mexico and Colombia, while mortality rates declined only in Costa Rica and Chile. The impact on reducing incidence and mortality observed in developed countries after implementation of screening have not been reproduced in the region [2,3,71,72].

Visual Inspection with Acetic Acid (VIA)

Screen-and-treat in one or two visits is a strategy endorsed by WHO guidelines that guarantees treatment of precancerous lesions in settings with low access to regular care. VIA, the most common screen-and-treat practice, has similar sensitivity to the Pap test (about 50%) but lower specificity [73,74]. Advantages of VIA, and of Visual Inspection with Lugol (VIL), include the possibility of fast results and being the only test that allows the provider to immediately identify positive lesions to be treated [75,76,77]. Currently, VIA is offered in the national programmes of Bolivia, Colombia, El Salvador, Guatemala, Guyana, Nicaragua, Panama, Paraguay, Peru, and Surinam, while Haiti, Honduras and St. Lucia have pilot projects underway [76].

While VIA and DNA HPV tests provide exciting alternatives to Pap testing, very few low-resource countries have trained sufficient staff to roll out screening programmes on a national scale. Considerably more training needs to be done and continuing supportive supervision in the field is also necessary. To help meet this need Peru created the Training Excellence Centre (TEC) for VIA and cryotherapy in 2009. TEC not only provides structured, competency-based training, but also supports all aspects of a cervical cancer screening and treatment programme to ensure quality and sustainability. Clinicians and trainers from Bolivia, Colombia, Nicaragua, and Peru receive classroom and field training from the Institute for Neoplastic Diseases (INEN), and spin-off training centres have been established in two countries [76,77].

PAHO, PATH, UICC, RINC and other organisations are working with MoH to prioritize the implementation of projects with alternative technologies, such as VIA or HPV testing, to improve screening and follow-up diagnosis and treatment, as well as of projects intended to identify barriers for screening coverage and follow-up. Since VIA has limitations as a subjective test, projects focused on training, quality control, and evaluation are also a priority for these organisations.

The success of VIA, HPV DNA testing, and cryotherapy in field settings signals new potential for cervical cancer control in places where cytology programmes are not feasible or sustainable. In the near future, single-visit screen-and-treat approaches that offer HPV DNA tests for primary screening and VIA with or without a triage test may be the standard in many Low- and Middle-Income Countries (LMICs) as recommended in WHO guidelines [78,79].

HPV testing

HPV testing is likely to become the standard of care in the near future for primary cervical cancer screening of women ages 30 and older given its superior performance as a screening test. HPV testing induces a greater reduction in cervical cancer incidence and has higher sensitivity than cervical cytology. Additionally, the long-term negative predictive value allows for extended screening intervals. However, the higher HPV detection rate with HPV testing also means a higher rate of HPV positives cases without precancerous or cancer lesions, making it difficult to balance the clinical trade-off between sensitivity and specificity. Triage and follow-up of HPV-positive women is the basic approach to overcome this limitation [81,82].

The introduction of HPV vaccines helped spur the strengthening and re-organisation of screening programmes and the transition to HPV testing. HPV testing offers an opportunity to simplify the screening process and improve screening coverage, follow-up care, and effectiveness.

Mexico was the first country in the region to introduce HPV test-based cervical cancer screening into the public health system, beginning first in the lowest socioeconomic regions and then expanding nationwide. In Mexico, HPV tests are performed together with cytology, and women with abnormal results in either test are referred for colposcopy for further evaluation. Loss to follow-up is a challenge with this strategy. The Mexican government fully funds the national cervical cancer screening programme, including HPV testing. Mexico purchases the HPV test for $10 per test, and it does not cover related supplies or services. When seeking funding for introducing HPV testing, it is important to consider not only the costs of the tests, supplies, and infrastructure, but also distribution and storage-related expenses.

Argentina also introduced HPV testing into the public health system, beginning in one province and expanding to four other provinces. HPV tests and cytology tests are performed together, but cytology samples are read only when the HPV test result is positive. Women with abnormal test results are sent for colposcopy and evaluation, and health navigators ensure that women receive their follow-up care. The MoH fully funds the national screening programme, including HPV testing; the cost per test is higher in Argentina than in Mexico because the price includes the supplies and a package of supporting services [49].

A variety of actions, summarized below, are being undertaken in the region to increase experience with implementation of HPV test-based screening:

START-UP (2003-2008) was a multi-country evaluation project that conducted field assessments of VIA, Pap, and HPV testing for the detection of cervical cancer. The study concluded that the HPV test with vaginal samples self-collected by women without a speculum examination had better clinical performance than VIA and Pap testing. The results of the project recommended use of HPV testing to expand cervical cancer screening coverage in low-resource areas [83,84].

Scale-Up is a project to improve and expand HPV test-based screening in the region. All project activities, including community education and recruitment, sample collection and handling, testing, follow-up of screen-positive women, and treatment, are being implemented by the MOH in Guatemala, Honduras, Nicaragua and El Salvador. Projects of this kind substantially increase the expertise of national professionals [85].

The preparatory phase (6-18 months) of Scale-Up included:

- Development and validation of community education materials
- Training health workers in counselling women to self-collect adequate vaginal samples and in labelling and transportation of the samples to the lab
- Training lab technicians to run the HPV DNA test
- Training health workers in the proper interpretation of test results and in appropriate follow-up with clients
- Development of a follow-up system to ensure that women with positive results are promptly scheduled for pelvic examination, visual evaluation, and appropriate treatment
- Development of algorithms based on the WHO guidelines for management of women according to their HPV status.

In El Salvador self-sampling was found to be acceptable, with 38.8% of women preferring self-collection [86]. Screening programmes could consider offering this option either in the clinic or at home. Self-sampling at home may increase coverage in low-resource countries and reduce the burden that screening places on clinical infrastructure. Other elements, such as educational sessions, increase adherence to cervical cancer screening [87].

During the introductory phase of Scale-Up, sufficient tests were procured to screen 110,000 women in each country. In subsequent years, the national governments of each country will assume responsibility for obtaining and deploying HPV tests in the project areas [85].

Phase 3 of the **Cervical Cancer Prevention in El Salvador** (CAPE) project is part of Scale-Up. CAPE was launched in 2012 to identify best practices for implementing HPV-based screening and is a three-phase demonstration project that assesses the feasibility and cost-effectiveness of low-cost HPV testing. When Phase 3 is completed a total of 30,000 women will have been screened. In addition to showing the benefits of screen-and-treat over colposcopy management, results show that targeted outreach to under-screened women identified women with possibly higher disease risk and burden and increased the number screened [88].

ESTAMPA is a multicentre screening study involving 50,000 women in Latin American countries including Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Honduras, Mexico, Paraguay, Peru, and Uruguay. Visual, cytological, and molecular triage methods, or combinations of these methods, are compared in terms of their performance and cost-effectiveness among HPV-positive women participating in HPV-based screening programmes. ESTAMPA will serve as a model of a screening programme using the infrastructure and human resources available in each setting.

Health providers of diverse backgrounds are being trained in the following areas essential for successful implementation of both the study and screening programmes: outreach and communication approaches; sample collection; laboratory quality assurance; colposcopy; and pathology. Data management and study supervision will be the responsibility of the International Agency for Research on Cancer (IARC) and the local principal investigators, who will contribute to the development of local expertise [89].

Forwarding Research for Improved Detection and Access for Cervical Cancer Screening and Triage (FRIDA) Study is a large population-based study that is evaluating the performance and cost-effectiveness of different triage strategies for high-risk HPV-positive women in Mexico. The HPV 16/18 genotyping and cytology triage strategies are performed as reflex tests in all high-risk HPV-positive participants. Women with a positive HPV 16/18 test and/or abnormal cytology are referred for colposcopy evaluation. HPV screening and vaccination are complementary preventive options that are often implemented as separate and non-coordinated programmes aimed at preventing the same disease [90]. Mexico is implementing the HPV-FASTER protocol to address this gap by combining both strategies with the end-purpose of accelerating the reduction of cervical cancer incidence and mortality [91].

HPV testing strategies vary in each country, but are used to complement and improve the effectiveness of the current screening strategy. Screen-and-treat strategies are recognised as being advantageous in reducing loss to follow-up. Countries that cannot afford to introduce HPV testing in a national programme should consider developing a VIA-based screening platform so that VIA can be used for treatment selection when resources become available for implementation of HPV DNA testing or other molecular tests [53].

There are ongoing demonstration projects using HPV tests in Colombia, El Salvador, Guatemala, Honduras, Nicaragua, Paraguay, Peru, and St. Vincent and the Grenadines, and Jamaica has completed its HPV demonstration programme [51,53]. Scientific evidence for HPV testing is important in generating local evidence on its applicability in a local context is essential to support decision making. Demonstration projects help justify the transition from cytology-based screening and provide supporting information on the feasibility and effectiveness of HPV testing in a programmatic context. Lastly, civil society has an important role to play in supporting the change from a traditional screening paradigm and to achieve this further education and advocacy work is needed [53].

REGIONAL STRATEGY FOR HPV TESTING

Following the WHO cervical cancer guidelines' recommendation of HPV testing for cervical cancer screening, PAHO and the NCI convened a meeting in Washington DC of key stakeholders from MoHs (Argentina, Colombia, El Salvador, Jamaica, Mexico, and St. Vincent and the Grenadines), HPV testing manufacturers, and non-governmental organisations (NGOs) [53]. The participants discussed challenges and identified innovative solutions for integrating HPV testing-based cervical cancer screening into the health systems, including programmatic requirements and collaborative strategies for affordable pricing of this technology. A summary of the manufacturers' presentations is included in the meeting report.

Participants also noted that a partnership between public and private sectors is important for the success of introducing HPV testing into screening programmes. Viewing the relationship as a strategic alliance is important because countries often require more than just the test itself and rely on industry to provide other services, such as training and quality assurance. The need for test manufacturers to work closely with the MoH throughout the process of integrating testing in a national programme was emphasized.

The cost of HPV tests continues to be a challenge for public health programmes in countries with limited health resources and competing public health priorities, although the PAHO Strategic Fund may offer an opportunity to make such diagnostic tests available for a reduced price in the region. Regardless of which test is used for screening, the health system needs to be organised and structured in a way that ensures women have equitable access to screening and treatment [(53)]. The performance of the screening test, while important, is only one component of a population-based programme intended to reduce cervical cancer incidence and mortality.

In June 2014, PAHO collaborated with the Argentina MoH in convening the cervical cancer screening programme managers from MoH across Latin America and the Caribbean for a regional meeting to discuss issues and opportunities with HPV-based screening and to stimulate South-South collaboration [(49)]. Special attention was given to the communication strategy. Communication campaigns should accompany the programmatic objectives sensitizing the populations for the introduction of new practices, but these campaigns will have little impact if there is not an organised programme.

A few unresolved issues in the HPV trials were identified including: cost-effectiveness analysis; social impact of positive test results; implication of self-taken modality as strategy; quality control of laboratories; validation of HPV testing in population-based setting; the debate on the role of cytology (as primary screening or triage test); and evaluation of referral and contra-referral models. Recommendations were issued regarding the following: elements to be considered when deciding which HPV test to implement; strategies for increasing adherence of health professionals to the guidelines; and importance of quality control to the test and the reference laboratories.

The main lessons learned in countries implementing HPV testing included the need for political willingness and national coordination with all stakeholders (scientific societies, health professionals, government authorities, health insurance entities, health care levels, and NGOs); establishment of a regular budget; technical and operational guidelines; available and committed human resources; and completion of pilot projects before implementation.

A PAHO working group developed a draft manual on cervical cancer screening with HPV testing which was presented at the meeting of programme managers. The participants recommended that the manual emphasize the importance of coverage, follow-up, treatment, and quality of the test. In addition, they advocated for an electronic version of the manual for easier dissemination and use as a practical tool in implementing HPV test-based screening.

Issues identified by participants as opportunities for technical cooperation with international organisations included: requests for funding of quality control procedures; monitoring of protocols and development of information systems; and the procurement of HPV tests through the PAHO Strategic Fund.

TREATMENT

PRECANCEROUS LESIONS

Health service challenges to providing accessible and available precancer treatment services exist throughout the LAC region. A recent review of treatments for cervical cancer precursors included loop electrosurgical excision procedure (LEEP), cold knife cone biopsy, electrofulguration, and cryotherapy, with availability of these methods dependent on the resources and infrastructure available [(75)].

VIA is feasible to implement in low-resource settings, allowing screening and treatment in one or two visits. Women who test positive on VIA (and also on HPV tests) could be treated with cryotherapy or LEEP immediately or shortly after screening [(78,79)].

Cryotherapy is not associated with excess harm in resource-limited settings when performed by quailed providers. The screen-and-treat approach, which reduces the proportion of women lost to treatment, is especially appealing where transportation, time, and other access issues make follow-up visits difficult [(92)]. Although VIA plus cryotherapy is the most cost-effective strategy compared with conventional cytology, liquid-based cytology, and HPV testing, practical issues to be considered in VIA implementation include the number, type, and training of providers and the light and magnification devices used for visualization [(93)].

CERVICAL CANCER: SURGICAL TREATMENT

The diagnosis of invasive cervical cancer is done through colposcopy and biopsy, which require specialized training and services in a high-level medical facility. Very early stages of invasive cervical cancer can be amenable to surgery alone [(78,79, 94)]. Although the number of trained professionals in the region qualified to perform radical hysterectomy (the standard surgical treatment for early cervical cancer) is not known with certainty, many experts consider it to be low.

Currently, cervical cancer patients have therapeutic options at all stages of the disease. Although surgery is preferable because it is less costly than radiotherapy, has minimal side effects and sequela, only very early stages of cervical cancer can be treated with surgery. For local and advanced stages, radiotherapy can be a curative treatment delivered alone or combined with chemotherapy [(94)]. More advanced cases benefit from systemic treatment with either chemotherapy and/or immunobiological therapies that can improve patient survival and quality of life.

CERVICAL CANCER: RADIOTHERAPY PROVISION IN LAC

Radiotherapy plays an important role in cervical cancer cure and palliation. Table 2 shows the status of provision of radiotherapy in the LAC region and the relationships between teletherapy

units, population, and cancer incidence. Considering that at least 50% of new cancer cases will need radiotherapy (it is worth to note that cervical cancer has higher rates of radiotherapy utilization) and a radiotherapy machine can treat around 500 radiotherapy patients per year, the situation in the LAC region is no worse than in other regions of the world [95,96,97].

Member State	Income Group	RT Units	RT Needs	Population (millions)	Population/ RT unit	Patients for RT (approx.)	RT Pts/ RT Unit	Coverage (%)
Argentina	UM	117	115	40 374	0.35	57 580	490	102
Bahamas	High	1	1	360	0.36	420	420	100
Barbados	High	1	2	280	0.28	570	570	50
Belize	UM	0	1	309	NA	350	NA	0
Bolivia	LM	7	11	10 157	1.40	5 640	800	64
Brazil	UM	349	438	195 210	0.56	218 790	630	80
Chile	High	52	40	17 151	0.33	20 200	390	130
Colombia	UM	90	72	46 445	0.52	35 720	400	125
Costa Rica	UM	11	9	4 670	0.43	4 470	400	122
Cuba	UM	14	39	11 282	0.81	19 700	1 400	36
Dominican Rep.	UM	15	15	10 017	0.67	7 340	490	100
Ecuador	UM	20	23	15 001	0.75	11 680	580	87
El Salvador	LM	7	9	6 218	0.88	4 510	640	78
Guatemala	LM	11	13	14 342	1.30	6 630	600	85
Guyana	LM	1	1	786	0.79	500	500	100
Haiti	Low	0	8	9 896	NA	3 950	NA	0
Honduras	LM	7	8	7 621	1.09	3 710	530	88
Jamaica	UM	3	6	2 741	0.91	2 900	970	50
Mexico	UM	142	148	117 886	0.83	74 000	520	96
Nicaragua	LM	2	5	5 822	1.40	2 560	1 280	40
Panama	UM	8	6	3 678	0.45	2 710	340	130
Paraguay	LM	5	8	6 460	1.30	4 070	810	63
Peru	UM	36	43	29 263	0.81	21 420	595	84
Surinam		NA	1	534	NA	440	NA	NA
Trinidad and Tobago	High	4	4	1 328	0.33	1 600	400	100
Uruguay	High	20	14	3 372	0.17	6 680	335	143
Venezuela	UM	85	42	29 043	0.34	20 920	245	202

Figure 2 – Relation between radiotherapy facilities, population, and cancer incidence in the LAC region

Sources: WHO/PAHO; Globocan/IARC 2012, and DIRAC/IAEA 2015

Of the 27 countries from the LAC region represented in Globocan 2012 and reporting to the Directory of Radiotherapy Centres (DIRAC) of the International Atomic Energy Agency (IAEA), 17 have at least 80% coverage of radiotherapy needs, and some of the others can guarantee access to radiotherapy by expanded use of their facilities (increasing the number of working hours). There are seven countries with more machines than the necessary to meet their radiotherapy needs. By contrast, Belize and Haiti both report not having any radiotherapy facilities and DIRAC has no information on Surinam's radiotherapy resources. Estimates of radiotherapy needs may differ from actual needs due to geographical or economic barriers to access, the proportion of patients in advanced stages at diagnosis, a lack of education and awareness among health professionals and individuals, and national or institutional guidelines for the selection of patients for radiotherapy.

An IAEA technical cooperation project titled "Taking Strategic Actions to Strengthen Capacities in the Diagnosis and Treatment of Cancer with a Comprehensive Approach" has recently been initiated; among its goals is linking with PAHO and RINC projects.

MONITORING AND EVALUATION

Better health outcomes for women in the region are expected in the coming years. Currently, well-designed information systems are lacking in most countries in the region. Effective systems are in place in Argentina, Brazil and Chile, and are developing in Colombia, Costa Rica, Cuba, and Nicaragua. Training is needed in data collection, analysis, and interpretation. Strengthening these systems across the region will improve assessment of health outcomes [98].

INTERVIEWS TO STAKEHOLDERS

To complement this Policy Brief, 20 relevant regional stakeholders from countries of the region, members of international organizations, academic and research institutions and representatives of the private sector were interviewed. A summary of the interviews is presented below.

Summary of Country Expert Stakeholder Interviews

Six recognised experts in cervical cancer from the Latin America and Caribbean region were interviewed for this policy brief. All the experts are currently working in their countries—two at the MoH, two at the National Cancer Institute, and two at non-governmental organizations (NGO).

All interviewees stated that there is a national cervical cancer control policy or plan in their countries approved by the MoH. All the programmes have a steering committee (SC) or core group and address the three main components of cervical cancer control: prevention, screening, and treatment. The SC influences significant policy decisions and is responsible for providing technical advice regarding cervical cancer control in the country. The MoH is the key stakeholder responsible for implementation of cervical cancer control activities in all the countries represented. Support is provided to the MoH by NGOs and the social security system for screening services, and by NGOs for promotion and prevention activities. In at least half of the countries, NGOs and scientific societies are involved in cervical cancer control at the national level, including as part of the SC. In one of the countries, the SC includes a representative of the social security system. The private sector generally only provides support for treatment of precancerous lesions and invasive cancer.

In all the countries represented, Pap testing is the standard for cervical cancer screening. All the programmes have screening guidelines that follow WHO recommendations and provide detailed guidance for health care professionals on screening, referral, and treatment. Only one country is using VIA as common practice, but not on a large scale. HPV testing has been implemented in three of the countries, although only one is in the process of scaling up testing.

When describing the main success of each country's cervical cancer programme in the past five years, each expert had a different response. In one of the countries the programme's main success was the introduction of the HPV testing screening modality and an electronic information system, supported by a high level of adherence to national guidelines. In another country the greatest success was in securing political will and commitment following the discussion and development of national guidelines, while in other countries the programmes' main achievements were providing free access to services and increasing coverage. Capacity building and training of health care professionals were the main accomplishments in two of the countries, although much work still needs to be done.

The experts identified sustainability in terms of political and financial support and recognition of cervical cancer as a health priority as the primary challenges to effective scale-up of cervical cancer prevention and treatment programmes. Other challenges included increasing vaccination and screening coverage and treatment of precancerous lesions by reducing loss to follow-up. Increasing the awareness of the population and training of health care professionals were also recognised as challenges by all the interviewees.

According to all the experts interviewed the MoH makes funding decisions using their own budget, though in three countries local budget decisions are in the hands of the local authorities. The Ministry of Finance is involved in approving the budget in three of the countries. There are efforts to increase SC involvement in funding decisions, but that is not yet perceived as part of the role of the SC in these countries. The MoH and local governments currently provide financial support for programme implementation and advocacy activities for cervical cancer control in all the countries. In three countries national NGOs and private sector donations contribute to funding programme activities, mainly in the areas of prevention and early detection. Contributions from the social security system and international donors provide financial support for programmes in two countries. Only two countries receive funds from international donors through bilateral cooperation, donations from the international private sector, NGOs, and organizations such as the Pan American Health Organization (PAHO), the United Nations Population Fund (UNFPA), and the Union for International Cancer Control (UICC), and PATH.

Common responses given by the interviewees regarding the perceived role of the private sector in supporting scale-up of national cervical cancer control programmes included: training of health professionals, increasing awareness of the population, and advocacy of cervical cancer prevention and control. Other perceived roles of the private sector identified by five of the interviewees were in supporting implementation projects and as a partner providing accessible prices to their products in order to increase access to services. Two experts recommended that the local private sector support MoH policy. Other activities recommended by the majority of interviewees were support of awareness activities and particularly of research implementation projects, specifically see-and-treat projects and HPV test-based projects.

When asked what three activities they believe will be the most effective in reducing cervical cancer mortality in their countries, all the experts agreed that the **chief priority is the implementation of HPV test-based screening**. Activities that should be considered second and third priorities included: implementing information systems to monitor and evaluate programmes; increasing HPV vaccination coverage; targeting screening coverage of women aged 30-49; scaling up see-and-treat approaches in areas with difficult geographical access; ensuring access to radiotherapy in the public sector; and setting up a proper referral system.

Summary of international organisation, academic and research institution interviews

Representatives of 10 leading international organizations, research centres, and academic institutions, were interviewed for the policy brief. Nine of the 10 organizations have specific projects in the Latin American and the Caribbean region; all have ongoing activities related to HPV vaccination, HPV test-based screening, and advocacy for cervical cancer control, particularly the use of new technologies. Nine organizations are involved with training of health professionals and seven have been collaborating with countries in the region to develop or review cervical cancer guidelines. Half the organizations are involved with ongoing development of implementation projects, information systems, treatment, and promotional materials. Three organizations use grants or donations to implement their projects; three use governmental funds almost exclusively; and four use either source of funding.

All the organizations collaborate with the private sector to some extent, and it is the main stakeholder for two of them. Nine organizations collaborate with the MoH as standard practice, and it is the main stakeholder for five of them. Nine organizations collaborate with non-governmental organizations (NGO), the main stakeholders for three of them.

All interviewees considered influencing policy, changing practice, and networking to be among the main focus of their cervical cancer control activities. Increasing the body of literature and scaling up cervical cancer programmes were seen as important contributions by six of the interviewees. Currently, five organizations have ongoing implementation and dissemination research projects in the region. Advocacy, HPV testing, and treatment of precancerous lesions are the main topics for three of them, while HPV vaccination is the focus of the other two. None of the interviewees described the IRB process as a barrier in pursuing these research projects. All 10 interviewees use direct communication at meetings and training programmes to ensure that their research findings are disseminated and translated into evidence-based interventions. Additionally, in order to communicate their findings, nine use their websites, six use their publications in peer-reviewed journals, and five develop reports or guidelines for distribution among the relevant authorities and professionals.

For eight interviewees, the main barriers to shifting to new technologies in order to effectively scale-up cervical cancer programmes in the region are low political will, lack of awareness among health professionals and the population, and availability of funds. Five interviewees identified the failure to prioritise cervical cancer as a main health problem, lack of information systems to monitor and evaluate actions taken, and lack of continuity in MoH leadership as important barriers. Four of them cited the lack of organised programmes, loss to follow-up of women with abnormal results, and the

limited role of non-physician health care providers as barriers that need to be overcome in order for programmes to achieve better results. Other barriers to success cited by a smaller number of interviewees include lack of funding, bureaucracy, status of national guidelines, lack of alternatives to colposcopy, access to treatment, and lack of emphasis on HPV vaccination.

When asked how they perceive the role of the private sector in supporting scale-up of national cervical cancer programmes, nine of the interviewees gave the same response: supporting education of health professionals. Additional potential roles for the private sector identified by seven interviewees included: supporting education of the general population, particularly women; increasing access to services by reducing prices; and supporting development of information systems to monitor and evaluate programmes. Half of the responses highlighted the important role of providing research support. Other potential roles of the private sector mentioned by interviewees included: promoting implementation of new technologies by private providers; supporting surveillance of provider practices; and promoting training of local technical staff in equipment maintenance.

Eight interviewees recommended private sector support for thematic projects, training activities for health care professionals, and implementation projects. Other supportive activities, endorsed by six interviewees, included: advocacy of organised cervical cancer control programmes; advocacy of the introduction of new technologies by the MoH and relevant national authorities; volunteering to negotiate regional prices to reduce product costs and resolve price differences resulting from the presence of local distributors; and educating the public. Support for implementation of information systems for surveillance and monitoring programmes and for research activities was also recommended by half of the interviewees.

The interviewees identified a total of 13 priority areas of research or activities to be implemented in the region, aimed at increasing effectiveness of cervical cancer control programmes. Shifting to new screening technologies, especially HPV tests was a priority for the whole group, and advocacy and education were identified as priorities by nine of the 10 interviewees. Six considered the following to be high priority: implementation of HPV vaccination programmes and information systems, and a focus on real screening coverage, i.e. the proportion of women from the target population screened rather than the number of tests performed. Priority activities identified by half the interviewees included: development and implementation of guidelines for the introduction of new technologies; the introduction of cost-efficiency as a routine tool for implementation of programmes and advocacy; the implementation of organised programmes; and increasing the role of non-physician health care providers in programme services. Finally, a small number of interviewees considered these other activities to be priorities: shifting to self-collected screening samples, ensuring access to treatment of precancerous lesions and invasive cancer; implementing projects for treatment of precancerous lesions; and monitoring HPV vaccination coverage.

Summary of private sector interviews

Stakeholders representing four companies from the private sector were interviewed during the process of preparing this roundtable. Screening, specifically HPV testing, is the specific focus of cervical cancer control for three of the companies, and cervical cancer prevention, specifically HPV vaccine production, is the focus of the fourth. Additionally, one company is involved in cervical

cancer treatment. Two of the companies have hubs in certain countries in the Latin America and Caribbean region, but all of the companies work throughout the entire region. Of the four companies, three work directly with the MoH and two also work through representatives, while one only works through distributors or representatives. The four companies commercialize their products to the MoH, three of them also sell to private health care professionals and to international organizations, and two sell to non-governmental organizations.

All interviewees identified transparency, honesty, and an ethical code of conduct as the most common means to control conflicts that may arise between the needs of the country and the financial interests of the company. Other ways of controlling conflicts of interest included: establishing collaborations and partnerships; building stable and sustainable businesses by using the best available evidence in a particular setting; and not selling the product when there is no assurance of sustainability. The four companies currently have designated Corporate Social Responsibility (CSR) projects or extra-budgetary funds to support key initiatives related to cervical cancer prevention and control at the country or regional level. Only one company does not have such a project in the region. Of the three practicing CSR in the region, one provides direct funds for project implementation and two provide technical support, training, and products.

From the perspective of the private sector, the main barriers to effectively scaling-up cervical cancer programmes in the region at present are political will, evidenced by prioritization of cervical cancer control, and the education of health care professionals and the population about new technologies. All interviewees identified these two challenges. Other barriers identified were: opposition to switching to HPV testing as a screening modality; coverage; quality control of screening processes; database availability; availability of standard of care treatment; and availability of funds.

When asked how they perceive the role of the private sector in supporting scale-up of cervical cancer programmes, there was one common answer: training of health care professionals. Other frequent answers included: creating awareness in the population, supporting development of infrastructure to reach screening coverage, and providing better, quicker, lower-cost technology. At least two of the interviewees thought the private sector should participate in regional efforts focused on reducing inequity and in a long-term planning approach. Another issue mentioned by three interviewees was how the private sector would like to be perceived by stakeholders in the region: engaged as part of the regional activities, and not as an obstacle. Close cooperation between all stakeholders is crucial for success. The organizations were unanimous in recommending the following initiatives that could potentially be supported by private sector partners: capacity building for national and regional stakeholders through training health professionals; creating awareness; and advocacy. Other recommendations for ways private sector partners can support regional activities included providing technical support to assess the current situation and sharing best practices on the role of patient associations.

CONCLUSIONS

Cervical cancer is still a significant public health problem in the LAC region. Despite efforts to implement screening programmes in recent decades, the reduction in cervical cancer mortality documented in more developed countries as a result of such efforts has not yet been achieved in the LAC region.

Vaccination of adolescent girls against HPV and screening of women are the best ways of preventing this disease.

Currently, 18 countries in the LAC region include HPV vaccination in their national programmes. Despite evidence of the vaccine's safety and potentially long-lasting effectiveness, coverage is still a considerable challenge due to lack of awareness about the benefits of the vaccine among decision makers, health professionals, and the population. Vaccine cost is also a barrier to scale-up of vaccination programmes.

The introduction of new screening technologies represents an opportunity for countries to update their national guidelines and review their programmes. The process creates awareness among decision makers, health care professionals, media, and the general population, which then impacts the political will. Ultimately, the introduction of new screening technologies will facilitate a paradigm change in the approach to cervical cancer control in the region. Nevertheless, the screening test modality, while important, is only one component of an effective screening programme. A cervical cancer control programme must be organised to succeed, and its success rests primarily on the strength of the health care system to cover the population at risk and to guarantee proper treatment of all screen- detected lesions and cancers.

There are several implementation projects using new technologies and involving many countries. These projects are contributing to expand HPV test-based screening and substantially increasing the expertise of national professionals in the region. However, resistance by health care professionals to the shift toward HPV testing, and the cost of HPV tests, are challenges faced by public health programmes in countries with limited health resources and competing public health priorities.

According to 20 stakeholders interviewed representing international organizations, academic and research institutions, and the private sector in the region, the main barriers to effective scale-up of cervical cancer prevention and treatment programmes are the lack of training of health care professionals, lack of awareness among the population, and lack of political will. These barriers prevent both the shift to HPV testing as the main screening modality and increased HPV vaccination coverage. Lack of recognition of cervical cancer as a health priority and the consequent financial support that recognition would bring, as well as the absence of information systems to monitor and evaluate the actions taken are also perceived as barriers. These obstacles impede the implementation of organised programmes that could effectively guarantee high screening coverage, quality control of the screening processes, follow-up of all women with abnormal tests, and treatment of precancerous lesions and invasive cancers.

The interviewees recommend that the private sector support capacity building in the region by supporting projects for training health professionals and projects to create awareness among the population. The goal suggested by the interviewees is for the private sector to support "thematic" projects of regional initiatives instead of isolated projects. Another recommendation is for the private

sector to support projects to advocate the MoH and relevant national authorities for the introduction of new technologies within the context of organised cervical cancer control programmes with information systems for monitoring and evaluate the actions taken.

The interviewed stakeholders also recommend that the private sector participate in regional efforts focused on reducing inequity and in a long-term planning approach. Through this approach, the private sector can provide technical support to assess the current situation, support research implementation projects, and help increase access to services by volunteering to negotiate regional prices and reduce costs.

The private sector would like to be perceived by stakeholders in the region as engaged in the regional actions, and not as an obstacle. Close cooperation between all stakeholders is crucial for success.

The region receives support and guidance from the WHO and PAHO, and technical support from international organizations with significant expertise in cervical cancer control including IARC, PATH, NCI, CDC, BHI and UICC. The RINC's Regional Plan for Integrated Actions on Cervical Cancer Control provides an excellent platform for exchange of experiences among countries in the region. All these resources assist the region in changing and improving the current cervical cancer landscape.

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