



Shaping a Strategy to Introduce HPV Vaccines in Peru

Formative Research Results
from the *HPV Vaccines: Evidence
for Impact* Project

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Acronyms

AIDS	Acquired immunodeficiency syndrome
ESNI	National Immunization Strategy (Estrategia Sanitaria Nacional de Immunización)
HIV	Human immunodeficiency virus
HPV	Human papillomavirus
IIN	Nutrition Research Institute (Instituto de Investigación Nutricional)
MINSA	Ministry of Health (Ministerio de Salud)
STI	Sexually transmitted infection

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Executive summary

Cervical cancer kills more than a quarter million women each year—usually women in the prime of their productive lives—crippling families and weakening communities. At least 33,000 of these deaths occur in Latin America and the Caribbean.¹ New vaccines to prevent infection with the human papillomavirus (HPV), the primary cause of cervical cancer, can therefore have a marked impact in countries like Peru.

Effort is required to prepare health systems and communities to accept and embrace any new health technology. Through our *HPV Vaccines: Evidence for Impact* project, PATH, in close collaboration with ministries of health and other partners, is piloting vaccine introduction in four countries: India, Peru, Uganda, and Vietnam. Together, we are generating evidence to help policymakers and planners in the developing world make informed decisions regarding vaccine introduction and financing. When combined with a comprehensive approach that includes screening and precancer treatment, evidence-based HPV vaccination programs could reduce developing-country cervical cancer deaths to the low levels observed in many industrialized countries.^{2,3}

This overview summarizes results from formative research in Peru regarding the health systems and policy context that will affect HPV vaccine introduction, as well as beliefs, values, attitudes, knowledge, and behaviors related to HPV, cervical cancer, and vaccination.

The formative research was designed to guide development of a vaccine delivery strategy, a communications strategy (for outreach to communities), and an advocacy strategy (for outreach to policymakers). As a next step, these strategies are being implemented and evaluated through a demonstration project in each country. The findings from the demonstration projects—anticipated in 2010 and 2011—can then serve as an evidence base for governments deciding when and how to incorporate HPV vaccination into a comprehensive cervical cancer prevention program.

Overall, formative research results in Peru demonstrated that people are interested in and supportive of HPV vaccination and other actions to combat cervical cancer. They also showed that important questions must be answered and obstacles addressed for vaccine introduction to progress smoothly. The strategies tested in Peru's demonstration project will include the following elements, developed from the results of the formative research.

Peru's HPV vaccine delivery strategy: key elements

- Dispatch health workers to vaccinate girls at school, targeting those in grade 5 who are aged 9 and older.
- Strengthen coordination between health centers and schools so that educators are actively engaged in informing girls and parents and preparing logistics.
- Ensure systematic and early communication among divisions of the Ministry of Health (Ministerio de Salud, or MINSA), and between national and regional health authorities.
- Monitor the cold chain and actively identify and address problems, including increasing vaccine storage capacity and developing transport and storage solutions for rural areas.

- Develop a standardized protocol for vaccination that includes respectful treatment of girls and safe treatment and disposal of used needles and other medical waste.
- Motivate health personnel to report any adverse events when they occur.
- Develop a system for tracking full coverage with three doses of vaccine.

Peru's HPV vaccine communications strategy: key elements

- Disseminate information on the burden and seriousness of cervical cancer in Peru.
- Explain that a virus (HPV) is the cause of cervical cancer, and why HPV vaccines are more likely to prevent cervical cancer if administered to young adolescent girls.
- Create a climate of confidence by building on positive perceptions of vaccination and addressing local concerns.
- Inform communities that HPV vaccines have been shown to be safe and effective, with limited side effects.
- Make communities aware that health workers are trained on good hygiene, safe vaccination practices, and appropriate treatment and respect for girls during vaccination.
- Use participatory methods and materials as well as mass media to inform girls and parents.
- Publicize endorsement of HPV vaccination by MINSA and other prominent authorities.

Peru's HPV vaccine advocacy strategy: key elements

- Generate momentum and leadership for HPV vaccine introduction through the immunization unit of MINSA as well as the unit's Advisory Committee and the Permanent Technical Committee (the groups responsible for vaccine recommendations).
- Make information available and accessible to national and regional policymakers on the burden and seriousness of cervical cancer, the nature and cost of the vaccine, and public attitudes and perceptions.
- Explain how HPV vaccination is consistent with Peru's health priorities, including addressing cancer, preventing infectious diseases, and promoting vaccination.
- Stimulate political will for reaching young adolescents, a currently neglected group, with a potentially beneficial health intervention.

The formative research was conducted by the Nutrition Research Institute (Instituto de Investigación Nutricional, or IIN) in Peru, with technical and financial support from PATH.

Introduction

“We all have the right to receive that vaccine.”

—Young adolescent girl, Peru

Cervical cancer kills hundreds of thousands of women each year—all too often, women in the developing world who are in the prime of their productive lives. Vaccines recently developed to prevent infection with the human papillomavirus, or HPV, the primary cause of cervical cancer, can therefore have a marked impact in poor countries. In fact, when combined with a comprehensive approach that includes screening and precancer treatment, evidence-based HPV vaccine programs could reduce developing-country cervical cancer deaths to the very low levels currently observed in many industrialized countries.^{2,3}

That is why PATH initiated the *HPV Vaccines: Evidence for Impact* project in 2006, funded by the Bill & Melinda Gates Foundation.⁴ By piloting vaccine introduction in four developing countries—India, Peru, Uganda, and Vietnam—the project will generate evidence to help policymakers and planners worldwide make informed decisions regarding regional and national vaccine introduction efforts and international financing plans.

The *HPV Vaccines: Evidence for Impact* project is not a clinical trial of a new vaccine. The vaccines being used are already licensed in over 100 countries, including Peru. Instead, the project is meant to assess and document the best possible approaches to reaching young adolescent girls with the HPV vaccine in low-resource settings.

In Peru, PATH and our partners conducted formative research to explore possible approaches to vaccine introduction in that setting—and we found overall support for the vaccine, as well as important questions and concerns that will need to be addressed. This report shares findings from the formative research in Peru, which was conducted by the Nutrition Research Institute (Instituto de Investigación Nutricional, or IIN) with technical and financial support from PATH.

Cervical cancer and HPV

Approximately one-half million women are newly affected by cervical cancer each year. Of the estimated 270,000 annual cervical cancer deaths, 85 percent occur in developing countries, including 33,000 in Latin America and the Caribbean.^{1,5,6} In developed countries, screening programs (traditionally using Pap smears) are in place to spot the signs of precancer and treat them early, saving countless lives. In developing countries, however, many women cannot access screening services or do not receive necessary treatment for precancer that is identified.^{7,8} In some settings, no screening or treatment is available, while in others, such services are only offered opportunistically due to weak capacity and infrastructure.

Two vaccines—Merck’s Gardasil® and GlaxoSmithKline’s Cervarix™—have now been proven at least 90 percent effective in safely preventing infection with HPV types 16 and 18, which account for about 70 percent of cervical cancer cases.⁹⁻¹⁴ Because the vaccines are this effective only in girls and women with no history of HPV, and peak incidence occurs soon after the onset of sexual activity, the vaccine should be administered before sexual initiation. Therefore, young adolescent

girls are the appropriate target group for HPV vaccination. A recent analysis demonstrated that the two HPV vaccines could prevent 500,000 deaths if given over 10 years to 70 percent of 12-year-old girls in Latin America and the Caribbean.¹⁵ The potential benefit of vaccinating boys is still under investigation.¹⁶

The *HPV Vaccines: Evidence for Impact* project aims to address several of the particular challenges likely to face HPV vaccination programs. Cervical cancer, while a serious problem, is not well known or understood in many places. Additionally, immunization programs have traditionally been designed to reach infants and very young children. Reaching young adolescent girls, especially with information and services to prevent a sexually transmitted infection (STI), raises a host of social and cultural issues and health systems challenges. Finally, given that cervical cancer can take decades to develop, the benefits of HPV vaccination will not be fully apparent until many years in the future.

Formative research and public-health planning

Formative research seeks to gather information on a target audience's beliefs, values, attitudes, knowledge, and behaviors related to a health problem of interest, as well as the context that influences and is influenced by these individual-level factors.¹⁷ This exploration is an important part of planning a new public-health intervention, such as a vaccine introduction program; it provides a solid evidence base for designing a meaningful and grounded implementation approach.

In this case, PATH and our partners used formative research to explore two primary questions:

- What important factors are most likely to result in a child receiving the HPV vaccine?
- What important factors are most likely to foster institutional decisions that result in successful vaccine delivery?

Ultimately, the answers to these questions helped to develop the following outcomes in each of the four countries where the project is taking place:

- A vaccine delivery strategy.
- A communications strategy (focused on outreach to communities).
- An advocacy strategy (focused on outreach to policymakers and key stakeholders).

The next step after the formative research is to implement and evaluate the three strategies through a demonstration project in each country. Finally, PATH and its partners will disseminate

Additional information on HPV and cervical cancer

RHO Cervical Cancer
www.rho.org

Alliance for Cervical Cancer Prevention
www.alliance-cxca.org

Cervical Cancer Action
www.cervicalcanceraction.org

International Agency for Research on Cancer Screening Group
<http://screening.iarc.fr>

PATH cervical cancer prevention
www.path.org/cervicalcancer

World Health Organization—cancers of the reproductive system
www.who.int/reproductive-health/publications/cancers.html

World Health Organization & Institut Català d'Oncologia Information Centre on HPV and Cervical Cancer
www.who.int/hpvcentre/en/

the findings from the demonstration projects—anticipated in 2010 and 2011—to serve as an evidence base for governments that wish to develop or scale up cervical cancer prevention programs.

Peru: context

Peru, located on the west coast of South America, includes a marked diversity of geographical regions (coast, mountains, and jungle) with different altitudes, weather, and natural resources, as well as a variety of cultures and epidemiological profiles. Nearly one-third of Peru's nearly 29 million people live in rural areas.¹⁸

Peru is a republic with a democratically elected government. Election outcomes in 2006 and increasing government decentralization have given many people hope that some of the country's structural problems, including difficult and inequitable access to public health care services, will be addressed.¹⁹

Given that the HPV vaccine is most effective if administered prior to initiation of sexual activity, it is worth noting that 23 percent of 15-year-old girls in Peru report having had sex, with even higher percentages in districts of the Amazon jungle, Ucayali, and Madre de Dios.²⁰ Furthermore, childbirth and its complications are the main reasons for hospitalization of girls between the ages of 10 and 14, compared with appendicitis and tuberculosis in boys.^{21,22}

Cervical cancer is one of the most common causes of death among women in Latin America and the Caribbean,¹ and is the leading cause of cancer-related mortality among women in Peru: each year, it is estimated that there are more than 5,000 new cases in Peru, and more than 2,500 women die of the disease.⁶ Although data are incomplete, information from Peru suggests high incidence of cervical cancer and high prevalence of HPV infection. There are also marked regional differences within Peru; for example, women outside of Lima have limited options for accessible treatment of precancerous lesions.²³ Additionally, while cervical cancer screening is relatively more available in Peru than in other countries of the developing world (e.g., many sub-Saharan African countries), poor women in particular still face significant obstacles to accessing screening services, learning their results, and receiving treatment for precancerous lesions.

Peru is comparable to many other lower middle-income countries in Latin America in terms of infrastructure and health profile, so lessons learned from Peru may be applicable to other countries in the region with similar cultural, economic, and health contexts.



PATH/Amyah Janmohamed

School girls in Piura, Peru.

Formative research methodology

The research team explored three principal areas related to introducing a new vaccine: vaccine delivery, social and cultural issues, and policy and advocacy.

Researchers used a variety of techniques to gather information, relying particularly on focus group discussions and in-depth interviews with key informants, as well as literature, data, and policy reviews and field observations of health systems and school-based vaccination. The study also included a number of participatory exercises, including discussing projective photos (for example, of a girl being vaccinated), drawing bodies to indicate where cancer might appear, and developing possible slogans for a future communications campaign.

The study populations for the focus groups and interviews included:

- School girls and boys, mainly aged 9 to 12 but also including adolescents 13 to 16.
- Parents and guardians.
- Teachers and school administrators.
- Representatives from nongovernmental organizations, mass media, and religious groups (i.e., civil society).
- Health providers and administrators.
- National, regional, and local/municipal political leaders and policymakers.

The focus groups and interviews were tape recorded. Researchers used the recordings and their notes to draft expanded field notes, which were then used as the primary data for analysis. The analysis was conducted in Spanish. After preliminary analysis, follow-up meetings were held with girls, parents, health personnel, and teachers to present and validate the findings, as well as to explore key issues in greater depth.

The study, carried out in late 2006 and early 2007, focused on four regions representing the country's geographical and ecological zones: the coast (Piura, Lima), the mountains (Ayacucho) and the jungle (Ucayali) (see map on page 7). Within each region, smaller areas were selected based on a number of factors, including socioeconomic characteristics, cultural diversity, the number of primary schools, the proportion of girls in school, and the percentage of urban and rural populations. The regions were selected in collaboration with the Ministry of Health (Ministerio de Salud, or MINSA).

Permission for the research was secured from the relevant national and international institutions. Consent for the children's participation in the study was provided by parents or guardians, and the children formally assented as well.

Peru



Vaccine delivery strategy

In order to determine the most promising approach to delivering HPV vaccine in Peru, the researchers talked with members of various groups regarding sites and strategies for vaccination. Policymakers and health service providers also provided information on health system capacity and potential obstacles, which supplemented the policy document review and field observations.

Where and how to reach young adolescent girls with the HPV vaccine

From the outset of the project, MINSA and other key stakeholders strongly recommended that the HPV vaccine be provided through schools. School-based immunizations are common practice in Peru. For example, a 2006 school-based campaign for measles and rubella vaccination was generally well accepted. In addition, primary school attendance in Peru is high, making it easy to reach the target population for this vaccine.

Most individuals interviewed were supportive of a school-based vaccination strategy. Children reported that one benefit of being vaccinated at school is having other students around during the procedure. As one girl in Piura noted, “If someone cries and then you cry, you feel okay.” Parents reported that schools are preferable because it is difficult to get children to the health center. Many health workers stated that the health sector has proven success working in schools, and coordination mechanisms are well established because of previous campaigns. In addition, the health systems review found that most clinics are sufficiently close to schools to allow health personnel to walk there.

However, not everyone agreed that schools are the best site for vaccination. Some children expressed a preference for the health post, noting that complications are more easily addressed there, and that it is a quieter, calmer, and more private environment. Others suggested home-based vaccination, in order that they could be with their family during the procedure. One girl in Ucayali felt that would be better because “our mom’s there...she gives us affection and encourages us so it doesn’t hurt.” These concerns helped to highlight areas for improvement in school-based vaccination strategies.

Participants raised a number of additional challenges to overcome in implementing a school-based strategy. Health workers reported that, in previous campaigns, some parents mistakenly believed that “real” health workers stay in



School girls in Piura, Peru.

PATN/Jenny Winkler

the clinics, and that those who administer vaccinations in schools are actually medical students, not experienced vaccinators. Health and education professionals also noted that coordination with schools for the measles and rubella campaign was of inconsistent quality. For example, a male teacher in Piura complained that the health sector “came to the school to impose; they only informed us about the day of the vaccination without explaining much more.” This lack of communication was perceived as a problem partly because teachers felt they had an important role to play in informing and reassuring the children. Other teachers, however, reported that health personnel did provide background information. Many health workers also reported that they had reached out to teachers in order that they could act as intermediaries with the children; this may have varied by region.

A few logistical challenges of a school-based approach were also raised in the health systems review. One was following up with girls who are absent on the days that vaccination takes place. Another issue was determining which ages and/or grades of girls would be targeted for vaccination. A primary consideration was that the attendance rate for girls in grade 5 is 96 percent, while it drops off to 85 percent in grade 6. Additionally, most girls in grade 5 in Peru are between the ages of 10 and 11,²⁴ meaning that they will be unlikely to have initiated sexual activity. It was therefore determined that vaccinating girls in grade 5 would likely reach the largest proportion of the target population.

Who is responsible for implementing the HPV vaccination strategy?

An analysis of health policies in Peru revealed that vaccination is covered by public funding and that MINSA provides more than 90 percent of vaccines to the population. The National Immunization Strategy (Estrategia Sanitaria Nacional de Inmunización, or ESNI) of MINSA was created in 2004 to ensure that immunization is prioritized throughout political, technical, and administrative systems. The HPV vaccine will be provided under ESNI’s jurisdiction. While ESNI has traditionally achieved high coverage rates, they are currently responsible for providing nine other vaccines, and more may be introduced in the near future. As the number of vaccines increases, it will become even more important to address logistical challenges noted in the policy document review, including staff turnover and absences and supply challenges. Health workers confirmed that planning failures at high levels during the measles and rubella campaign, for example, led to delays in sending out vaccines to the regions.

The policy review also revealed that as part of efforts to decentralize Peru’s system, regional health authorities are attaining a fairly high degree of autonomy and responsibility when it comes to promoting and protecting the health of the people in their region. Although the National Coordinator of ESNI will have primary responsibility for HPV vaccine introduction, close coordination with regional authorities will therefore be required, particularly with the nurses in charge of immunization at that level.

MINSA has a number of administrative bodies to cover the various functions associated with vaccine introduction. The health promotion division of MINSA is responsible for coordinating with the education sector in school-based vaccination programs. Other divisions include a communication office responsible for connecting with various audiences, including the media; a supply division; and an epidemiology division which monitors a number of factors related to immunization, including trends in vaccine-preventable diseases and adverse events following vaccinations.

Ensuring that vaccines can be stored and transported safely

HPV and other vaccines must be kept cold in order to maintain their potency. The system of storing and transporting vaccines at recommended temperatures is known as the “cold chain.” Review and observation of health systems confirmed that Peru has a strong cold chain management system in place. Health workers reported that the cold chain worked well in the recent measles and rubella campaign.

Challenges to sustaining the cold chain do exist, however. At facilities in Ayacucho, Piura, and Ucayali, cold storage capacity will need to increase in order to accommodate the HPV vaccine. Specific concerns were expressed about cold chain facilities in rural areas, including by members of civil society and policymakers. Health personnel confirmed that in a few rural health facilities, no cold-storage equipment (e.g., a refrigerator) is available. One solution has been for vaccination teams to pick up supplies at the nearest equipped facility on the day that they have scheduled vaccination, and to use cold boxes to transport the vaccines to the vaccination site. The supply of cold boxes appears to be plentiful. Another approach has been for some rural health centers without electricity to use equipment powered by kerosene for cold storage.

A logistical issue that will need to be addressed with regard to the cold chain is the schedule for vaccine shipments to Peru, and when they will be distributed throughout the country. Review of the vaccine delivery system confirmed that both storage capacity and the vaccination schedule will influence when shipments and distribution can and will need to occur. A further consideration highlighted during the systems review is that contracts with the company responsible for distributing vaccines in Peru must be actively renewed every year. In the past, expiration of the company’s contract has occurred just as vaccine distribution was needed, resulting in delays and additional costs at the regional level.

Monitoring vaccine administration and safety

Health authorities reported that some dangerous or erroneous immunization practices persist that will need to be addressed for HPV vaccination, including health workers re-capping needles after administration (if they cap a used needle, they might accidentally “stick” themselves). Disposal of vaccine waste, including biological material, needles, and syringes, remains a problem that regions are trying to address effectively. Some teachers felt that there was inadequate supervision and follow-up with girls during the measles and rubella campaign—although they also noted that there were no major difficulties, and in Ayacucho and Ucayali teachers reported that some nurses did return to check on vaccinated students. Some girls noted that the quality of the care they received during the campaign was poor; as one child in Lima said, “I saw a bit of disorder there among the people vaccinating...they had filthy hands, they didn’t wash them and they grabbed the needle.” Another concern raised by parents, health workers, and policymakers is accidental vaccination of young women who are pregnant and do not know it, as girls as old as 15 may still be in fifth grade.* Discussions with health personnel and policymakers highlighted the need for a standardized protocol for vaccination to address the above issues.

* There is insufficient evidence to ensure safety of the vaccine during pregnancy, although there are no data that the vaccine is harmful during pregnancy.

Peru has a comprehensive system in place for monitoring, investigating, and reporting adverse events following immunization. During vaccination campaigns, for example, health facilities make daily reports of the total number of persons vaccinated and adverse events to the epidemiology unit of MINSA. Those considered serious and possibly attributed to the vaccine are investigated within 24 hours, and information is collected on factors including storage conditions, administration, diagnosis, treatment, and outcome. A crisis committee is informed and relevant media announcements are made. The system is meant to ensure that information on adverse events is collected in a timely manner; that parental and media concerns are addressed quickly; and that any potential risks are identified, remedied, and prevented. The success of this system is dependent on the health workers making spontaneous reports of adverse events to MINSA.

Peru also has a daily register system in place for monitoring the number of vaccinations administered each day per vaccination site. Some nurses in health posts keep additional records in notebooks to help them follow which individuals have received which vaccinations. However, there is no standardized system for this, and it is difficult to track whether individuals have received all doses in the case of multiple-dose vaccines like HPV. One recommendation from the formative research was to adapt the form for the hepatitis B vaccine (also administered in three doses) to help ensure full coverage of each individual.

Peru's vaccine delivery strategy: key elements

- Dispatch health workers to vaccinate girls at school, targeting those in grade 5 who are aged 9 and older.
- Strengthen coordination between health centers and schools so that educators are actively engaged in informing girls and parents and preparing logistics.
- Ensure systematic and early communication among divisions of the Ministry of Health (Ministerio de Salud, or MINSA), and between national and regional health authorities.
- Monitor the cold chain and actively identify and address problems, including increasing vaccine storage capacity and developing transport and storage solutions for rural areas.
- Develop a standardized protocol for vaccination that includes respectful treatment of girls and safe treatment and disposal of used needles and other medical waste.
- Motivate health personnel to report any adverse events when they occur.
- Develop a system for tracking full coverage with three doses of vaccine.

Communications strategy

Members of communities where vaccination occurs need to be equipped with the background and knowledge to make informed decisions and/or give informed advice about cervical cancer prevention, including HPV vaccination. Researchers explored how members of various groups perceive cervical cancer, vaccination, and the HPV vaccine specifically.

Cervical cancer: overall knowledge and awareness

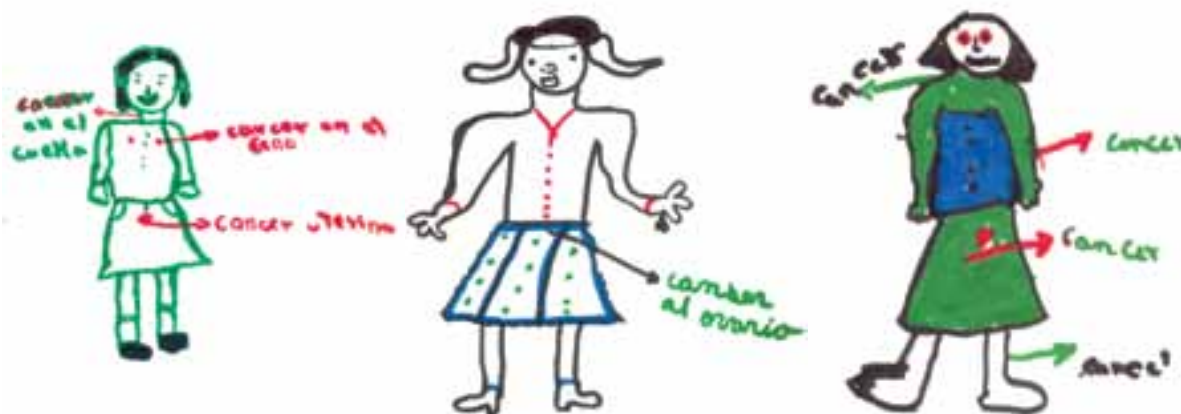
“I know about cancer of the ovary; one woman was in a bad way, she turned into skin and bones and died of cancer of the ovaries.”

–Parent, Lima

Many people interviewed knew about serious cancers that impact female “intimate parts” (“partes íntimas”). Most parents and children did not know the exact term “cervical cancer,” but some were able to accurately describe the condition and its symptoms. Individuals in the education and health sectors, members of civil society, and political leaders recognized cervical cancer more readily, and most characterized it as a serious disease.

Children most commonly referred to “cancer of the private parts”; only a few girls mentioned the term “cervix” in each region. Children were asked to draw pictures to illustrate places in the body where cancer might develop, and most included women’s reproductive organs using a variety of terms (e.g., “uterus,” “ovario”; see examples). More parents used the word cervix, and women in particular had more information about cervical cancer than men.

In terms of cervical cancer symptoms, children and parents cited pain, lumps in the vagina, itching, weakness, bleeding, low spirits, dizziness, and vomiting. One mother in Ucayali noted, “When the cancer’s about to start it comes with a foul-smelling vaginal fluid.” Others, especially parents, noted that it is a difficult disease to detect. Both children and parents saw all cancers, not just cervical cancer, as deadly and gradually developing.



More teachers, health workers, members of civil society, and authorities reported that they are aware of cervical cancer, although actual knowledge levels varied. Some teachers noted that it is a main cause of female mortality in Peru, that it is difficult to detect, and that it primarily affects older women. Many teachers in urban areas cited a lack of data to support their perception that cervical cancer is a serious problem, and that the health sector does not provide much education about the topic. Most health workers said that there were a few cases in their area, but not many. Members of civil society reported knowing people with the illness, but no consensus emerged as to the magnitude of the problem. In general, there is confusion as to exactly how common the condition is.



PAT/Jenny Winkler

A teacher leads a cervical cancer education session in Ucayali, Peru.

Teachers reported that embarrassment or shame around issues of sexuality prevents greater levels of awareness of cervical cancer and actions to address it. In semi-rural areas of Ayacucho, teachers explicitly pointed out that such reticence or shame reduces the visibility of cervical cancer. Embarrassment also may prevent some women from being screened (fear and disinterest were also mentioned as explanations for infrequent screening). As one teacher in Piura said, “It’s recommendable for women with an active sex life to do the Pap, but many don’t do it out of shame.” A member of civil society in Piura noted, “If it’s difficult enough for us, imagine what it’s like for them with a much more acute sense of shame; they have a more reserved culture.”

Cervical cancer: perceived causes and risk factors

“The doctor diagnoses it, but doesn’t tell you how you get it. People think it’s due to having too many children [and/or] quality of life...they don’t tell you that you get this kind of cancer because of HPV.”

–Female civil society representative, Piura

Overall, although some type of sexual cause was often mentioned, most people did not know that a virus or infection is the cause of cervical cancer. Very few had heard the term HPV.

The predominant cause of cervical cancer cited by children, and some parents and teachers, was inflammation or wounds in the “intimate parts” that, if not cured, advance slowly to cancer. Blows or strikes (“golpes”), either accidental or as a result of family violence, are believed to lead to these internal wounds. As one girl in Ucayali said, “Cancer of the vagina comes about when the woman’s vagina is injured and some tumors emerge. And then they slowly grow and if the woman doesn’t go to the doctor she might die.”

In some cases, information children had acquired regarding HIV and AIDS seemed to affect their understanding of causes of cervical cancer. As one boy in Ayacucho described, “A man with cancer infects the woman, like with AIDS.” Potentially because of this association, some children thought that cervical cancer could be transmitted through blood or pregnancy, or that people with any type of cancer could infect others with cervical cancer.

Respondents in all groups reported that cervical cancer can occur as a result of perceived disorders or excesses in sexual and reproductive life, such as having frequent sex, having no sex, having sex outside of marriage, promiscuity, infidelity, initiating sexual activity at an early age, lack of genital hygiene (usually female), or having many births or abortions. Children in Lima, Ayacucho, and Ucayali, as well as some teachers and members of civil society, also mentioned rape as a possible cause of cervical cancer. Some health workers, members of civil society, and officials attributed cervical cancer to male behavior: as one female health worker in Piura put it, “There’s a lot of machismo here, a lot of infidelity. The poor women are exposed to all these diseases.”

A few parents did mention a viral cause: one parent in Lima said, “I know that it’s often caused by a virus, the papilloma virus, generally when a person has a lot of discharge or a lot of sexual relations with different people, not just their partner, if their sexual activity started very early, if there’s no cleanliness.” Only one teacher, in Ucayali, had heard of “a virus located in the uterus,” and the idea of infection through sexual relations was rarely expressed by teachers. More, but not many, health workers mentioned HPV. One health worker in Piura explained that “the cause is the existence of the human papilloma virus which triggers the cancer.” A few members of civil society in Piura and Ucayali also mentioned HPV or a virus: “Cervical cancer has a viral, infectious origin.”

A number of non-sexual causes were also mentioned by a range of participants, albeit less frequently. Some children and parents stated that cervical cancer is hereditary, while others believed it could be caused by lifestyle factors such as bad diet or addiction to cigarettes. Those in the education sector mentioned a variety of causes, including contraceptives (e.g., female sterilization and intrauterine devices) in Ayacucho; hard work in the sun and lack of regular medical check-ups in Ucayali; and witchcraft in Piura. Across groups, not having regular check-ups, whether due to shame or negligence, was also invoked as a cause.

Vaccination: perceived benefits

“Vaccines are like a coating inside and outside. They’re like our little soldiers that help us not to get sick a lot.”

–Young adolescent boy, Lima

Vaccines are well accepted by the population, and are recognized as preventing illnesses and being good for health. On the whole, children in particular reported that they like vaccination because it enables them to avoid getting an illness and to be healthy. Most children, especially those in Lima and Piura, understood “prevention” to mean stopping an illness or reducing its effects. Parents were also largely positive about immunization, and some knew that vaccines are a weakened virus intended to create defenses against an illness. Members of civil society almost unanimously stated that vaccination is a very important public health intervention.

There is confusion, however, especially among parents and children, as to whether vaccines prevent or cure illnesses, or both. As one girl said, “It kills the germs; it cures what you have of the illness.” Some children also thought that vaccines can serve different functions depending on whether they are administered before or after falling ill. This confusion may make it difficult for some to comprehend why a vaccine should be given years before an illness develops, as is the case with the HPV vaccine. Other respondents, including most teachers, clearly associated vaccines with prevention, however.

Researchers investigated respondents’ experiences with the measles and rubella campaign in order to further explore perceptions regarding vaccination. Most children reported that the attention and treatment they received during the campaign was quite good. In Ayacucho, for example, some children noted that the treatment was better than they usually receive in the health post, which they said can be hurried or unfriendly. Teachers, health workers, and members of civil society echoed that children and parents responded to and accepted the measles and rubella campaign very well. Some health workers attributed this to the mass information campaign and education that was done to raise awareness in advance. Others did express negative feedback on the campaign, however, which is reflected below.

Vaccination: perceived risks

“Suspicious parents think that they’re giving their daughters a vaccine to stop them having children, to ruin their uterus.”

–*Mother, Ucayali*

Despite general support for vaccination, some fears and doubts do persist. Pain was the principal concern of most children, and parents, teachers, and health workers confirmed that children had demonstrated fear of pain during the measles and rubella campaign. Other concerns expressed by children included use of expired vaccines or reused or rusty needles, being forced by health workers to receive vaccines, lack of hygiene during vaccination, vaccines being given at the wrong time or too many times, and viruses in the vaccine making them sick. As one girl said, “I’ve seen on TV sometimes that they inject you with one [needle] they’ve already used on someone else. The doctors don’t clean some of the needles and use them without cleaning them.” Some children, especially in Lima, noted that they did not receive high quality care during the measles and rubella campaign, citing insufficient information, disorder, and lack of hygiene, as well as injections that were given too suddenly or quickly. Girls in particular said they would prefer gentler, more informative, and respectful treatment by vaccination nurses.

Most parents did not express explicit distrust of vaccination or health workers, but many did express concern about secondary effects of vaccination, partly based on their awareness of side effects which occurred after administration of measles and rubella vaccines. They also worried about the possibility of accidentally vaccinating pregnant women or girls. In Piura, it was reported that a woman who didn’t know she was pregnant had lost her baby after receiving an unspecified vaccine (not HPV).

Previous negative experiences with other public health initiatives also informed fears in the community. For example, Peruvian government policies which led to coercive sterilizations in the

past seem to have exacerbated the fear that vaccines are a means of sterilizing women. A member of civil society from Ayacucho explained that such fears occur “because in Fujimori’s time people were forced to have vasectomies and to have their tubes tied.” A health worker in Piura mentioned that during the measles and rubella campaign, one state school run by nuns did not let the vaccinators enter their building because they were afraid the vaccinations would sterilize the children. According to health workers in Ucayali and members of civil society from every region except Lima, these fears were also associated with the tetanus vaccine in the 1990s. However, some teachers noted that this had been less of a problem in the recent measles and rubella campaign than expected. Another example cited of a negative experience with public health was the unintentional distribution of spoiled milk through MINSAs’ “Glass of Milk Campaign,” which likely intensified concerns regarding spoiled vaccines.

HPV vaccine: perceived benefits and risks

“The benefit is that now you won’t get cancer...If the Ministry of Health has found the cure for cancer, who wouldn’t want to be vaccinated?”

—Mother, Ucayali

Some individuals knew a few facts about the HPV vaccine, but most respondents had not heard of it. A few children, particularly those in Lima and other urban areas, had heard something about a vaccine against cancer. Some teachers and health workers, especially in urban areas, reported knowing about an expensive vaccine to prevent cervical cancer that could be given to girls before they have sex.

Once participants were given basic information about the vaccine, they generally felt positive about it—as long as it is not experimental, and side effects are fully explained in advance. Those in the education sector agreed with the idea of implementing a campaign against cervical cancer through the health and education sectors. One teacher in Ucayali even went so far as to say that “nobody in their right mind” would oppose the HPV vaccine. Members of civil society also thought HPV vaccination could be formally supported and introduced by the government, as long as proponents and planners reached out to community leaders and media first.

Children did, however, express specific concerns about possible secondary effects of the HPV vaccine, and noted that their fear of these effects might discourage them from being vaccinated. They worried that the HPV



A school girl receives HPV vaccination in Piura, Peru.

vaccine might cause fever, aching, a “sex change,” colic, inflammation, headaches, or even death (because it is too strong for their body). These fears were made worse by the fact that the vaccine requires three doses, which was perceived to make negative side effects more likely or more intense.

Parents expressed concern that the vaccine might be in a trial stage and that Peru’s children would be used as guinea pigs. This was exacerbated by the fact that the vaccine comes from the United States. As a male civil society representative described, “If they’ve developed it in the United States you have to be suspicious. Even the food they send sometimes comes in a bad state and upsets the children’s stomachs. Could it be part of some test being conducted among the population with us as their guinea pigs?”

Only a few parents worried that HPV vaccination would encourage girls to engage in sex earlier. As one mother put it, “The girls say, well, I’m safer and can have sexual relations with this one and that one because I’ve got greater protection. They might think that it’s a more general kind of protection that covers everything. It might encourage people not to protect themselves.” Other parents worried that the vaccine would actually accelerate girls’ development, due to the fact that it is administered when girls are too young, in some cases prior to first menstruation.

HPV vaccination: who decides?

“My son’s teacher entrusted him to tell me that... they were going to vaccinate on a certain day.”

–Parent, Lima

There was a wide variety of responses regarding who determines whether children receive vaccinations. The role of the government was highlighted by many respondents, as were the roles of health workers and teachers.

Children tended to focus on the role of the state in deciding who receives which vaccinations, specifically mentioning the President, the government, and the Ministry of Education. As one boy in Lima put it, “In the case of rubella, they had to vaccinate everyone, so they didn’t ask for authorization.” Parents provided mixed reports about their levels of involvement with the measles and rubella campaign, with some saying they were fully informed and others saying they had not been consulted or given any information and expressing their displeasure about this. As one parent in Ucayali said, “I didn’t decide to have my children vaccinated; it was the school.” Another parent in Ucayali gave a conflicting report, however: “Yes, they consulted us and we very gladly accepted.”

Teachers and health workers also focused on the role of the state in deciding which vaccinations are important, and the role of health and education personnel in terms of actually ensuring that children are vaccinated. Some health workers did specify that mothers can decide about vaccination, but that fathers need to be brought in to make decisions about more complicated health decisions, like treatment for illnesses. There was a strong emphasis by members of civil society on the right of parents and children to be fully informed and provide consent before vaccination occurs.

Sample slogans for promoting HPV vaccination

Slogans developed by children:

- "Safety from cancer is a blessing."
- "Help children not to get cancer and prevent cancer."
- "If you get vaccinated you're protecting yourself...if you don't get vaccinated, diseases will attack you."
- "Get vaccinated because it's the right thing for your health."

Slogans developed by parents:

- "Vaccinating our youth against cervical cancer to prevent illnesses."*
- "Protect yourself against slow death."
- "I vaccinate my child and don't give them any illnesses. You, too, can be healthy by getting vaccinated."
- "A vaccinated child is a healthy and strong child who can live happily."

Slogans developed by education professionals:

- "Take care of your boy,[†] take care of your girl: avoid the illness."
- "Child, if you want to live better, you must prevent cervical cancer with the vaccine because then you'll have a happy and healthy life."

* We refer to the vaccine throughout this report as the HPV vaccine for the purpose of scientific accuracy. The strategy in Peru and elsewhere, however, has been to refer to it as a "cervical cancer vaccine," in order to emphasize the end goal of preventing cervical cancer.

† The option of vaccinating boys at some point in the future was discussed with research participants in Peru.

Although respondents across most groups clearly saw formal decision-making authority as residing with the government, and health and education personnel, acceptance of vaccination by the population was still perceived as important. In turn, endorsement of the vaccination by the Ministry of Health was seen as necessary to ensuring that acceptance.

Health information and education

"...They only give talks, put up large sheets of paper with writing in very small letters...The talks tend to be boring; the people aren't used to sitting there for such a long time and with such unentertaining speakers to boot. They shouldn't call them talks so much as educational meetings, [or] they shouldn't be expositional: the people could tell their own experiences, while others ask questions. Strategies for working with the population...should encourage dialogue..."

–Female civil society representative, Piura

The importance of disseminating information about HPV vaccination was reinforced several times, based on previous experiences. As one teacher in Ucayali explained, some parents "wouldn't have their daughters vaccinated because they don't know much about the vaccine, or

suspect sterilization.” A health worker in Piura noted that, “Resistance will always be caused by a lack of information.” Teachers, health workers, and members of civil society noted resistance was especially likely among rural or uneducated parents, or those from certain religious groups. Health workers and members of civil society, for example, reported that in Ayacucho, resistance was encountered during the measles and rubella campaign from a minority group of Evangelical or Pentecostal believers.

In order to respond to this need, the researchers also explored how people receive information about health, as well as their preferred information channels and styles. A key sentiment expressed repeatedly across groups was that more interactive educational techniques would be preferable to the current practice of lecturing to a passive audience (usually made up of parents or children).

Teachers and health workers most commonly mentioned a “Parents’ School” (“Escuela de Padres”) as the most common way of reaching parents with health information. Teachers noted that attendance at the talks provided through the “Parents’ School” tends to be low, partly due to the lecturing style. Additionally, many teachers and health personnel recognized the limitations of this approach and a desire to improve their teaching competence by incorporating more participatory methods. Children also expressed a desire for educational techniques which would allow them to assume an active role in learning. As one child in Ucayali said, “The teacher should have us play.”

Many respondents, especially teachers and health workers, also noted that mass media can give credibility to health messages, and that radio has the widest coverage. At the same time, however, many respondents from all study groups noted that mass media messages by themselves are not sufficient, probably because they don’t allow for asking questions or interactive dialogue that seems important to so many respondents.

Participants from different study groups were also asked for suggestions of slogans that would encourage people to support HPV vaccination. Sample slogans are included in a box on page 18.

Peru’s communications strategy: key elements

- Disseminate information on the burden and seriousness of cervical cancer in Peru.
- Explain that a virus (HPV) is the cause of cervical cancer, and why HPV vaccines are more likely to prevent cervical cancer if administered to young adolescent girls.
- Create a climate of confidence by building on positive perceptions of vaccination and addressing local concerns.
- Inform communities that HPV vaccines have been shown to be safe and effective, with limited side effects.
- Make communities aware that health workers are trained on good hygiene, safe vaccination practices, and appropriate treatment and respect for girls during vaccination.
- Use participatory methods and materials, as well as mass media, to inform girls and parents.
- Publicize endorsement of HPV vaccination by MINSA and other prominent authorities.

Advocacy strategy

In order to guide an advocacy strategy to inform and mobilize policymakers around HPV vaccine introduction, researchers reviewed Peru's health policy structure and talked with national, regional, and local officials about the decision-making process for a new health intervention.

Who is involved in policy development?

As noted earlier, immunizations in Peru are carried out under ESNI. The policy review revealed that a number of technical committees help to inform which vaccines are prioritized under this strategy, and to implement vaccination. For example, the Advisory Committee for ESNI provides recommendations to MINSA and the Peruvian government on immunizations and vaccinations. This committee is made up of individuals with expertise in immunization from the public and private sectors, as well as civil society and scientists. The committee meets once a month and makes recommendations to MINSA on which vaccines should be included in routine vaccinations provided by the public sector. Reaching out to and engaging members of this committee will clearly be a priority for advancing HPV vaccination in Peru.

In addition to the overall leadership of ESNI, there is also a Permanent Technical Committee responsible for carrying out the strategy at the national level. These implementers play a variety of roles, including liaising with the education sector and educating the media about vaccinations.

What information do policymakers need in order to prioritize HPV vaccination?

"If [the vaccine's] effect lasts a long time, that has a good impact on people; the same is true if it's inexpensive and doesn't have secondary effects."

—Policymaker, Piura

It appears that policymakers will require evidence of interest in and support for the HPV vaccine by the public before moving forward with policies to support its introduction. Although many policymakers felt that the public appreciates vaccinations in general, they still expressed concern about introducing a new vaccine, especially one for young adolescent girls which targets an STI. Despite the broad support for immunization noted earlier, many expressed concern that the public, particularly in rural areas, perceive vaccines as an instrument deployed by the government to



A health worker processing school vaccination papers in Piura, Peru.

sterilize segments of the population, or with other negative effects. They emphasized repeatedly that the public will need significant information and outreach on the vaccine. As one regional policymaker expressed, “You’d have to disseminate the results, what reactions it produces...it only takes one girl with a reaction...it’s like a powder keg.”

In addition, data are also needed on the burden of disease and the possible impacts of an HPV vaccine on the health of the population. Most policymakers conceptualized the burden of cervical cancer in terms of knowing someone with the illness, or having heard about it through an acquaintance.

In general, policymakers were interested in gathering as much information as possible about the vaccine, its benefits, its possible secondary effects, its cost, and the causes of cervical cancer. One policymaker in Ayacucho expressed concern: “Perhaps, I don’t know, the chemical composition they use might be really strong; perhaps it could cause some kind of damage in girls.” In particular, given the anxiety around vaccinating young adolescent girls, clear explanations of why it is necessary to vaccinate girls before they initiate sexual activity and data on early sexual initiation will help explain the rationale for this public health intervention. Some policymakers felt secondary school was more appropriate for vaccination, because, as one respondent pointed out, high school students “are prepared, they’re educated enough to receive this kind of vaccine.”

How does HPV vaccine introduction fit with Peru’s health priorities?

“People are very impressed by the subject of cancer, particularly if it affects the uterus, because it’s an organ that means a lot to women.”

–*Policymaker, Piura*

Most policymakers felt that cancer in general is a life-threatening disease that should be addressed with appropriate health interventions, and that it is taken quite seriously by the population at large. Some expressed concern that the population is uninformed about cervical cancer in particular, and were positive about developing activities to inform people and raise awareness about preventive actions. Many policymakers are uninformed themselves, however, about what cervical cancer is, and unaware that it is caused by a preventable infectious disease. As one policymaker expressed, “When the health situation is analyzed, it’s the transmissible diseases that generally predominate: respiratory, diarrhetic, dermatological and sexually transmitted ones, with cervical cancer right at the end.”

Peru’s government has also demonstrated a strong commitment to immunization, which is given



Staff from PATH, Instituto de Investigación Nutricional, and the Peru Ministry of Health in Pachitea, Peru.

PATH/Jenny Winkler

highest priority during public health budget development. The policy review demonstrated that resources for immunization have increased substantially since 2000. ESNI's statement of vision reinforces this: "Immunizations in Peru are the *leading activity in the public health field*, promoting positive changes in health and in the community [emphasis added]." Policymakers interviewed considered vaccines important in terms of health prevention. This was reinforced by the perception that the population is increasingly aware of the importance of vaccines and most people accept them. Some policymakers even expressed that vaccination campaigns should get bigger budgets, particularly to address supply shortfalls or gaps in the cold chain that have happened in the past.

In addition, ESNI's mission includes a commitment to "integrated care by life stages," which provides an opening for providing immunization to a new age group. Most respondents reported that there is a lack of concern and shortage of government services for children ages 10 to 14 in general, a group roughly corresponding to the target age for HPV vaccination. One health worker identified these as the "in-between ages" and noted that the government does not target them with any specific services. Policymakers acknowledged this neglect, noting that in many cases not even parents are aware of the health of their children this age: "Sometimes not even the parents know, it's the teachers who know." Developing interventions for a previously untargeted age group will require education, but could have important positive effects for the population as well.

Some policymakers expressed concern that investing in HPV vaccination would undermine or reduce available resources for existing programs, including other vaccinations or cervical cancer screening. On the other hand, others noted that implementing an HPV vaccine introduction strategy might have important benefits for the health system in general, including strengthening cold chain capacity and links with the education sector for school-based interventions.

Peru's advocacy strategy: key elements

- Generate momentum and leadership for HPV vaccine introduction through the immunization unit of MINSA, as well as the unit's Advisory Committee and the Permanent Technical Committee (the groups responsible for vaccine recommendations).
- Make information available and accessible to national and regional policymakers on the burden and seriousness of cervical cancer, the nature and cost of the vaccine, and public attitudes and perceptions.
- Explain how HPV vaccination is consistent with Peru's health priorities, including addressing cancer, preventing transmissible diseases, and promoting vaccination.
- Stimulate political will for reaching young adolescents, a currently neglected group, with a potentially beneficial health intervention.

Conclusion

Overall, the formative research in Peru found that people are interested in and supportive of the HPV vaccine and other actions to combat cervical cancer. The research also helped to guide vaccine introduction plans, including coordination of the many actors involved in immunization and development of messages for diverse audiences regarding the safety and effectiveness of HPV vaccination. On May 9, 2008, the first girl was vaccinated in Piura under PATH's demonstration project, and Minister of Health Hernán Garrido-Lecca was in attendance. At the time of this writing, early demonstration project results show reasonably high levels of coverage and acceptance of the vaccine.

Beyond the work of PATH and our partners, awareness of HPV vaccines is increasing and more people are joining the fight against cervical cancer at regional and global levels. At a May 2008 meeting to discuss and plan for HPV vaccine introduction in Latin America, health officials and researchers formally declared that “with the introduction of this vaccine, we have an opportunity to strengthen prevention and comprehensive control [of cervical cancer] through improving coverage and quality of screening, diagnostics, and treatment services.”¹ This statement is consistent with PATH's commitment to a cervical cancer response that includes both vaccine and screening and treatment of precancerous lesions for women already infected with HPV. Simple and affordable approaches are available and feasible to implement in developing countries.²⁵ Going forward, funding and political will are needed to make access to comprehensive cervical cancer programs a reality for all women.



PATH/Jenny Winkler

Health personnel fill out immunization cards in Piura, Peru.

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