

# Analysis of Vaccination Campaign Against HPV and the Perspective of Vaccinated Population

ORIGINAL

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## Abstract

**Introduction:** The Ministry of Health has provided for the girls population aged nine to 13 years, the quadrivalent vaccine against Human Papillomavirus as a preventive measure for cancer of the cervix, with the initial proposal to achieve 80% of this population.

**Objective:** To analyze the vaccine coverage and the perspective of the target population about the vaccine against the Human Papillomavirus.

**Methods:** This was a quantitative and qualitative field research in descriptive character, conducted through the Information System of the National Program for Immunization and with a sample of 86 adolescents in the city of São José do Egito/PE/BR.

**Results:** The vaccination coverage showed a reduction in sequence of the vaccination schedules of 19.53% in the first phase of the campaign and of 24.07% in the second phase. It was also noted that lack accurate information for more than 50% of respondents, 15.11% had local and/or systemic reactions and 89,53% of them expect positive results with the vaccine against the Human Papillomavirus.

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**Conclusion:** The results showed a discontinuity in the prophylaxis scheme, but for the teenagers who took the vaccine there is confidence that the immunobiological has the desired effect, protecting them against viruses and future cancer of the cervix.

#### Keywords

Health services; Vaccine; Adolescents; Human Papillomavirus.

## Introduction

Currently, through the National Immunization Program - NIP, Brazil has a basic schedule free vaccination that caters to children, adolescents, pregnant women, adult, elderly, indigenous and even groups with special conditions, offered in Immunobiology Special centers - CRIES, offering more than 20 types of biopharmaceuticals, being a great ally of public health actions and the basis for the prevention of immunopreventable diseases [1-3]. Among these diseases, infection with Human Papillomavirus - HPV, has shown high prevalence among Sexually Transmitted Infections - STI worldwide. Factor associated with the development of cervical cancer and other cancers, HPV has been responsible for the death of thousands of women [4-6]. The development of HPV infection may be transient and not clinically detectable, however, can cause warts and a variety of anogenital premalignant and malignant lesions to cancer of the cervix in women and penis cancer in men [6, 7].

In 2006, aimed the preventing, the Food and Drug Administration (FDA), american agency that regulates food and drugs, approved the quadrivalent prophylactic vaccine for HPV 6, 11, 16 and 18, increasing the actions against cervical cancer [8-9]. In the same year, the National Health Surveillance Agency - ANVISA, regulated the sale of quadrivalent vaccine in Brazil [4, 9].

It is estimated that in Brazil only in 2014, according to the National Cancer Institute - INCA,

15,590 new cases of cervical cancer were diagnosed [8]. Given this focus, the Ministry of Health - MS, introduced the vaccine in the National Immunization Schedule, providing a significant increase in the perspective of prevention of cervical cancer, in conjunction with the screening actions existing in care programs for woman health. Initially, the vaccine was available to a population made up of girls from 11 to 13 years, with a proposal to achieve up to 80% of the target audience [10, 11]. When performing campaigns, the MS defines strategies and targets to achieve the satisfaction of the target population, which should be evaluated to ensure the quality of service. Thus, this study aimed to analyze vaccine coverage and the perspective of the target population about the HPV vaccine.

## Methods

It was a field research of quantitative and qualitative type of descriptive character, with data collection conducted from December 2015 to March 2016, through the Information System of the National Immunization Program SI-PNI database, and with the target population of the National Immunization Program for the HPV vaccine in the town of São José do Egito/Pernambuco – PE/Brazil.

The city has a population of 33,365 inhabitants, of which approximately 1,740 comprise the target population composed of adolescents from nine

to 13 years. The research was conducted using a structured questionnaire with socio-demographic approach and open questions about the object of study, the main question was: What are your prospects to take the HPV vaccine?

The city has 13 units of the Family Health Strategy - FHS, three of which were selected by convenience for the research to conduct field research, with total population of 281 adolescents and sample of 86 adolescents who answered the questionnaire by parental/guardians consent. Such authorization was signed after the signing of the Free and Clear Consent Term, by the participant and the person responsible.

Initially, there was a survey to the three units of the Family Health Strategy - FHS, the amount of girls who started vaccination schedule in both the first and second phase of the campaign, where the FHS of São Borja neighborhood, 139 vaccination cards had been opened, the FHS Planalto II recorded 95, and FHS Vila do Espírito Santo, there were initiated 47 vaccination schemes against HPV.

As inclusion criteria, adolescents should have started the vaccination program against HPV within the PNI of the Ministry of Health, regardless of whether or not continued. It excluded those who had not started the vaccination program against HPV.

Data collection occurred after the submission of the research project and approved by the Research Ethics Committee of Patos Integrated College/PB, with CAAE No 50574615.1.0000.5181, as Resolution No. 466/2012 of the National Health Council [12].

Data collector were statistically analyzed by the Software R, obtaining the frequency measures relating to the following variables: age, schooling, color/race and zone, with graphing construction and plotting histograms. Questionnaires were listed in ascending order, using age as a criterion, separating by health unit: São Borja FHS, Planalto II FHS and Vila do Espírito Santo FHS. The answers of the open

questions have been introduced over the results, identifying the speech of the subject by the letter P, referring to the Participant, followed by the order number.

## Results

In the first phase of the campaign against HPV in the city of São José do Egito/PE in 2014, 869 (87.57%) female adolescents aged 11 to 13 have taken the vaccine, reaching the goal proposed by MS to vaccinate 80% of the target population. In the second dose, of 873, only 594 (68.04%) took the vaccine.

In the second phase of the campaign in 2015, the results showed that in the total of 870 girls aged nine to 11 years, living in the city, only 639 (73.45%) took the first dose, and from 885 girls, only 437 (49.38%) sought health units for the second dose of vaccine.

It is noted, therefore, that the percentage which should be maintained through the application of the second dose for continued safety of the vaccine in the two phases of the campaign (2014 and 2015) or be high because of new schemes initiated fell by 19, 53% in the first phase, and 24.07% in the second phase of the campaign, breaking the chain of continuity of prophylaxis against HPV.4

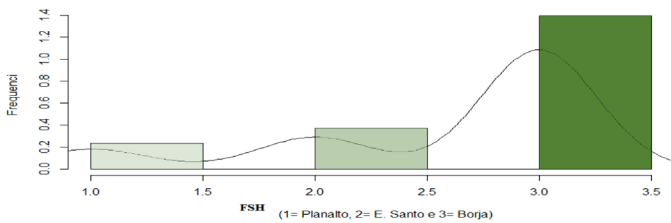
Of the total of 281 open vaccination cards, that is, the amount of girls who started vaccination schedule (FHS São Borja district - 139 cards; FHS Planalto II - 95, and FHS Vila do Espírito Santo - 47), 86 responded to the questionnaire (30.60%).

The users of HPV vaccines were distributed, according to neighborhood: Planalto with 12%, Vila do Espírito Santo with 18% and São Borja with 70% of respondents (**Figure 1**).

It is observed, therefore, that the largest share of respondents is focused on the San Borja district.

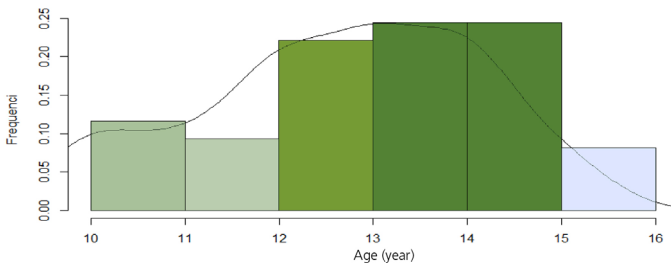
**Figure 2** shows the distribution of the variable Age, analyzed visually by histogram of this variable.

**Figure 1:** Histogram of FHS variable. São José do Egito/PE, 2016.



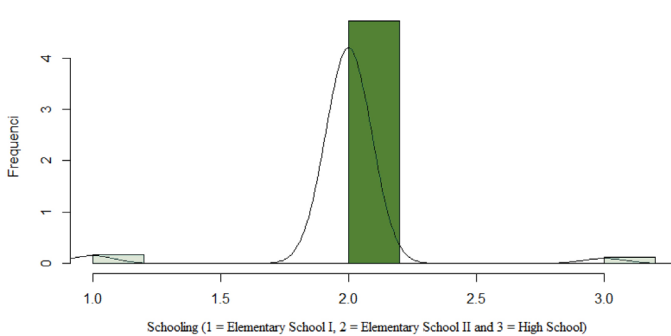
Source: Self Elaboration and generated by the software R.

**Figure 2:** Histogram of the variable Age. São José do Egito/PE, 2016.



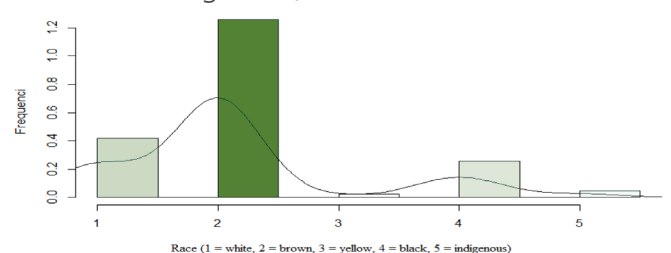
Source: Self Elaboration and generated by the software R.

**Figure 3:** Histogram of the schooling variable. São José do Egito/PE, 2016.



Source: Self Elaboration and generated by the software R.

**Figure 4:** Histogram of the variable race. São José do Egito/PE, 2016.



Source: Self Elaboration and generated by the software R.

It is worth noting that this variable could take values that would go from nine to 15 years. Where there was not even an interviewee at the age of nine.

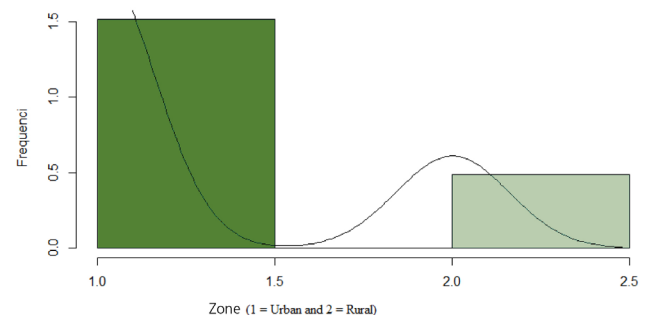
The age of respondents ranged from 12 to 14 years, and more frequently at the age of 13.

**Figure 3** shows the histogram of the schooling variable, where it is noted predominance in worth two, concerning those who are attending at elementary school II.

Regarding race/color, the value of two applies to the average of respondents who focus on brown color (**Figure 4**). For the variable color/race, the interviewees could take five values (1 = White, 2 = Brown, 3 = Yellow, 4 = Black and 5 = Indigenous).

Regarding the variable Zone, presented by the histogram (**Figure 5**), it can be seen that the data for this variable are concentrated in the value 1 (Urban area).

**Figure 5:** Histogram of the zone variable. São José do Egito/PE, 2016.



Source: Self Elaboration and generated by the software R.

In the open questions, the respondents were asked about what they understood by HPV: (P40) "is a virus, mainly strikes women, causes cancer of the cervix," (P24) "that is a disease that transmits over sexual relat in and is very dangerous "and (P69)." a disease caused by a virus." Six (6.97%) said HPV is a virus, 22 (25.58%) disease, 24 (27.90%) also said they knew nothing about what is HPV, 30 (34.88%) associated only the vaccine, two (2.32%) uterine cancer, one (1.16%) warts and one (1.16%)

did not answer. About how they learned of the vaccination campaign against HPV: (P11) "the health worker went to my house" and (P63) "by the health worker.". 38 (44.18%) of respondents recalled the health worker as the main source of this campaign, six (6.97%) through posters and 10 (11.62%) were informed by others, including parents, grandmother, neighbors and nurse. There were 22 (25.58%) interviewees who cited media and 10 (11.62%) who cited the school as knowledge place of the campaign.

It was questioned if the teens talked with their parents about the vaccine: (P19) "my mother said I needed this vaccine for in the future I be protected" and (P73) "I asked if I could get the vaccine.". 28 (32.55%) questioned the parents why they had to get the vaccine, 15 (17.44%) talked about HPV disease, nine (10.46%) told the parents that it was a campaign for the prevention of uterine cancer and eight (9.30%) did not expose the contents of the conversation. 26 (30.23%) did not talk to the parents. Another question was about the information passed on by the health professional at the time of vaccination. For this item: (P14) "Yes, to sit for 10 minutes for does not give reaction" and (P30) "in the second dose the nurse applied and had to wait a little to see if it was reaction and released.". Seven (8.13%) received information to wait between 5 and 10 minutes, 12 (13.95%) it was important to take the vaccine, five (5.81%) were informed about the risk of adverse reactions and 11 (12.79%) said they received information, but did not specify which.

About the rest of the interviewees, 47 (54.65%) said they did not received any information and 4 (4.65%) said they did not remember what had been said by the professional who applied the HPV vaccine.

Regarding the reactions presented, there were the following answers: (P31) "numbness in the arm" (P45) "dizziness and headache" and (P10) "in the second dose had fever". Of the teens surveyed, 73

(84.88%) reported no reaction to take the HPV vaccine. Among the 86 teens, 13 of them (15.11%) had local and/or systemic reactions, seven (8.13%) headache, three (3.48%) numbness, one (1.16%) pain body and 2 (2.32%) fever.

It also asked about the continuation of the vaccination schedule with the second dose, asking whether or not they took the vaccine and why: (P55) "No. Because some people who took the vaccine and had some illnesses "and (P45)." No. Doctors do not leave, there is even a suspicion that this vaccine has placed me in this WHEELCHAIR."

Of 86 teenagers, 63 (73.25%) took the second dose, 22 (25.58%) have not taken and 1 (1.16%) had taken no memory. Of the 25.58% who did not, seven (31.81%) was due to reports of other girls who had reactions, two (9.09%) did not want, five (22.72%) forgot, two (9, 09%) were the protagonists of these reactions, and six (27.27%) did not report the reason.

Finally, it was wondered what perspectives they had after taking the vaccine: (P49) "because it is preventing HPV disease" and (P76) "in the future do not get sick of cancer.". The results showed that 70 (81.39%) expect protection from the vaccine and prevention against HPV, seven (8.13%) believe that the vaccine will prevent against cervical cancer of the uterus, five (5.81%) did not have views on the vaccine, three (3.48%) inappropriate response and one (1.16%) did not answer.

## Discussion

The National Immunization Program - PNI, attends the national vaccination policy, determining the actions to be developed and targets to be achieved [11]. In the campaign against HPV were established goals that reached up to 80% of the target population, consisting of girls from nine to 13 years [10].

The results of the analysis of vaccination coverage, conducted in the city, in the first phase of the campaign against HPV, were satisfactory, however,



there was further reduction in the continuity of prevention and in the stating of new vaccination schedules.

The main results showed that 70% of respondents belong to São Borja district, age of 13 (26.74%), attending Elementary School II (90.69%), brown color/race (60.46%) and residents the urban area (80.23%)

Most of the teens had no precise information about what was HPV. These data are similar to a study made [14].

It is considered, for both, that the human papillomavirus - HPV is a virus characterized by infection of the skin and mucous membranes and is divided into approximately 150 genotypes, of which 40 can infect the genital tract, and approximately 12 are high risk, as follows: HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58 and 59, and types 16 and 18 the most common oncogenic types, can lead to cancer of the cervix [4, 15]. Other types show no progression to malignancy, but can cause genital warts, as types 6 and 11 [16, 17].

HPV infection is now considered as a sexually transmitted infection - STI - most common in the world. There is around 600 million people infected, and approximately 75% to 80% of the population acquires one or more types of HPV at some point in life, and the greater part asymptomatic and transient [18, 19].

The Community Health Agents - ACS were identified as the main source of information on the vaccination campaign.

The results were different from a study made in Campinas, São Paulo [14], where the media was the main source of information about the HPV vaccine.

It is noted, therefore, the importance of the ACS and the performance of its functions, covering the geographical territory of the FHS, being considered as the main link between the users of SUS, in the perspective of the FHS, following aspects of users quality of life, assessing risk situations and taking

them to the unit, as well as leading the drive information for the population [20].

The disclosure in schools (11.62%) proved to be unsatisfactory, not considering that occur, in view of performing vaccination in such an environment. At the time, it would guide that there would be no need for parents to permit their daughters to take the vaccine, only if there was refusal, thus a term would be signed by parents [10].

It is noteworthy that to rolling out vaccination for adolescents, because they are minors, their parents or guardians must receive appropriate information on risks and benefits, only in this way they can decide for their children and advise them to be immunized [17].

Regarding the information that was passed in routine vaccine administration, it was concluded that more than half of the interviewees did not receive any information.

However, in the routine of vaccination against HPV had been observed the occurrence of the fainting assigned to vasovagal syndrome or vasopressor response that usually occurs in adolescents and young adults. In order to reduce the risk of falls and to allow prompt intervention in case of syncope, the adolescent should be informed about the importance of staying seated and under observation for about 15 minutes after administration of the vaccine [10].

The survey results showed that 15.11% of adolescents reported some not serious or severe adverse event as, among them one (1.16%) severe event with neuromotor complications.

In a systematic review study and meta-analysis of clinical trials [6] major adverse effects associated with the application of the HPV quadrivalent vaccine were identified, and the results showed that the main effects were local, such as pain, erythema and edema, and seen as a systemic effect fever. 2014 campaign data in Brazil showed that the total of 4,159,335 doses, 854 adverse events were reported, classified as non-serious adverse event, with

810 cases and 253 syncope; and serious adverse events, anaphylaxis (9), convulsion (8), optic neuritis (2), Bell's palsy (1) (10).

Most teens followed the recommendation of the MS, considering that for greater effectiveness of the vaccine, this should have extended scheme, with the first dose at zero, second after six months and the third, five years after the first [5], as other studies also with routine of three doses of quadrivalent vaccine [21, 22].

As for the outlook of the vaccine, most of the interviewed showed concerns with the virus infection consequences, having cervical cancer as the primary, and the expectation of prevention and protection against HPV.

For the analysis of data collected by the National Survey of Health and Nutrition (NHANES), it was found that among women aged 14 to 19 years, the prevalence of infection for HPV with quadrivalent vaccine decreased from 11,5% in 2003-2006 to 5,1% 2007-2010. Since the efficacy of the vaccine in at least one dose was 82% [21]. It is noted, then, that the likelihood of vaccine meet the perspectives of adolescents in relation to protection against infection by HPV and the prevention of cervical cancer can be real.

## Conclusion

In the study, it was noted that, although the vaccination coverage against HPV for the first phase of the campaign has reached the goals proposed by the Ministry of Health, the reduction in subsequent doses was evident, as in the beginning of new schemes, with reduction in the number of doses between a campaign to another and between the first and the second phase of the same campaign period.

From the perspective of adolescents in the city of São José do Egito/PE, it is concluded that despite the lack of knowledge about HPV and concise information passed on by health professionals, whether

in health education proposal in schools or in health units during the administration of the vaccine, as well as reports of adverse events experienced by participants, the teenagers were clear and objective when responding to expect from the vaccine the best results possible, leaving them free of HPV infection and preventing in the future against cervix cancer.

It is notorious the contribution that the work brings to public health, pointing out the existing gaps in the vaccination campaign against the HPV, detected from the position of the own users of health services, enabling improved of planning of vaccination of the National Program for Immunization guaranteeing the effectiveness of the vaccination program.

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