

Impact of a Pharmacist Conducted Educational Program on Human Papilloma Virus Vaccination Rates in a Low Socioeconomic Population in the City of Lares, PR

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Objective: To observe whether local vaccination rates are improved by a patient and physician education program on the human papillomavirus (HPV) vaccine in Farmacia San José, Lares. According to the Puerto Rico Immunization Registry, the HPV vaccine is currently underutilized.

Methods: Patients within the ages of 18 and 26 years who are current patients of Farmacia San José were contacted by phone and approached in person at the pharmacy. Once contacted, patients were provided with educational materials and counseling regarding the risks and benefits of HPV vaccination. The primary outcome for this study is HPV vaccination rates at 4 months after starting the educational program.

Results: Only 79 of the 200 attempted patients who were candidates to receive the HPV vaccine were able to be reached by phone. Out of 79 patients, 24 reported they had previously been vaccinated against HPV. After all educational efforts, 4 patients (all insured by government) received vaccination against HPV at the pharmacy. In addition, 16 physicians near the pharmacy were contacted and visited by the pharmacist resident. The physicians agreed to receive educational information regarding the ACIP recommendations for their patients.

Conclusion: Although the total number of HPV vaccination administered at the pharmacy during the study period was low, we found an individual patient counseling approach to be much more successful than attempting to coordinate group educational interventions. [*PR Health Sci J* 2017;36:67-70]

Key words: Human Papilloma Virus, Vaccination, Patient education by pharmacist

The Human Papilloma Virus (HPV) is sexually transmitted, produces genital and non-genital warts and is responsible for most cases of cervical cancer. The warts could appear on the genital area, and also on the arms, chest, hands and feet. Approximately, 40 of 150 different types of HPV are transmitted through sexual contact. Some HPV types affecting mucosal areas are considered oncogenic (16 and 18) and other types (6 and 11) have less risk. In accordance with the Advisory Committee on Immunization Practices (ACIP), the United States Centers for Disease Control (CDC) recommends the HPV vaccination series for all children beginning at age 11 (1).

Although this effective prevention method is available, new HPV cases continue to emerge and low health literacy may be a contributing factor. In the United States, the incidence is higher within Hispanics, African Americans, and American Indian/Alaska Native women than among Caucasians. One hypothesis is that people with low health literacy are less educated about the benefits of being vaccinated, including the prevention of cervical cancer (2-4). According to the CDC, approximately 79 million

are currently infected and 14 million persons are newly infected with HPV, each year in the United States (1-3).

Because of their accessibility and clinical training, community pharmacists can favorably impact the burden of HPV on public health by educating about the disease and how to prevent it. Farmacia San José (FSJ) is an independent community pharmacy in Lares, PR that provides immunizations to a low socioeconomic population. According to the Puerto Rico Immunization Registry (PRIR), the HPV vaccine is underutilized. Last year in FSJ only one person received 2 of the 3 required doses of HPV vaccine. According to The Health

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Department of Puerto Rico and studies conducted by *El Centro Comprensivo del Cáncer de Puerto Rico*, 20% of girls and 13% of boys living in Puerto Rico have completed the 3 recommended doses of HPV vaccine (4). Currently, in Puerto Rico, there is little data regarding the incidence of HPV. A study conducted in Puerto Rican women by Méndez et al (5-8) suggests the prevalence of HPV infection was higher in patients with abnormal cervical cytology than among those with normal cervical cytology. According to the Puerto Rico census of 2010 and the United States Census Bureau, Lares has a population of 30,753 inhabitants (9-12). The Statistical Institute of Puerto Rico (9) reported that the majority of the population in Lares has a low socioeconomic status with an unemployment rate at 17.7%, and 76% receive government food stamps (Nutritional Assistance Program). Furthermore, Government Health Insurance in Puerto Rico covers almost 1.5 million Puerto Ricans, equal to 37.5% of island population (9-10) (13-14).

This study will measure the impact of a pharmacist administered educational program on the vaccination rates of HPV at a community pharmacy in Lares, Puerto Rico.

Methods

This prospective, descriptive study was approved by the University of Puerto Rico Institutional Review Board (Protocol B0250315). The PRIR and the pharmacy’s patient profiles were used to identify eligible adult patients for HPV vaccination based upon current ACIP recommendations. The list was divided in four parts by alphabetical order, each containing 50 patients who were candidates to be called as established by the inclusion and exclusion criteria (Table 1). The initial patient list was limited to be active patients in the pharmacy and defined as having a prescription filled during the years 2014-2015. Patients within the ages of 18 and 26 who are current patients of FSJ were contacted by phone, by the pharmacist resident, a minimum of 3 times and/or approached in person to invite them to an HPV related educational session. Then, the list was destroyed following enrollment to maintain confidentiality. Patient educational activities described the risks and benefits of the HPV vaccine and were provided through individual counseling and educational brochures provided at prescription pickup. Additionally, local physicians were visited at their offices and contacted by phone by the pharmacist resident to make them aware of vaccine availability and encourage prescribing in accordance with the ACIP recommendations. As is in current practice, all adult patients who presented to the pharmacy with

Table 1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Ages within 18 and 26 years old.	Patients 17 years old or younger.
Patients currently living in Lares, Puerto Rico	Patients ≥ 27 years old.

a corresponding prescription could be vaccinated against HPV by a certified pharmacist (13). Moreover, all patients aged 18 to 26 years old with government insurance could receive the HPV vaccination following the established protocol provided by the health department (14). Our goal was to contact a convenience sample of at least 50 patients. The primary outcome for this study was HPV vaccination rates at 4 months following the start of the educational program.

Results

We scheduled 2 educational programs. A total of 200 patients were candidates to receive the HPV vaccine and 79 were reached by phone. For the first HPV educational session, 50 patients were reached, but only 5 were interested in the HPV educational program. Unfortunately, none of the 5 patients assisted despite receiving a reminder phone call. The second educational program was scheduled after reaching 50 new patients and 16 demonstrated interest, but none attended. Because of time limitations, 100 new patients were called to get individual counseling and receive written educational materials. 29 patients were reached but only 7 received the educational intervention.

We used the PRIR to confirm the information reported by patients that stated they had previously been vaccinated against HPV or did not know their vaccination status (Table 2). 24 out of 200 patients reported they had previously been vaccinated against HPV (either partially or completely). These 24 patients are insured either by government or private insurance. Additionally, 4 of 9 patients who reported that they did not know about their vaccination status were confirmed to have the HPV vaccine recommended doses.

Table 2. Descriptive analysis of the results

Descriptive analysis	Number of patients
Patients who reported previously being vaccinated against HPV insured by government	20
Patients with private insurance who reported previously being vaccinated against HPV	4
Patients who had partial or complete doses of HPV vaccine and confirmed with PRIR	33
Patients vaccinated at FSJ after intervention	4

Four patients received the HPV vaccine during the study period and were insured by government. The first of these patients was one of the original study participants who received the educational outreach from the pharmacist and then chose to get vaccinated. Two other patients were not part of the initial outreach, but heard of the vaccination program at the pharmacy and chose to receive the vaccination. Lastly, one of the original study participants had already received the first 2 doses of the

vaccination series (confirmed by the PRIR), but chose to receive the final dose in the series after participating in the educational program. As part of this study, 16 physicians agreed to receive educational ACIP-based information for themselves and their patients who visit their offices.

Discussion

We found that using the pharmacy system to identify the patients who were candidates to receive the HPV vaccine was efficient. After 200 participants attempted, 79 were reached with 3 calls or less. Unfortunately, most patients who were invited to the educational sessions had other commitments related to work, school, and transportation issues. Instead, a total of 7 patients were approached individually and received an educational intervention.

A study conducted by E.S Leftkowitz et al (15) found that higher levels of maternal education were significantly associated with likelihood of vaccination. Interestingly, when the pharmacy resident contacted patients, they asked to their mothers if they completed their vaccine cycle. One of the patients stated he did not believe in HPV vaccination because of how he was raised by his parents. Javanbakht et al (16) found that one of the largest barriers to vaccination is the parental beliefs regarding healthcare and vaccines.

Following all the educational efforts, 4 patients (all insured by government) received the vaccination. These patients were reached through individual interventions. For patients privately insured, the HPV vaccination series can only be administered by a pharmacist if the patient brings a corresponding prescription. This relates to our finding that patients insured by the government may have better access to the HPV vaccine because a collaborative agreements exist. In addition, a limitation of our study is that Puerto Rico's Pharmacy Law only allows pharmacists to vaccinate patients 18 years and older even though the ACIP recommendation for HPV vaccine includes patients from 9 to 26 years old. To overcome this barrier, an amendment to the Puerto Rico Pharmacy Law permitting pharmacists to vaccinate patients younger than 18 years old or a similar protocol specific to the HPV vaccine that covers all patients in Puerto Rico is needed.

Other limitations encountered were that the success of this program was contingent upon the cooperation of local physicians providing a prescription for those patients who did have private insurance and were interested to receive the vaccine. Additionally, several patients contacted did not have their profiles updated with their current phone number in the pharmacy system and were unable to be reached.

In conclusion, although 7 patients actually received the educational interventions during the study period, 4 patients were vaccinated against HPV. All 4 of these patients were insured by the government in contrast to the privately insured, who required a prescription. Based on the relative success of individual educational interventions to scheduled group

educational interventions, it may be prudent to design future pharmacy-based vaccination outreach programs around individual patient counseling.

Resumen

Ojetivo: Observar si el índice de vacunación local aumenta utilizando un programa de educación diseñado para pacientes y médicos con respecto al tema de vacunación contra el papiloma humano (VPH) en Farmacia San José, Lares. De acuerdo al Registro de Inmunización de Puerto Rico, la vacuna contra el papiloma humano se utiliza poco. **Métodos:** Pacientes actuales de Farmacia San José entre las edades de 18 a 26 años, fueron contactados por teléfono y en persona en la farmacia. A estos pacientes se les proveyó material se les educó acerca de los riesgos y beneficios de recibir la vacuna contra el VPH. El resultado primario de este estudio es el índice de vacunación a los 4 meses después de haber comenzado el programa educativo. **Resultados:** Solamente 79 de 200 pacientes a ser contactados fueron conseguidos por teléfono. De los 79 pacientes, 24 reportaron que anteriormente se habían vacunado contra el VPH. Después de todos los esfuerzos educativos, 4 pacientes (todos asegurados por el gobierno) recibieron la vacuna de VPH en la farmacia. Además, 16 médicos locales fueron contactados y visitados por la farmacéutica residente. Los médicos estuvieron de acuerdo en recibir el material, el cual incluía las recomendaciones de la ACIP, para así ser repartido a los pacientes. **Conclusión:** Aunque el número de pacientes que recibieron la vacuna contra el VPH en la farmacia fue bajo, encontramos que la consejería individualizada a los pacientes fue más exitosa que coordinar intervenciones educativas en grupo.

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