“Acepta el Reto, ¡Vacúnate!” Project

Implementation Evaluation
Final Report

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Executive Summary

The implementation evaluation was addressed to assess whether or not the promotion and educational intervention proposed were put into action, to examine the extent to which implementation has taken place, and if it operated as expected. The intervention in the healthcare facilities, as designed included the dissemination of educational material among patient adults 65+, in order to increase Influenza and Pneumococcal vaccination. The implementation evaluation included visits to hospitals included in the sample and key informants phone calls to assess whether or not the promotional materials have been implemented and distributed, possible barriers to do so, and recommendations for intervention improvement. As part of the first phase of the implementation evaluation, evaluators visited fourteen (14) hospitals included in the selected sample to observe if the educational materials were published and disseminated. When visiting the hospital facilities, the evaluators observed at the main lobby of each institution, the waiting area of the emergency room, main hallways, bulletin boards, immunization department or centers (when it applicable) and waiting room of outpatient clinics, to identify educational materials provided by VOCES to hospitals. As table 1 shows, the evaluator observed materials in two out of fourteen of the hospitals visited. Materials were observed in two hospitals (Fajardo and Arecibo). During the Fajardo Hospital visit, printed materials about vaccination were observed at a table in front of an information desk area for patients, however, there was no sign of any of the posters. The second phase of the implementation evaluation was to carry out key informant's phone calls. These were performed to assess whether or not the promotional materials have been implemented and distributed, possible barriers to do so, and recommendations for intervention improvement. Interview phone call to hospitals was intended to be completed by the identified key personnel, most of them from the institutional programs and quality division. The fourteen hospitals were contacted, but after several attempts, thirteen interviews were completed. Results in figure 1 show that 76.9% (n=10) of the hospitals' key informant knew about the intervention proposed by VOCES. Nevertheless, only 23.1% (n=3) reported to be implementing the intervention. Since part of the efforts of this Project was to ensure hospital participation in gathering data related to vaccination and immunization, VOCES developed a collaboration agreement to be signed by the hospital administration and VOCES. Nevertheless, most of the key informants reported that the collaboration agreements have not been signed (81.8%, n= 9) or had no knowledge about it (18.2%, n=2). Finally, as part of the interview performed to the hospitals' key informants, information about hospital infrastructure related with immunization was gathered. As shown in figure 5, 73% (n=8) of the hospitals do not have immunization clinics as part of the facilities. Regarding an immunization protocol, 63.6% (n=7) of the hospitals reported to have an immunization protocol that includes Influenza and Pneumococcus vaccination (See figure 6). Additional, in order to identify which of the hospitals completes vaccine electronic registration, hospital key informants were asked about the Electronic Health Record (EHR) implementation status. Results show in figure 7 that only 9.1% (n=1) of the hospitals have already implemented the EHR. The remaining hospitals only have the EHR in the emergency department (45%, n=5). Most of the hospitals are planning to implement the EHR in the next 13-24 month (66.7%, n=4).

Introduction

This section summarizes the results of the evaluation addressing Aim **#2** of the project "*Acepta el Reto, ¡Vacúnate*!

> **Aim 2.** Develop capacity among health care providers and non-physician clinicians to implement and sustain culturally competent vaccination outreach and education interventions.

It is our perspective, however, that the implementation and evaluation of Aim 2 cannot be understood without making reference to the implementation and results of Aim 1 (Assess and Strengthen the Existing Standing Order System) since both aims are closely related and were mostly focused on the hospital sector in Puerto Rico. Therefore, it is important to briefly summarize the implementation and results of what occurred with Aim 1.

In order to implement Aim 1 one of the first steps taken by the staff of VOCES was to meet with the Puerto Rico Hospital Association to develop a partnership and strategy to assess and strengthen Pneumococcal and Influenza standing order system in hospitals. Then in collaboration with their scientific and evaluation team (CIES), VOCES approached all hospitals registered under the Hospital Association (62) in a first attempt between July and October 2014. Following a mix methodology (qualitative and quantitative) to assess the current situation of Pneumococcal and Influenza vaccination practices at hospitals settings in Puerto Rico the CIES first administered quantitative questionnaire and them qualitative interviews. A total of 27 hospitals completed Pneumococcal and Influenza vaccination practices assessment (n = 34; 64.2%), showed interest in completing the questionnaire (n=27; 50.9%) completed either an online or phone version.

The results of the questionnaire indicated that 85% of participating hospitals have a Pneumococcal and Influenza vaccination protocol, 43% of those for older adults 65+ and 86% for employees. A total of 87% of participating hospitals offer vaccination directly and 13% refer to other settings for this service. Astonishing, only 15% reported implementing standing orders. To grasp barriers and facilitators of vaccinations practices and to have a better idea of what are current practices at participating hospitals the CIES completed 19 (79%) a semi-structured, in-depth, face-to-face interviews. Each interview lasted approximately one hour. Also, the results indicate that there are many barriers around vaccination: little knowledge about how vaccine works, misunderstandings about vaccination, especially Influenza vaccines, low confidence influenza vaccination, poor encouragement from doctors

to promote vaccination, limited simple end friendly educational materials, lack of a health policy mandating vaccination at hospitals settings, compatibility problems with the local vaccination registry and hospitals programs, religious beliefs, and medical insurance billing/payment delays (See In-Depth Interviews of Pneumococcal and Influenza vaccination practices Short Report).

Implementation of Aim 2

As was reported in previous interim reports as part of the implementation for Aim 2 VOCES did organize the following activities with the purpose of intervene with healthcare providers and non-physician clinicians outside the hospital setting:

- Provided quality educational conference and materials to physicians, nurses and other healthcare providers at the 3rd Immunization Congress (IMCO) (May 2015).
- Provided interactive quality educational conference to several professional groups. For example: the membership of the Puerto Rico Epidemiologists Association, Elders Centers Directors from OPPEA (Office of the Advocate for Seniors), Medicine Faculty and Students at UCC (Central Caribbean University), and Pharmacy Assistant Students at Ponce Paramedical College.
- Participated on professional meeting through educational table and educational materials dissemination: Academy of Family Physicians 2015 Convention (April 2015).
- Provided quality educational conference and materials to physicians, nurses and other healthcare providers at the 2nd Updated Immunization Summit Influenza and Pneumococcal Disease Season 2015-2016 (September 2015).
- Provide interactive special educational session regarding Influenza and Pneumonia health and long-term care and consequence to Social Workers, Nurses, and Administrators of Elders facilities.
- Participated with an informative table in the 2015 Annual Convention of the Puerto Rico Hospital Association (AHPR) (October 2015).

- Developed a Press Conference - Junte a to Pulmón- in conjunction with the Lung Association of Puerto Rico, Diabetes Association, Association of Pulmonologists PR, Health Insurance Companies, The Office of the Ombudsman for the Elderly.

However, the most important component of Aim 2 was the intervention in the hospital facilities designed for the dissemination of educational material for care providers and non-physician clinicians, in order to increase Influenza and Pneumococcal vaccination among patient adults 65+. The process of recruiting hospitals turned out to be from the beginning one of the most challenging parts of this intervention even with the support of the Puerto Rico Hospital Association. As part of the initial efforts to recruit hospitals VOCES and the CIES engaged in the following activities and outreach:

- participated in the 3rd Immunization Congress (IMC) as a strategy to recruit hospitals. This meeting allows VOCES to identify a small network of hospitals that were approach to become part of the test groups.
- VOCES formalized collaborations with QIPRO to exchange resources between both partners, in order to have more access to a broader list of hospitals (See Memoranda of Understanding).

Despite an intense effort by VOCES and his scientific partner, the CIES, the results were very disappointing and very few hospitals responded positively to the recruitment process. In light of this situation, VOCES contracted the services of Dr. Gilberto Gonzalez which is a health services administrator with a long experience working in the hospital industry in Puerto Rico. Dr. Gonzalez was brought to the project to try a new approach in recruiting hospitals but also to help and assist in the development and adaptation of the educational materials for the intervention in the hospitals.

The first step consisted in the review of vaccine materials already developed by VOCES. A vaccine literature review was performed to find information which could help to adapt the materials to hospital personnel and patients over 65 years. Those materials include the development of a vaccine protocol with a patient or family consent agreement, and the pharmacy vaccine lot registration. Additional to the protocol, VOCES develop a vaccination health facts form in English and Spanish language for each one of the pneumococcal and influenza vaccine health facts. Also, materials such as vaccine sheet explanations, fliers, and posters, clarifying the benefits of the vaccine, wrongful thoughts about vaccine

health facts, and healthcare plans coverage information were developed and prepared for the patient in the hospital waiting areas.

With the advice of Dr. Gonzalez, VOCES determined to intervene 2 hospitals for each Puerto Rico Healthcare Regions as case hospitals. A total of 12 hospitals, 2 hospitals for 6 healthcare regions plus 2 additional government hospitals to complete a total of 14 as case hospitals. Using the experience of Dr. Gonzalez, VOCES develop a new strategy to have a bigger hospital participation. As para of this strategy Dr. Gonzalez together with the staff of VOCES visited the hospitals identified to receive the intervention and met with the senior and executive management of the hospital to present the 65+ vaccine initiative as a hospital quality performance improvement project, which is an intervention required to comply with the Medicare vaccine compliance, and also, it will be used as a quality performance project to be presented to JACHO and the local Healthcare Department. If the management agree, the educational vaccine kit reviewed materials were brought to the hospital liaison personnel, for the hospital employees and for the patients over 65 + and their families. These materials have to be place on the emergency room waiting areas and admissions areas. The last step was to contact the personal hospital liaison of another 14 hospitals, including to government hospitals, which have been already contacted to participate in the project. These 14 hospitals did not receive any VOCES educational vaccine material. The purpose was to create a case control study.

Implementation Evaluation for Aim 2

The implementation evaluation was addressed to assess whether or not the promotion and educational intervention proposed were put into action, to examine the extent to which implementation has taken place, and if it operated as expected. The intervention in the healthcare facilities, as designed included the dissemination of educational material among patient adults 65+, in order to increase Influenza and Pneumococcal vaccination.

The implementation evaluation included visits to hospitals included in the sample and key informants phone calls to assess whether or not the promotional materials have been implemented and distributed, possible barriers to do so, and recommendations for intervention improvement. An

implementation monitoring tool was developed to assess whether the strategies/activities were implemented, were in progress or were not implemented and a semi-structured interview schedule was also developed to guide the phone calls.

Background

Previous results from this initiative identified several issues that limits the immunization program effectiveness in hospitals settings. In Puerto Rico there is not a local or Federal law that requires hospitals to implant a standing order for vaccine immunization. There is no obligation for the hospitals to put in place vaccine standing orders. However, when an outpatient client over 65 years of age arrives to an emergency room or he/she is admitted to the hospital looking for healthcare services, the CMS (Medicare) requires to receive information about vaccine and the pneumococcal and influenza vaccine with their consent. The information provided or recommended by the "CDC" for the vaccine has to be offered to the patient or his representative, orally and written.

Results

On-site Visits

As part of the first phase of the implementation evaluation, evaluators visited fourteen (14) hospitals included in the selected sample to observe if the educational materials were posted and disseminated. When visiting the hospital facilities, the evaluators observed at the main lobby of each institution, the waiting area of the emergency room, main hallways, bulletin boards, immunization department or centers (when it applicable) and waiting room of outpatient clinics, to identify educational materials provided by VOCES to hospitals. As table 1 shows, the evaluator observed materials in two out of fourteen of the hospitals visited. Materials were observed in the Caribbean Medical Center in Fajardo and the Dr. Susoni Metropolitan Hospital in Arecibo. During the Fajardo Hospital visit, printed materials about vaccination were observed at a table in front of an information desk area for patients, however, there was no sign of any of the posters. Nevertheless, in Dr. Susoni Hospital two educational posters were observed in the main lobby and near to an elevator, reachable to general public.

Table 1 : Hospitals on-site Visits

Hospitals	Date	Visited areas	Do materials were observed?
1. Buen Samaritano, Arecibo	4/18/2016	▪ Lobby ▪ Admissions waiting room ▪ Emergency waiting room ▪ Halls	No
2. Perea, Mayaguez	4/18/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls ▪ X-Ray department waiting room	No
3. Metropolitano Dr. Susoni, Arecibo	3/13/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls	**Yes,** (in lobby and 1 hallway only)
4. Cayetano Col &Toste (Pavia), Arecibo	4/18/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls ▪ X-Ray department waiting room ▪ Immunization center	No
5. Menonita, Caguas	4/20/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Hallways	No
6. HIMA Caguas	4/20/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls ▪ *Health education bulletin board*	No
7. Damas de Ponce	4/18/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Clinic laboratory waiting room ▪ Halls	No
8. Metropolitano Dr. Pila, Ponce	4/182016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls	No

Hospitals	Date	Visited areas	Do materials were observed?
		▪ Immunization center	
9. Pavia, Hato Rey	4/12/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls	No
10. Pavia,Santurce	4/12/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls	No
11. HIMA Fajardo	4/15/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls ▪ *Health education bulletin board*	No
12. Caribbean Medical Center	4/15/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls ▪ Outpatient surgery waiting room	**Yes** (over a table in the second hospital floor)
13. Municipal San Juan	4/21/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls	No
14. Centro Cardiovascular de Puerto Rico y del Caribe, San Juan	4/21/2016	▪ Lobby ▪ Admissions waiting area ▪ Emergency waiting room ▪ Halls	No

Phone Calls Interview

The second phase of the implementation evaluation was to carry out key informant's phone calls. These were performed to assess whether or not the promotional materials have been implemented and distributed, possible barriers to do so, and recommendations for intervention improvement. Interview

phone call to hospitals' key informant was intended to be completed by the identified key personnel, most of them from the institutional programs and quality division. The fourteen hospitals' key informants were contacted, but after several attempts, thirteen interviews were completed.

Results

Results in figure 1 show that 76.9% (n=10) of the hospital's key informants knew about the intervention proposed by VOCES. Nevertheless, only 23.1% (n=3) reported to be implementing the intervention (see figure 2). There was a hospital key informant that reported to be implementing the intervention; this information was not validated during the on-site visit. Hospitals' key informants that reported not implementing the intervention, identified as barriers to implementation the following issues: they are still evaluating the project (25.0%), currently working other vaccination and immunization projects (25.0%), handling organizational issues (25.0%), have not received materials, or they lack the time to implement the intervention (12.5%) (See figure 3). Since part of the efforts of this Project was to ensure hospital participation in gathering data related to vaccination and immunization, VOCES developed a collaboration agreement to be signed by the hospital administration and VOCES. Nevertheless, most key informants reported that the collaboration agreements have not been signed (81.8%, n= 9) or had no knowledge about it (18.2%, n=2).

Figure 1: Percent Distribution of Hospitals' Key Informants that Answered Has Knowledge about VOCES Intervention

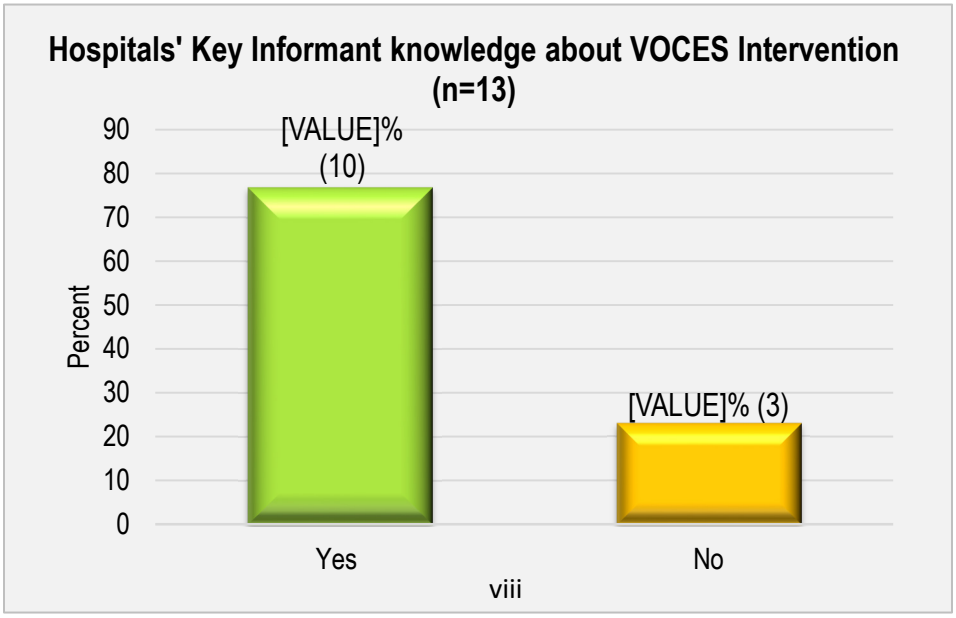


Figure 2: Percent Distribution of Hospitals that Implemented VOCES Intervention.

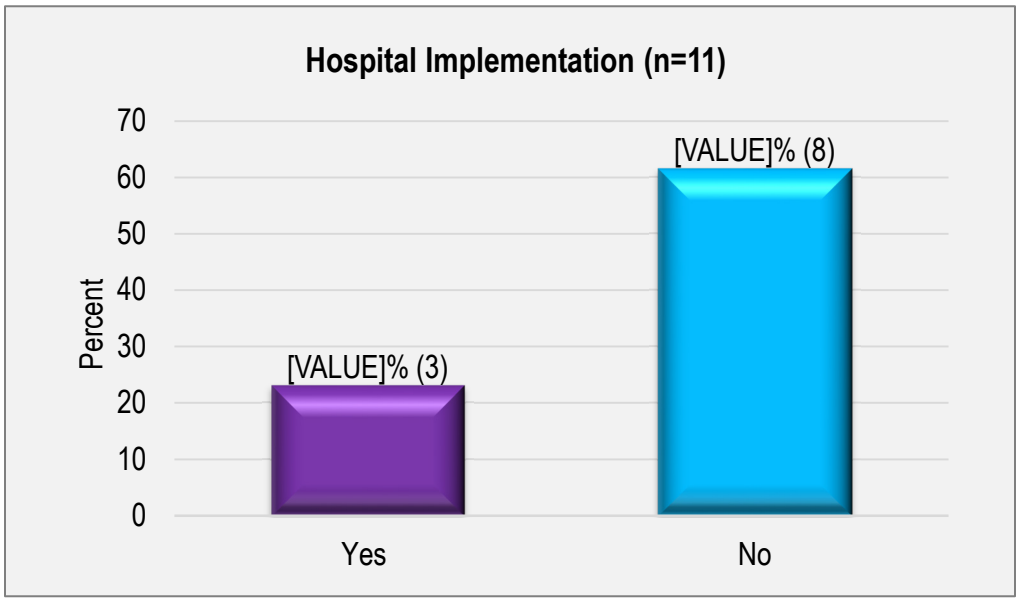


Figure 3: Percent Distribution of Identified Barriers among Hospitals that Did Not Implemented Strategies.

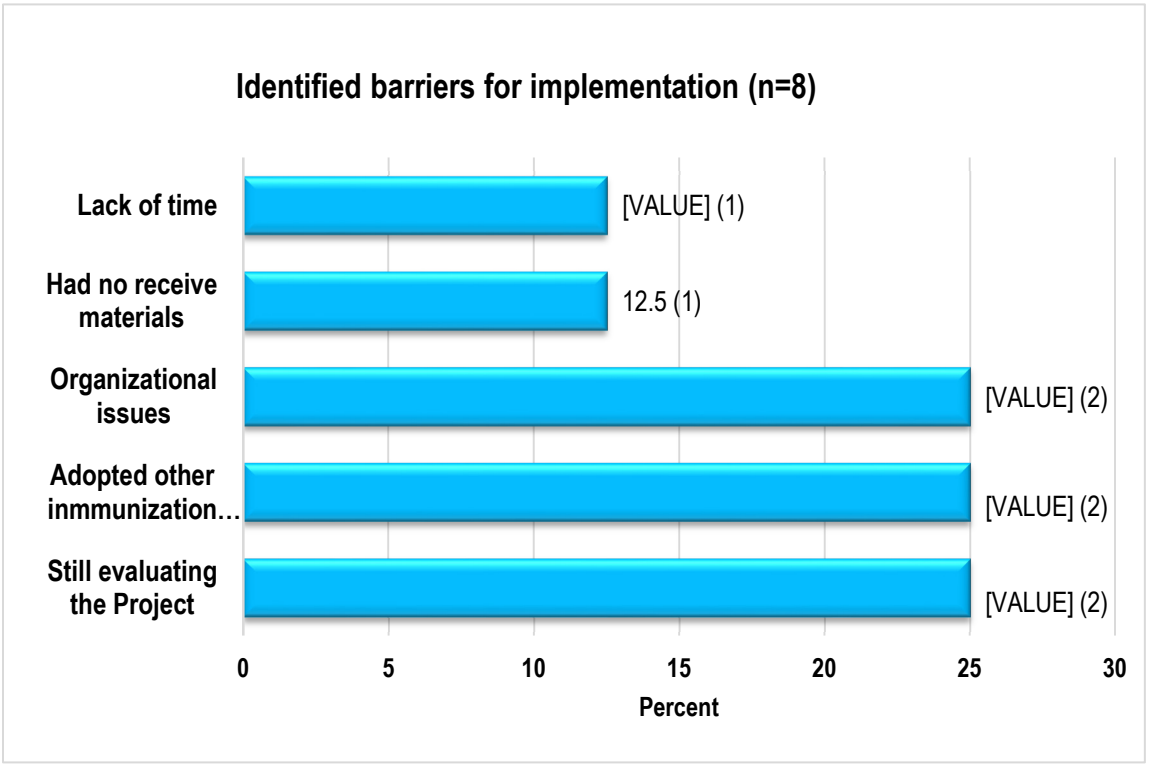
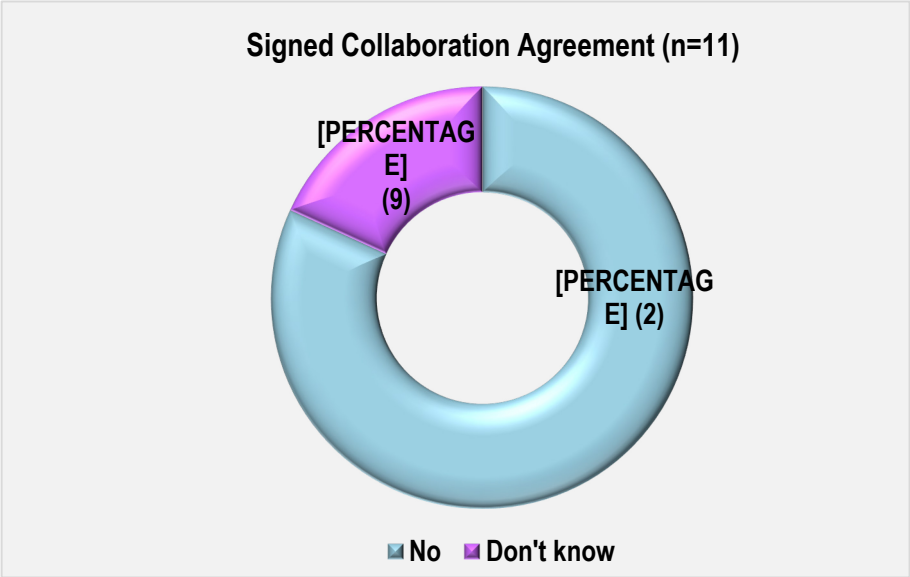


Figure 4: Percent of Hospitals with a Collaboration Agreement



Hospital Infrastructure – Immunizations Resources

As part of the interview performed to the hospitals' key informants, information about hospital infrastructure related with immunization was gathered. As shown in figure 5, 73% (n=8) of the hospital do not have immunization clinics as part of the facilities. Regarding an immunization protocol, 63.6% (n=7) of the hospitals' key informants reported to have an immunization protocol that includes Influenza and Pneumococcus vaccination (See figure 6). Additionally, in order to identify which of the hospitals completes vaccine electronic registration, hospitals' key informants were asked about the Electronic Health Record (EHR) implementation status. Results show in figure 7 that only 9.1% (n=1) of the hospitals have already implemented the EHR. The remaining hospitals only have the EHR in the emergency department (45%, n=5). Most of the hospitals are planning to implement the EHR in the next 13-24 month (66.7%, n=4).

Figure 5: Percent Distribution of Hospitals with Immunization Clinics (Facilities)

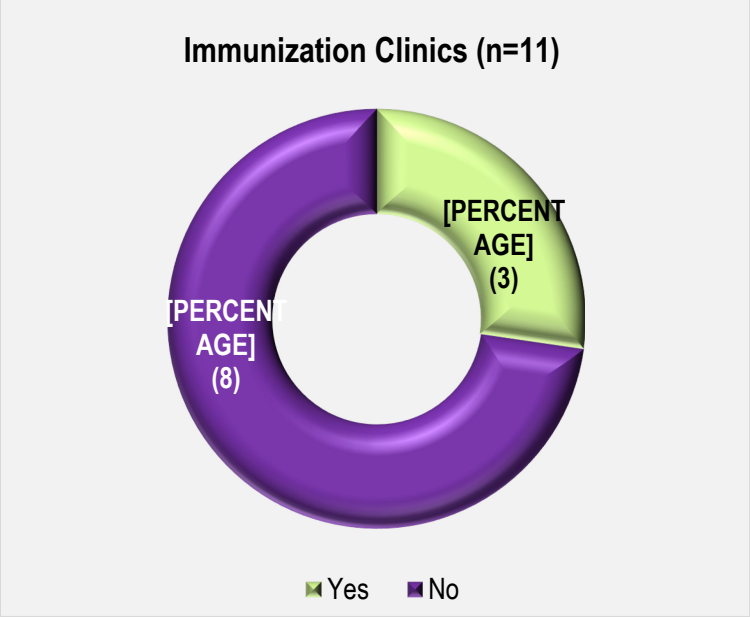


Figure 6: Percent Distribution of Hospitals with an Immunization Protocol

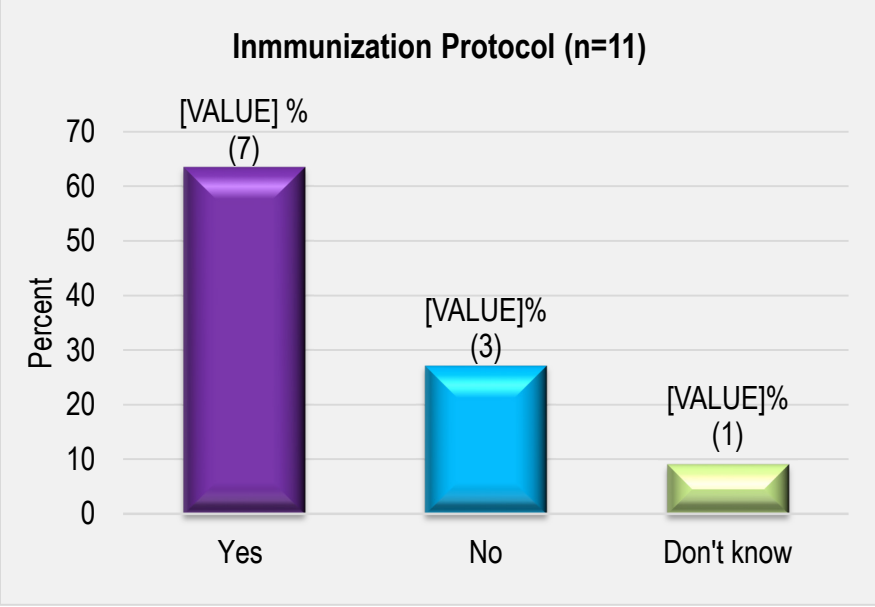


Table 2: Immunization Clinics and/or Immunization Protocol in Participating Hospitals

Hospitals	Does the hospital have… Immunization Clinics	Immunization Protocol
1. **Buen Samaritano, Aguadilla**	No answer	No answer
2. **Perea, Mayagüez**	No	No
3. **Metropolitano Dr. Susoni, Arecibo**	No	No
4. **Cayetano Col & Toste (Pavia), Arecibo**	Yes	Yes
5. **Menonita, Caguas**	No	Yes
6. **HIMA San Pablo, Caguas**	No	Yes
7. **Damas, Ponce**	No	Yes
8. **Metropolitano Dr. Pila**	Yes	Yes
9. **Pavia Hato Rey**	No	Yes
10. **Pavia Santurce**	No	Don't know
11. **HIMA San Pablo, Fajardo**	Yes	Yes
12. **Caribbean Medical Center, Fajardo**	No	No
13. **Municipal San Juan**	No answer	No answer
14. **Centro Cardiovascular de Puerto Rico y del Caribe, San Juan**	No answer	No answer

Figure 7: Percent Distribution of Hospitals using an Electronic Health Record (EHR)

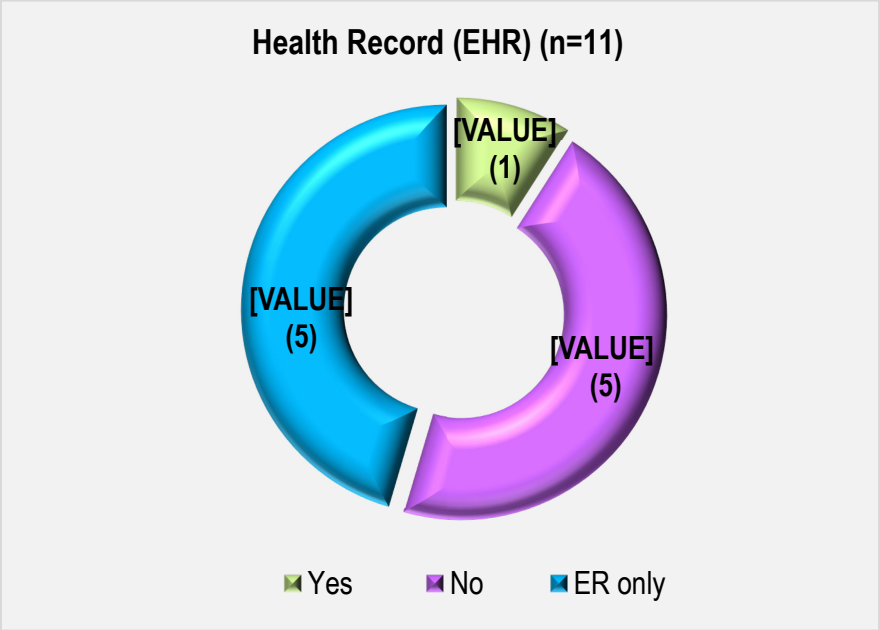
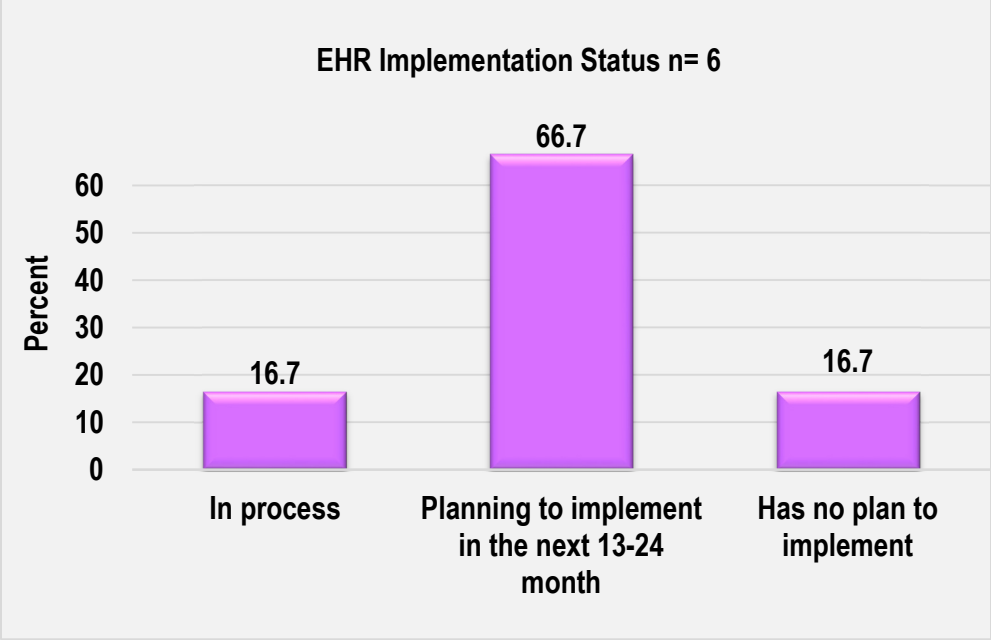


Figure 8: Percent Distribution of Hospital EHR Implementation



Recommendations

As results of this implementation evaluation process the following recommendation were developed:

1. The planning of interventions in hospital settings should consider, as an initial step, identifying the decision making process on each hospital to target the appropriate stakeholders to be addressed to lead the initiative and authorize the implementation. Our experience shows that although administrators and Directors of Institutional Programs were contacted and willing to implement the intervention, there were Board of Directors who decided not to implement it.
2. As part of the effort of participation and collaboration between hospitals and VOCES is it necessary to ensure that the collaboration agreement is completed and signed by all parties. The presence of this collaboration agreement is the main tool that would allow that the intervention is implemented as designed first and grants access to data on vaccination in hospital entities. Without a collaboration agreement, the hospital has no obligation to implement the intervention and, furthermore, to share information, which was essential to evidence intervention outcomes.
3. It is necessary to document the delivery of materials in different hospitals using a paper and/or electronic receipt of materials. This way you will have physical evidence that the materials were delivered and, in the case of not implementing the intervention, you may recover them.
4. Consider including the hospital pharmacy staff in the intervention since Law No. 7, amend articles of the law No. 247 of 2004: Pharmacy Law of Puerto Rico, establishing a new regulation which permits that the pharmacist could provide and administer the vaccines, in addition to the role of the physicians and nurses as administrator of the vaccines. The Law 101, and its rulings requires that all hospitals in Puerto Rico must have a pharmacy department for the inpatient population. Some of the hospitals also have outpatient pharmacies. Its means that the Law No. 7 covers the hospitals facilities.

Conclusions

This report presents the Aim #2 implementation evaluation results. The implementation evaluation was addressed to assess whether or not the promotion and educational intervention proposed were put into action, to examine the extent to which implementation has taken place, and if it operated as expected. The intervention in the healthcare facilities as designed included the dissemination of educational material among patient adults 65+, in order to increase Influenza and Pneumococcal vaccination. The implementation evaluation included visits to hospitals included in the sample and key informants phone calls. Results show that some materials were observed in two of the fourteen hospitals. Three-fourths of the hospitals' key informant knew about the intervention proposed by VOCES, and only 23.1% reported to be implementing the intervention. Some of the barriers identified by the evaluation process were lack of collaboration agreements established, handling organizational issues, lack the time to implement the intervention, currently working other vaccination immunization projects, and participating in the Hospital Engagement Network (HEN).

The Puerto Rico Hospital Association received funding to establish a *Hospital Engagement Network Contract to Improve Patient Care.* The Health Research & Educational Trust (HRET), an affiliate of the American Hospital Association (AHA), has been awarded a contract by the Centers for Medicare and Medicaid Services to support their Partnership for Patients (PfP) campaign. The project should help hospitals adopt new practices that have the potential to reduce inpatient harm by 40 percent and readmissions by 20 percent over the contract. HRET contracted nearly 1,600 hospitals recruited by its 34 state hospital association partners in support of their quality improvement efforts in 10 targeted areas: *Adverse drug events (ADE), Catheter-associated urinary tract infections (CAUTI), Central line-associated blood stream infections (CLABSI), Injuries from falls and immobility, Obstetrical adverse events, Pressure ulcers ,Surgical site infections, Venous thromboembolism (VTE), Ventilator-associated pneumonia (VAP) and Preventable readmissions.* HENs will work to develop learning collaborative for hospitals and provide a wide array of initiatives and activities to improve patient safety. Intensive training programs will be conducted to teach and support hospitals in making patient care safer, provide technical assistance so that hospitals can achieve quality measurement goals, and establish and implement a system to track and monitor hospital progress in meeting quality improvement goals. HEN was considered a priority in hospitals contacted.

This "*Voces*" initiative was presented to hospitals administrators as a quality improvement intervention to encourage participation since it could have been advantageous for the hospital. However, competing responsibilities and priorities did not foster this project implementation.

In Puerto Rico there is not a local or Federal law that requires hospitals to implant a standing order for vaccine immunization. However, due to the high incidence of chronic diseases and the substantial increase in the cost of health services, is imperative to direct efforts at prevention. Improving and increasing access to preventive health services, such as vaccines, can help to reduce

the morbidity and mortality associated with a considerable number of diseases, while lowering costs associated with the health system. It must be priority for the public health of Puerto Rico, providing vaccines to all those who should receive them. In a hospital setting, it must be considered including the hospital pharmacy staff in a vaccine intervention.

APPENDIX

Table 3**: Hospitals data**

Hospitals	Beds	Pneumonia		Percent of Patients Assessed and Given…	
		30-Day Mortality Rates	30 Day Readmission Rates	Pneumococcal Vaccination	Influenza Vaccination
1. Buen Samaritano, Aguadilla	230	15.7%	-	18.0%	-
2. Perea, Mayagüez	123	14.0%	18.0%	5.0%	11.0%
3. Metropolitano Dr. Susoni, Arecibo	138	13.2%	-	9.0%	27.0%
4. Cayetano Col & Toste (Pavia), Arecibo	230	16.4%	18.9%	57.0%	67.0%
5. Menonita, Caguas	152	11.3 %	-	-	-
6. HIMA San Pablo, Caguas	338	12.3%	17.4%	62.0%	74.0%
7. Damas, Ponce	306	11.7%	17.5%	76.0%	-
8. Metropolitano Dr. Pila	183	-	-	32.0%	25.0%
9. Pavia Hato Rey	224	14.0%	18.2%	28.0%	-
10. Pavia Santurce	197	17.1%	19.7%	30.0%	22.0%
11. HIMA San Pablo, Fajardo	180	-	-	-	-
12. Caribbean Medical Center, Fajardo	42	-	-	-	-
13. Municipal San Juan	155	-	-	-	-
14. Centro Cardiovascular de Puerto Rico y del Caribe, San Juan	192	-	-	-	-

- No data available; *Data source: Hospital-data.com

ELDERLY FACILITIES FINAL REPORT

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EXECUTIVE SUMMARY

This report summarizes the results of the outcomes evaluation addressing Aim #3 of the project "*Acepta el Reto, ¡Vacúnate!*". To provide vaccinations in healthcare setting to increase access. Specifically, it presents the results of the pre-post-tests distributed in eldercare facilities since the last week of July 2015 to March 2016 as part of the outcomes evaluation. The information presented includes results from 15 eldercare facilities, usually called "*Égidas"* in Spanish. To measure the impact of the educational intervention developed for this project, three self-administered questionnaires were developed to assess changes in knowledge, attitudes and behaviors related to vaccination: one for Session 1, one for the Session 2, and one for the Last phase of the project. These questionnaires were distributed just before starting the educational intervention, which what it is referred as pre-test, and right at the end of the activity, post-test. Data collected by these questionnaires were entered in computer files and analyzed using the Statistical Package for Social Sciences (SPSS). Statistical analyses include frequency and percent distribution, and measures of central tendency such as mean, median, mode and standard deviation. Results reported in this document include 321 participants: 102 participants of Session 1, 95 Session 2 participants, and 124 participants of the Last Phase of the project. Results show that most are female (70.0%) with a mean age of 75.5 years old. The great majority of Session 1 reported currently living alone (88.2%) in the eldercare facilities (83.3%). The health insurance plan reported by the largest proportion is MMM (n=19, 23.2%) followed by the government health plan "Mi Salud" (n= 17, 20.7%). From the total sample 46.0% reported bieng vaccinated in the past year, however, 14 participants reported receiving more than two vaccines, estimating the vaccination rate to 28.0%. When asked which vaccines they received, the most common vaccine reported by participants was Influenza (n= 37, 45.1%). The most frequent reason for not being vaccinated in the past year was not knowing about vaccines (13.85%), followed with concern about its side effects (7.5%). Some reported their preferences in settings to get immunized. The Doctor's Office (20.5%) and the Pharmacy (20.5%) were the preferred settings with equal proportion, among those that get vaccinated. Other settings mentioned include the vaccination centers (16.95%) and the Facility where they live (10.0%). Most of the questions measuring knowledge show improvement when the number of participants answering correctly in both of the pre-test and the post-tests were compared. Specifically, the improvement was related to know what are the vaccines recommended for adults 65 and older, and that Pneumococcus is the leading cause of pneumonia in adults aged 65 years or older, among other items. The Eldercare facilities showing the greatest improvement in scores were "Jardines of Country Club" from Session 1, "Ernesto Carrasquillo"from Session 2, and "Nuestra Sra. De Lourdes" from the Last Phase. Results related to attitudes about vaccination show some improvement after the intervention. In particular, in terms of how individuals follow the advice of their physicians related to vaccines, how expensive vaccines are, and how trusty vaccines are. However, in terms of the level of awareness of their immunization rights and which vaccines are covered by their health plans there was a score reduction after the intervention. Also, the Pre-Post-test results show contradictory and small changes in terms of asking their physicians about vaccinations or getting vaccinated next year. Finally, a consumer satisfaction questionnaire was distributed in some of the facilities to assess the usefulness of the intervention for making decisions on vaccinations. Seven eldercare facilities participated in the satisfaction survey. The majority reported that were satisfied with all program components assessed, the only item that received one response of strongly disagree (not satisfaction) was "The material distributed was easy to read and understand."

Introduction

Aim3. Provide vaccinations in healthcare setting to increase access.

To address Aim #3, *Voces* originally proposed:

- expanding access in healthcare setting (elders facilities) providing vaccination services through public and private provides on site
- working with staff and families to increase knowledge about vaccination benefits
- developing educational intervention for patients, medical and administrative staff

The proposed methods involve:

- identifying 30 facilities with at least 25 patients
- evaluating participants' previous knowledge
- providing education and assessing knowledge acquired after the education
- providing on-site vaccination clinics on 15 experimental facilities
- comparing experimental (with vaccination clinics on-site) and control (no vaccination clinics on-site) facilities to determine effectiveness of the educational intervention and vaccination services arrangements.

The first years of the project were dedicated to develop and pilot-test an evidence-driven as well as culturally and linguistically sensible intervention aiming to increase adult immunization knowledge and awareness to adults 65+ at independent living facilities in Puerto Rico. Mixed methods and data triangulation were the two approaches used to develop, implement and test an educational intervention to increase rates and access on adults' vaccination in Puerto Rico. The intervention was organized in a Facilitation Manual. It was divided in three steps: 1) one-hour administrative visit to engage personnel (staff members) into the coordination of vaccine clinic at facilities, and 2) two, 1.5-hours sessions.

The Implementation testing designed aimed to recruit and retain 30 centers with 25 patients in each in order to: a) give a presentation of the program to its administration staff, b) administer a questionnaire on knowledge, c) attitude and practices on vaccination to the participants, d) implement the intervention, e) assess impact (at the end of the intervention and 3 months after), and f) have a vaccination visit in 15 experimental sites.

During the project development and planning it was decided that independent living facilities were the most suitable settings in order to provide education to functional elders since they are more likely to make their own health decisions, than those in nursing homes. For that reason, we visited retirement homes, known in Spanish as "*égidas*", and elder centers, "*centros de envejecientes*". Both types of establishments are very different on their services offering. On *égidas,* residents live independently with some assistance of a social worker for special needs. Participants go to the *centros* Monday to Friday from 8 am to 12 m to receive: nutrition twice a day, some clinical care from a nurse, social work assistance, adapted recreation and transportation from/to their homes. Usually the *centros* have much more enrollment than *égidas* and the participants are a captive audience.

A total of 12 elderly independent living facilities were recruited during the pilot-testing phase to test intervention content, materials and processes. A total of 370 participants of 65+ attended at least one of the two sessions of the intervention (see Pilot Implementation of Intervention Short Report from January-April 2015). The preliminary impact evaluation of the intervention was done in 5 elderly facilities (1 control facility; n=21, and 4 experimental; n=88) with a total number of 109 participants. Results from this process show that while 86% of the sample planned to vaccinate before the intervention, in the post-test, a raised percent of 88.5% was reported. Most people showed a positive attitude towards vaccination, stating that good, important, and necessary, effective in prevention and safe, while very few showed a negative attitude, stating that they had hesitation or didn't believe in vaccination, had had a bad experience or that their physician didn't recommended them.

Additional results of the implementation and preliminary impact evaluations suggest difficulties in the coordination and attitudes of personnel in charge of coordinating the events and promoting vaccination clinics. Thus, to address these issues we host an educative event for social workers, Administrators, and nurses from elders' facilities to increase awareness on the bio-social implications of influenza and Pneumococcal disease on older adults. The event was performed on September 2015.

Some changes on the public sector regulation oppose our intent to provide vaccination services on site. Despite this barrier, we were able to partner with a services provider who is contracted by all *Advantage* and private health insurance organizations to provide the flu vaccine and, most

of them, to provide pneumococcal vaccine. This partner assumed the costs of influenza vaccine for participants from the public sector and uninsured.

In summary, the project was implemented on 42 elders' facilities (*égidas* and *centros*) (see Table A).

Table A: Elders facilities: 42			
***Égidas*: 26**		***Centros*: 16**	
Control: 16	Experimental: 10	**Control: 13**	Experimental: 3
Vaccination data: 11	Vaccination data: 10	**Vaccination data: 4**	Vaccination data: 3
Did not vaccinate participants: 5		**Did not vaccinate participants: 9**	

For the educational component the registered total attendance was 1,575 older adults. A total of 323 persons were vaccinated on the 13 experimental group facilities. Fifteen facilities from the control group performed on-site vaccination clinics impacting 416 persons. In summary, we documented vaccination of 739 adults either by Voices or facilities management coordination efforts.

Certain limitations, such as, lack of participants' descriptive information, variations and modifications to the interventions, and changes in the data collection forms for evaluation throughout the developmental process of the intervention, hinders the comparison between experimental and control groups with the desired scientific rigor. However, it was noticeable that the educational intervention developed for the staff may have motivated further vaccination events since they were more receptive to develop vaccination clinics in their facilities.

This report summarizes emphasizes results of the final phase of the outcomes evaluation addressing Aim #3 of the project "***Acepta el Reto, ¡Vacúnate***!".

Aim3. Provide vaccinations in healthcare setting to increase access.

Specifically, it presents the results of the pre-post-tests distributed in eldercare facilities since the last week of July 2015 to March 2016 as part of the outcomes evaluation.

Methods

The information presented includes results from 15 eldercare facilities, usually called *Égidas* in Spanish. Table 1 shows the name of the intervened facilities, whether or not they participated in one or more sessions of the intervention, the number of participants of the evaluation and number of pre-and post-tests received on each activity. Due to various reasons, not always the tests were distributed as planned in the original intervention. Some activities did not distribute the pre-tests, or the post-tests, and not all attendants completed both tests, if any. Although nine of the Facilities participated of two sessions, there was no information about one of the session for four of them (see Table 1). Since September 2015, the intervention included only one session.

To measure the impact of the educational intervention developed for this project, three self-administered questionnaires were developed to assess changes in knowledge, attitudes and behaviors related to vaccination. For Session 1, the questionnaire consists of 17 close-ended questions assessing demographic characteristics (gender, age, date of birth, municipality, health plan, household composition and living arrangements; whether or not he or she have been vaccinated in the last year and which vaccines have received. It also includes questions about general knowledge regarding vaccinations, attitudes about vaccination and an open-ended question asking their opinion about vaccines.

For Session #2, the questionnaire included 15 close-ended questions assessing whether or not participants have talked to their health care providers about immunizations, where they prefer to get vaccinated, knowledge about Influenza and pneumococcal vaccines, attitudes about vaccination, awareness of vaccination rights and health care coverage, vaccination practices and willingness to get immunized next year. For the last phase with only one intervention, a self-administered questionnaire requesting basic demographic information (gender and age), whether or not the participant got vaccinated in the past year, and eight multiple choice questions about general knowledge about vaccination.

These questionnaires were distributed just before starting the educational intervention, which what it is referred as pre-test, and right at the end of the activity, post-test; same questionnaire pre and post activity. Data collected by these questionnaires were entered in computer files and analyzed using the Statistical Package for Social Sciences (SPSS). Statistical analyses include frequency and percent distribution and measures of central tendency such as mean, median, mode and standard deviation.

To assess internal consistency of items in these tests, reliability analyses were done. Reliability refers to the extent to which a test, or measuring procedure yields the same results on repeated trials. Results show that the Last Phase (21 items) and Session 1 (13 items) pre- and post-tests show high reliability with Cronbach's alpha of .944 and .800, respectively. For Session 2 tests (8 items), reliability analysis results show poor internal consistency with Cronbach's alpha of .396. However, this could be an artifact on the number of items, as more items better reliability.

Results reported in this document include 321 participants: 102 participants of Session 1, 95 Session 2 participants, and 124 participants of the Last Phase of the project.

Table 1. List of Participating Facilities

Facility's Name	Municipality	Type of group	Number of sessions	Number of evaluation participants Session 1	Number of evaluation participants Session 2	Session 1		Session 2	
						No. Pre-tests	No. Post-tests	No. Pre-tests	No. Post-tests
1. Comunidad del Retiro	San Juan	Experimental	2	17	15	15	14	14	13
2. Ernesto Carrasquillo	Yabucoa	Control	2	16	8	14	12	7	7
3. Golden Age Tower	Toa Baja	Control	2	8	11	7	7	9	8
4. Jardines de Country Club	Carolina	Control	2	13	12	11	10	11	9
5. Petroamérica Pagán	San Juan	Experimental	2	14	16	8	11	13	14
6. Salinas Elderly	Salinas	Control	2	14	No information	12	12	No information	No information
7. Villa Asoc. Genaro Cortés	San Juan	Control	2	20	No information	16	13	No information	No information
8. Ciudad Feliz	Cataño	Experimental	2	No information	17	No information	No information	14	16
9. Miramar Housing	San Juan	Experimental	2	No information	16	No information	No information	15	16
10. Manuel A. Pérez	San Juan	Experimental	1	38	Not applicable	0	36	Not applicable	Not applicable
11. Manuel Colón	Aguadilla	Experimental	1	20	Not applicable	8	8	Not applicable	Not applicable
12. Francisco Paz Granela	San Juan	Experimental	2	30	No information	12	18	No information	No information
13. Cupey Alto	San Juan	Control	1	20	Not applicable	15	13	Not applicable	Not applicable
14. Nuestra Sra. De Lourdes	San Juan	Control	1	9	Not applicable	9	7	Not applicable	Not applicable
15. Balseiro Elderly	San Juan	Control	1	7	Not applicable	7	7	Not applicable	Not applicable
Total				226	95	134	168	83	83

RESULTS

Demographic Characteristics

Demographic characteristics data includes information about those participants that completed a pre-or post-test in an activity identified as Session 1 and those that participated in the Last phase. There is no information of Session 2 participants.

Results show the following:

- Most are female (70.0%). (See Figure 1).

- Mean age of the total sample is 75.5 years old. For Session 1, participants age range from 50 to 96, with a median age of 76 and a mode of 83 years old. For the last phase, their age range from 53 through 93, with a median and a mode of 75 years old. Figure 2 shows the age group distribution. The bigger age group is 80-84 years old (20.3%) followed by the 75-79 years old (18.7 %). (See Figure 2).

- The great majority of Session 1 reported currently living alone (88.2%) in the eldercare facilities (83.3%) (Figures 3 and 4). There is no information about the rest of the participants.

- Session 1 participants (80.0%) reported having one of ten different health insurance plans including in combination with Medicare and the Government Health Plan called "*Mi Salud*". (See Figure 5). The health insurance plan reported by the largest proportion is MMM (n=19, 23.2%) followed by the government health plan "*Mi Salud*" (n= 17, 20.7%).

ELDERCARE FACILITIES DEMOGRAPHIC PROFILE

Figure 1

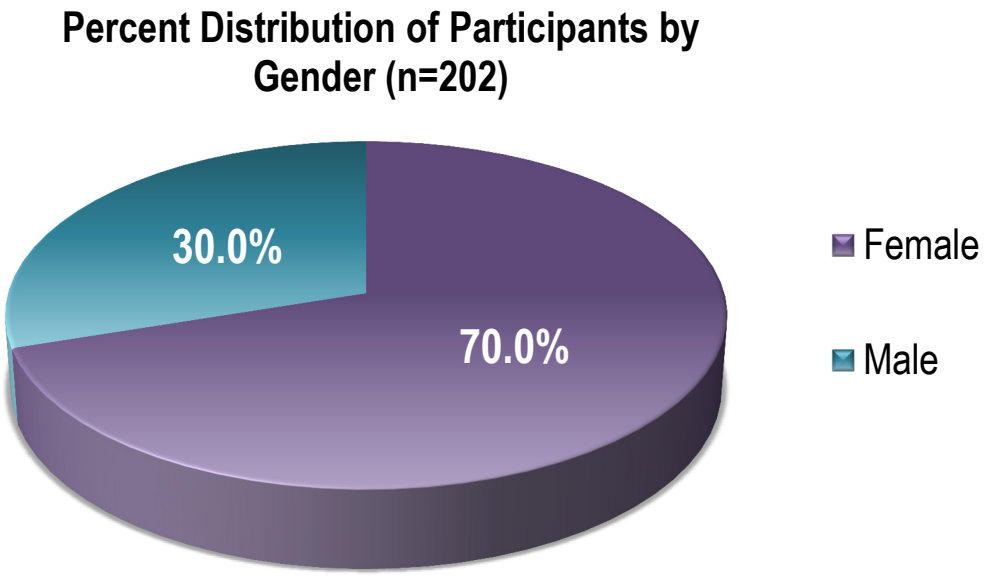


Figure 2

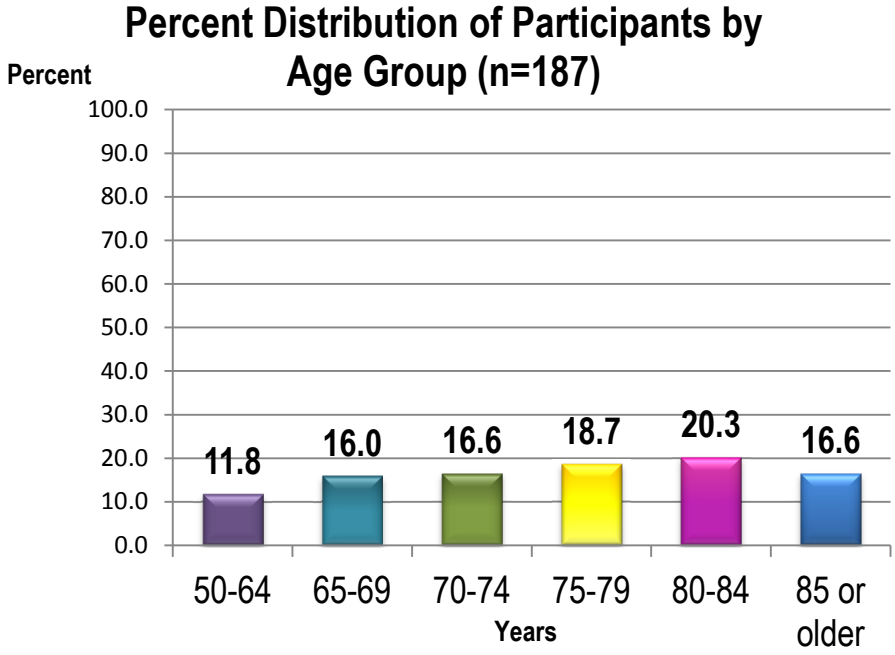


Figure 3

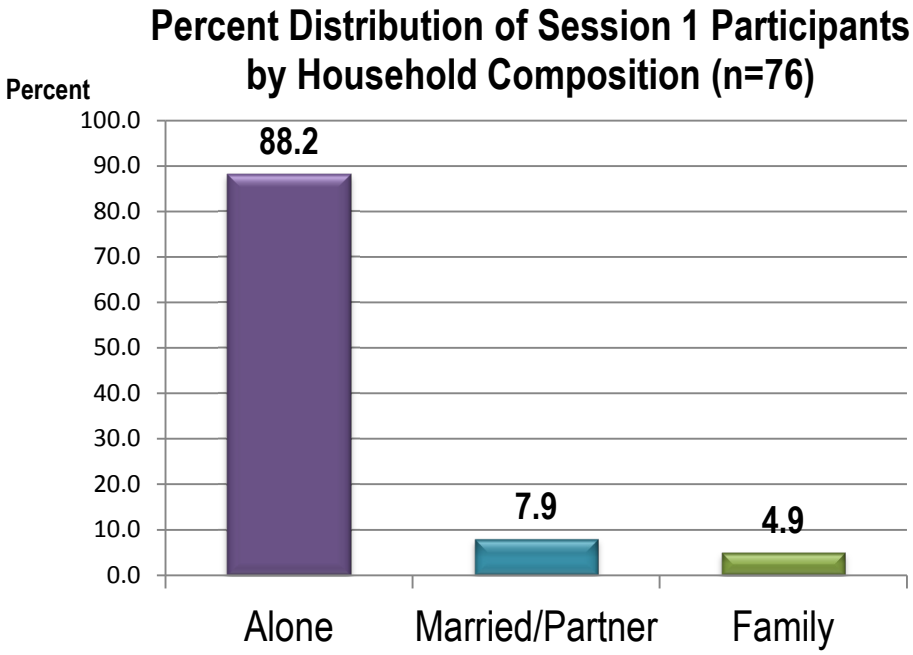


Figure 4

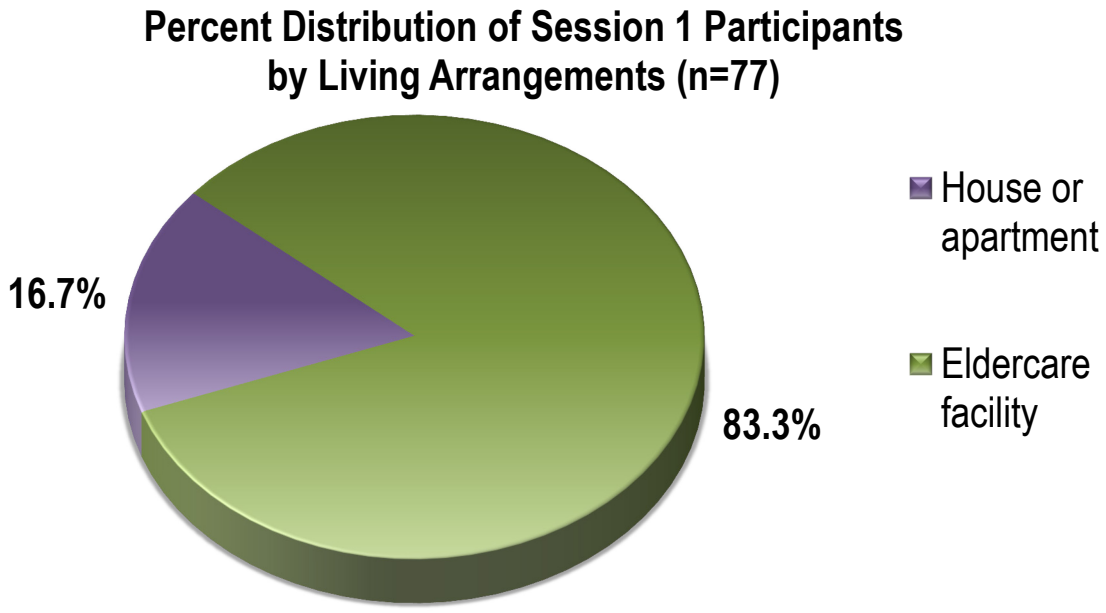
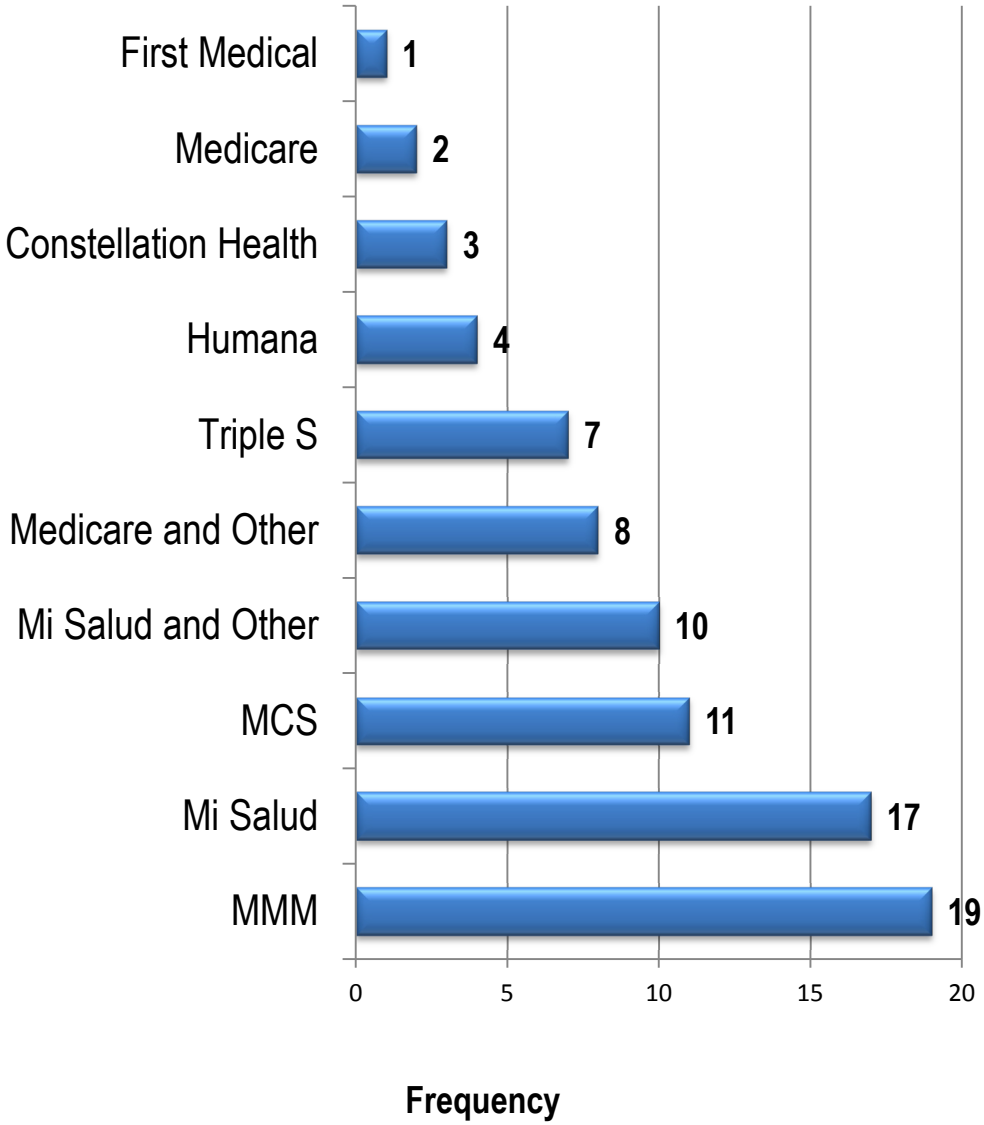


Figure 5

Frequency Distribution of Session 1 Participants by Type of Health Insurance (n=82)



VACCINATION HISTORY

Session 1 and Last Phase participants were asked whether or not they were vaccinated in the past year. Figure 6 shows that from the total sample 46.0% reported bieng vaccinated in the past year (see Figure 7). Session 1 participants reported a similar proportion; 44.0% were vaccinated, however 14 participants reported receiving more than two vaccines, estimating the vaccination rate to 28.0%. (see Figure 7). Among participants from Session 1 and Last Phase activities who reported being vaccinated in the last year, 74.1% where from San Juan (see Figure 8). It is important to report that 69.6% participants of these activities were from San Juan. In terms of health insurance, the highest proportion of those who were vaccinated were enrolled in MMM (23.4 %) and 20.6 % in "Mi Salud" in combination with other health insurance companies such as, MMM, MCS and Humana (See Figure 9). When asked which vaccines they received, the most common vaccine reported by Session 1 participants was Influenza (n= 37, 45.1%) (see Table 2). The Pneumococcus vaccine (n=13, 15.9%) was the second most common but by a third of the proportion vaccinated by Influenza.

Figure 6
Percent Distribution of Total Sample Reporting Been Vaccinated Last Year?(n=194)

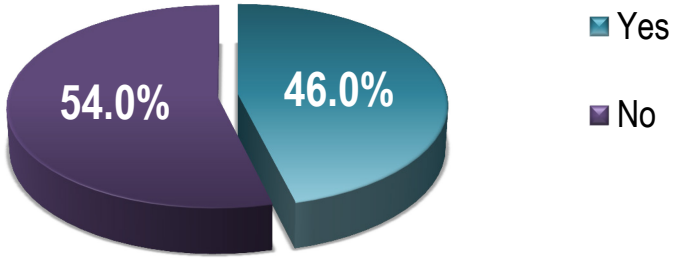


Figure 7
Percent Distribution of Session 1 Participants Reporting Been Vaccinated Last Year (n=82)

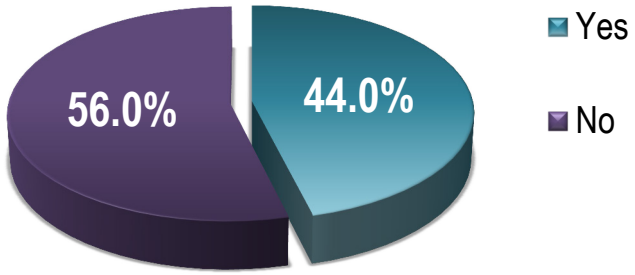


Figure 8

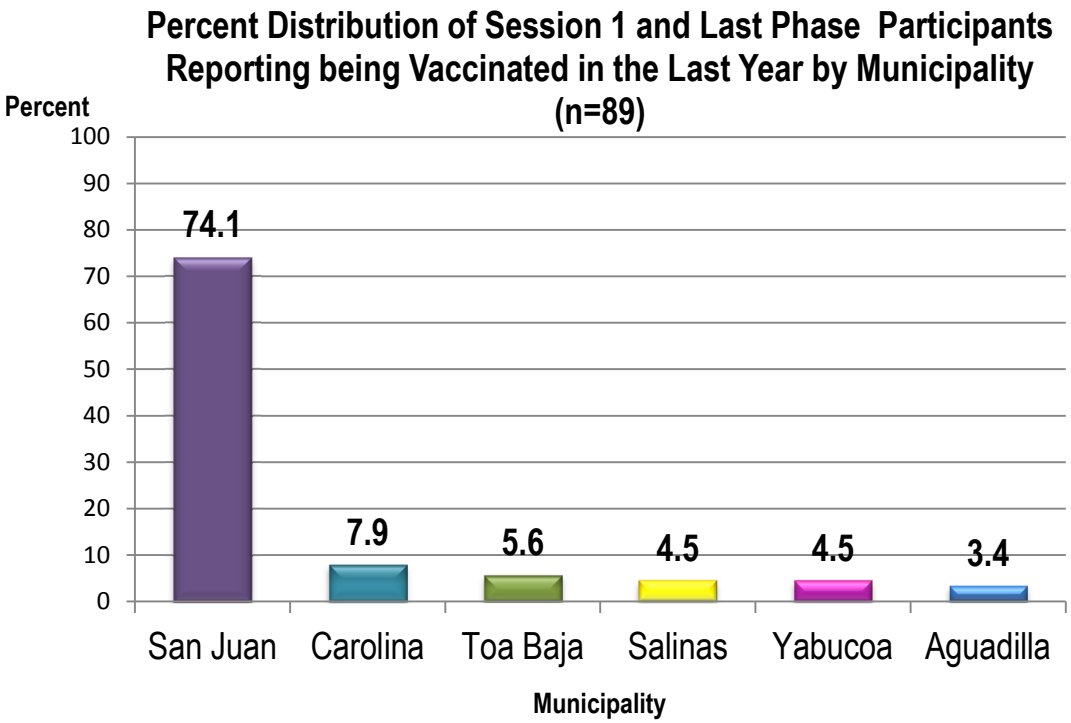


Figure 9

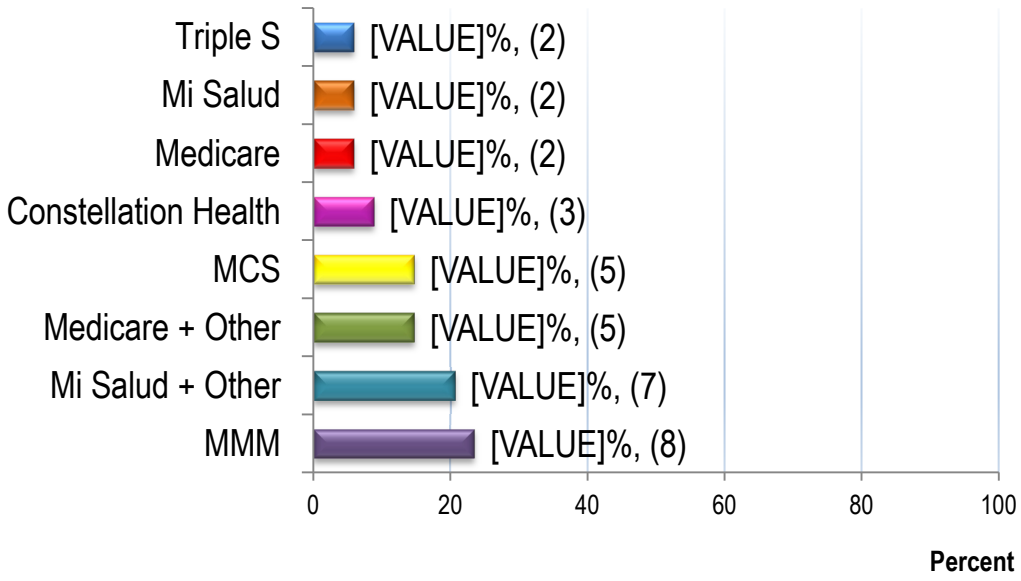


Table 2. Frequency and Percent Distribution of Session 1 Participants by the Name of the Vaccine They Reported Received in the Last Year (n=82)

Name of the Vaccine	Number (n)	Percent (%)
Influenza	37	45.1
Pneumococcus	13	15.9
Shingles	5	6.1
Tdap / Td	3	3.7
Meningococcal	2	2.4
Hepatitis A	2	2.4
Chickenpox	2	2.4
Hepatitis B	1	1.2
Rotavirus	1	1.2
Measles	1	1.2
Total	67*	81.7

*Respondents could choose more than one vaccine.

Participants reporting not being vaccinated in the past year asked to tell the reason or reasons for not being immunized. Table 3 shows the results. The most frequent reason was not knowing about vaccines (13.85), followed with concern about its side effects (7.5%). Seven respondents chose more than one reason.

Table 3. Frequency and Percent Distribution of Session 1 Participants by Reasons for not Been Vaccinated in the Past Year (N=80)

Reasons	Number (n)	Percent (%)
a. I do not know about vaccines	11	13.8
b. Because of its side effects	6	7.5
c. Lack of medical plan and / or cost	5	6.3
d. I do not know where to get a vaccine	5	6.3
e. I had a bad experience with vaccines	5	6.3
f. Don't know	4	5.0
g. Have not had the chance	3	3.8
h. I don't have the way to get where I could get immunized	3	3.8
i. My doctor does not recommend it	3	3.8
j. I'm afraid of vaccines	2	2.5
k. Lack of interest	2	2.5
l. I forget	2	2.5
m. I have been sick	2	2.5
n. Do not like vaccines	1	1.3

Although for Session 2 there is no information about vaccination rate, the questionnaire assessed whether or not they have talked with their healthcare providers about vaccines in the past year. Forty-five percent responded affirmative (see Figure 10). They were also asked to inform their preferences in settings where to being immunized. The Doctor's Office (20.5%) and the Pharmacy (20.5%) were the preferred settings with equal proportion, among those that get vaccinated (see Figure 11). Other settings mentioned include the vaccination centers (16.95) and the Center where they live (10.0%).

Figure 10
Percent Distribution of Session 2 Participants Reporting Talking With Health Professional About Vaccines in the Past Year (n=82)

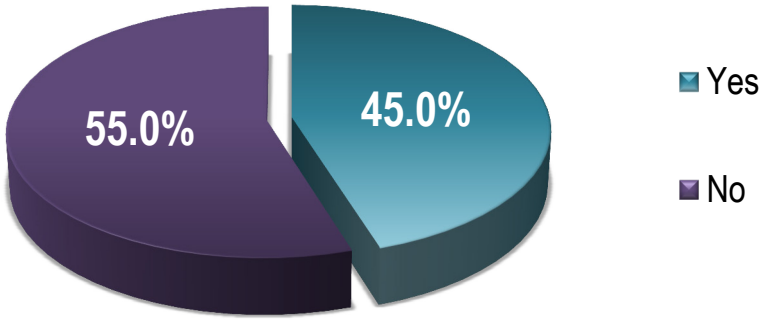
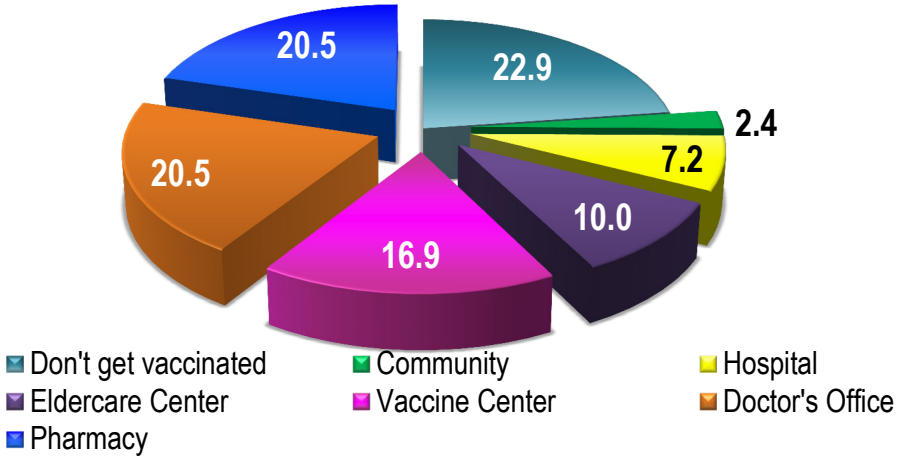


Figure 11
Percent Distribution of Session 2 Participants Reporting Where They Prefer to be Vaccinated (n=83)



VACCINATION KNOWLEDGE

Table 4 presents the frequency and percent of correct answers to each question in both the pre-test and the post-tests for each group: Session 1, Session 2 and Last phase. Session 1 Pre-Post- test included three close-ended questions assessing general knowledge about immunization and vaccines. Response choices were mostly true or false or to choose the correct ones from a list. Total score range from 0 to 12 correct since one of the questions asked about which vaccines are recommended for people aged 65 and over. The Session 2 pre-post-test included seven close-ended questions, and the Last phase 14 questions. Session 2 total score ranges from 0 to 7, and Last phase score ranges from 0 to 21.

Table 4.
Frequency and Percent Distribution of Correct Answers to the Pre-tests and Post-Tests by Type of Session

Item	Pre-test		Post-test		Difference	
	N	(%)	N	(%)	N	(%)
SESSION 1- General Knowledge about Immunization and Vaccines						
1. What are the vaccines recommended for adults 65 and older? (n=81)						
a. Influenza	61	75.3	73	90.1	12	14.8
b. Meningococcal	69	85.2	69	85.2	0	0
c. Pneumococcus	37	45.7	64	79.0	27	33.3
d. Tdap / Td	18	22.2	54	66.7	36	44.5
e. Measles	73	90.1	69	85.2	-4	-4.9
f. Shingles	32	39.5	67	82.7	35	43.2
g. Hepatitis A	11	13.6	47	58.0	36	44.4
h. Hepatitis B	11	13.6	52	64.2	41	50.6
i. Chickenpox	75	92.6	55	67.9	-20	-24.7
j. Rotavirus	76	93.8	74	91.4	-2	-2.4
2. People with chronic conditions such as diabetes, respiratory disease and / or heart should not be vaccinated.	52	64.2	53	65.4	1	1.2

Table 4.
Frequency and Percent Distribution of Correct Answers to the Pre-tests and Post-Tests by Type of Session

Item	Pre-test		Post-test		Difference	
	N	(%)	N	(%)	N	(%)
3. Vaccination is important because young and healthy people can become very sick if they do not get vaccinated.	64	79.0	71	87.7	7	8.7
SESSION 2 – Specific Knowledge on Influenza and Pneumococcal Vaccines and Related Diseases (n=83)						
1. If I got sick with influenza, you need not get the flu vaccine	67	80.7	53	65.4	-14	-15.3
2. Influenza is a serious contagious disease that may require hospitalization or cause death.	64	77.1	67	82.7	3	5.6
3. The influenza vaccine is administered once a year.	80	96.4	75	92.6	-5	-3.8
4. Pneumococcus is the leading cause of pneumonia in adults aged 65 years or older.	58	69.9	72	88.9	14	19.0
5. Pneumococcus bacteria are transmitted only through contact with contaminated surfaces.	34	41.0	27	33.3	-7	-7.8
6. Pneumococcal vaccine is administered once a year.	17	21.0	17	21.0	0	0
7. Side effects of vaccines can be very serious.	46	55.4	50	61.7	4	6.3
LAST PHASE - General Knowledge about Immunization and Vaccines (n=124)						
1. Vaccines can get you sick.	43	34.7	60	48.4	18	13.7
2. Side effects that may cause vaccines are mild, lasting a short time and are easily treatable.	52	41.9	74	59.7	22	17.8
3. Influenza is a serious viral disease that spreads easily.	55	44.4	79	63.7	24	19.3
4. The main cause of pneumonia in adults aged 65 years or older is bacteria called pneumococcus.	48	38.7	75	60.5	27	21.8
5. All vaccines must be received once a year.	25	20.2	34	27.4	9	7.2

Table 4.
Frequency and Percent Distribution of Correct Answers to the Pre-tests and Post-Tests by Type of Session

Item	Pre-test		Post-test		Difference	
	N	(%)	N	(%)	N	(%)
6. Vaccines immediately provide 100% protection against disease.	36	29.0	43	34.7	7	5.7
7. What are the vaccines recommended for adults 65 and older? (n=124)						
a. Influenza	62	50.0	86	69.4	24	19.4
b. Pneumonia (PCV 13)	36	29.0	73	58.9	37	29.9
c. Pneumonia (PPV 23)	27	21.8	71	57.3	44	35.5
d. Papilloma	60	48.4	70	56.5	10	8.1
e. Tdap / Td	25	20.0	57	46.0	32	26.0
f. Hepatitis (A or B)	36	29.0	63	50.8	27	21.8
g. Meningitis	53	42.7	59	47.6	6	4.9
h. Shingles	49	39.5	78	62.9	29	23.4
8. Vaccines are difficult to get.	60	48.4	69	55.6	9	7.2
9. Vaccines are safe.	46	37.1	76	61.3	30	24.2
10. Vaccines are free.	44	35.5	52	41.9	8	6.4
11. Vaccines are unnecessary for healthy people.	55	44.4	68	54.8	13	10.4
12. Vaccines are dangerous.	65	52.4	81	65.3	16	12.9
13. Vaccines are only for those medically indicated.	61	49.2	57	46.0	-4	-3.2
14. Vaccines are important to prevent dangerous diseases.	58	46.2	77	62.1	19	15.9

Most of the questions included in Session 1 questionnaire show improvement when the number of participants answering correctly in both the pre-test and the post-tests are compared. The final two columns of Table 4 show the frequency and percent difference in number of correct

answers. Five items show an improvement of more than 30% in participants answering correctly the post-test, this finding suggests that more people learned about these topics. Specifically, the improvement was related to know what are the vaccines recommended for adults 65 and older. There was a 50.6% increase in participants reporting that the vaccine for Hepatitis B is recommended for adults 65 and older; 44.5 % more participants reported Tdap/Td vaccine, 44.4% reported Hepatitis A, 43.2% reported Shingles, and 33.3% more reported Pneumococcus as vaccines recommended for the elderly. There were three vaccines that show a decrease in correct answers in the post-test, these were Chickenpox (-24.7%), Rotavirus (-2.4%), and Measles (-4.9%) (See table 4).

Results of Session 2 pre-post-tests show that there was improvement in 3 of the 7 questions (see table 4). The item that asks about whether or not Pneumococcus is the leading cause of pneumonia in adults aged 65 years or older, was the one that showed the highest improvement with a 19.0% of more participants answering correctly as compared to the pre-test. In contrast, the items regarding whether or not is true that if a person gets sick with influenza, he or she does not need to get the flu vaccine, and that Pneumococcus bacteria are transmitted only through contact with contaminated surfaces. showed a decrease in correct answers in the post-test; a difference of -15.3% and -7.8%, respectively, of participants anwering correctly.

Seven items show improvement in the questionnaire distributed in the last phase with more than 20% more participants answering correctly the post-test (see table 4). Five of these items are the ones asking about vaccines recommended for adults 65 and older: Pneumonia-PPV 23 (35.5%), Pneumonia-PCV 13 (29.9%), TDAP / TD (26.0%), Shingles (23.4%), and Hepatitis-A or B (21.8%). The other two items showing more than 20% improvement were the following: “Vaccines are safe” (24.2%), and “The main cause of pneumonia in adults aged 65 years or older is bacteria called pneumococcus” (21.8%).

Table 5 shows the pre-post-tests total scores by each eldercare center. In general, in Session 1, the Pre-test scores range from 6 to 12 with a mean score of 8.41 (SD=1.45), median of 8.00 and mode of 9. The Post-test scores range from 5 to 12 with a mean score of 10.35 (SD=2.12), median of 11.00 and mode of 12. In Session 2, the Pre-test scores range from 2 to 7 with a mean score of 4.41 (SD=1.41), median of 5.00 and mode of 5. The Post-test scores range from 2 to 7 with a mean score of 4.46 (SD=1.30), median of 4.00 and mode of 4. For the last phase, the Pre-test scores range from 8 to 20 with a mean score of 13.5 (SD=2.50), median of 13.00 and mode of 13. The Post-test scores range from 9 to 21 with a mean score of 15.41

(SD=2.77), median of 15.00 and mode of 15. The Facilities showing the greatest improvement in scores were "Jardines of Country Club" from Session 1, "Ernesto Carrasquillo"from Session 2, and "Nuestra Sra. De Lourdes" from the Last Phase.

Table 5.
Frequency and Percent Distribution of the Pre-tests and Post-Tests Scores by Eldercare Center

Eldercare Center	Pre-test Score		Post-test Score		Difference in mean score
	Mean	DS	Mean	DS	
SESSION 1- General Knowledge about Immunization and Vaccines					
1. Comunidad del Retiro	8.0	1.56	10.2	2.09	2.2
2. Ernesto Carrasquillo	7.9	1.73	10.2	2.36	2.3
3. Golden Age Tower	8.9	1.07	11	2.00	2.1
4. Jardines de Country Club	8.4	1.13	10.9	1.62	2.5
5. Petroamérica Pagán	7.7	0.76	9.27	2.19	1.57
6. Salinas Elderly	9.0	1.93	10.2	2.62	1.2
7. Villa Asoc. Genaro Cortés	8.9	1.45	10.9	1.83	2.0
Total Sample	**8.41**	**1.45**	**10.35**	**2.12**	**1.94**
SESSION 2: Specific Knowledge on Influenza and Pneumococcal Vaccines and Related Diseases (n=83)					
1. Comunidad del Retiro	4.1	1.82	3.6	1.17	-0.5
2. Ernesto Carrasquillo	4.1	0.90	5.4	0.79	1.3
3. Golden Age Tower	4.4	0.53	5.3	1.28	0.9
4. Jardines de Country Club	5.7	1.19	5.0	1.32	-0.7
5. Petroamérica Pagán	4.2	1.52	4.2	1.42	0.0
6. Ciudad Feliz	3.8	1.05	3.9	1.09	0.1
7. Miramar Housing	4.7	1.40	4.8	1.07	0.1
Total Sample	**4.41**	**1.41**	**4.46**	**1.30**	**0.05**
LAST PHASE - General Knowledge about Immunization and Vaccines (n=124)					
1. Manuel A. Pérez	12.6	2.25	15.0	2.94	2.4
2. Manuel Colón	12.8	2.70	14.9	1.98	2.1
3. Francisco Paz Granela	15.2	1.53	17.0	2.03	1.8
4. Cupey Alto	13.7	2.67	13.9	2.94	0.2
5. Nuestra Sra. De Lourdes	12.3	1.28	15.4	2.51	3.1
6. Balseiro Elderly	15.1	3.02	17.0	2.94	1.9
Total Sample	**13.5**	**2.50**	**15.4**	**2.77**	**1.9**

ATTITUDES ABOUT VACCINATION

In figures 12, 13 and 14 the results of the Pre-Pots tests related to attitudes about vaccination are shown. In figure 12 there is some evidence that participants' attitudes changed after the intervention. In particular, in terms of how individuals follow the advice of their physicians related to vaccines, how expensive vaccines are, and whether or not they trust vaccines. However, in terms of the level of awareness of their immunization rights and which vaccines are covered by their health plans there was reduction in those answering affirmative to these statements after the intervention (see Figure 13). Also, the Pre-Post-test results show contradictory and small changes in terms of asking their physicians about vaccinations or getting vaccinated next year (see Figure in terms of asking their physicians about vaccinations or getting vaccinated next year (see Figure 14).

Figure 12

Percent Distribution of Participants Answering Affirmative to the Statements about Attitudes Toward Vaccination Before and After Session 1 (n=79)

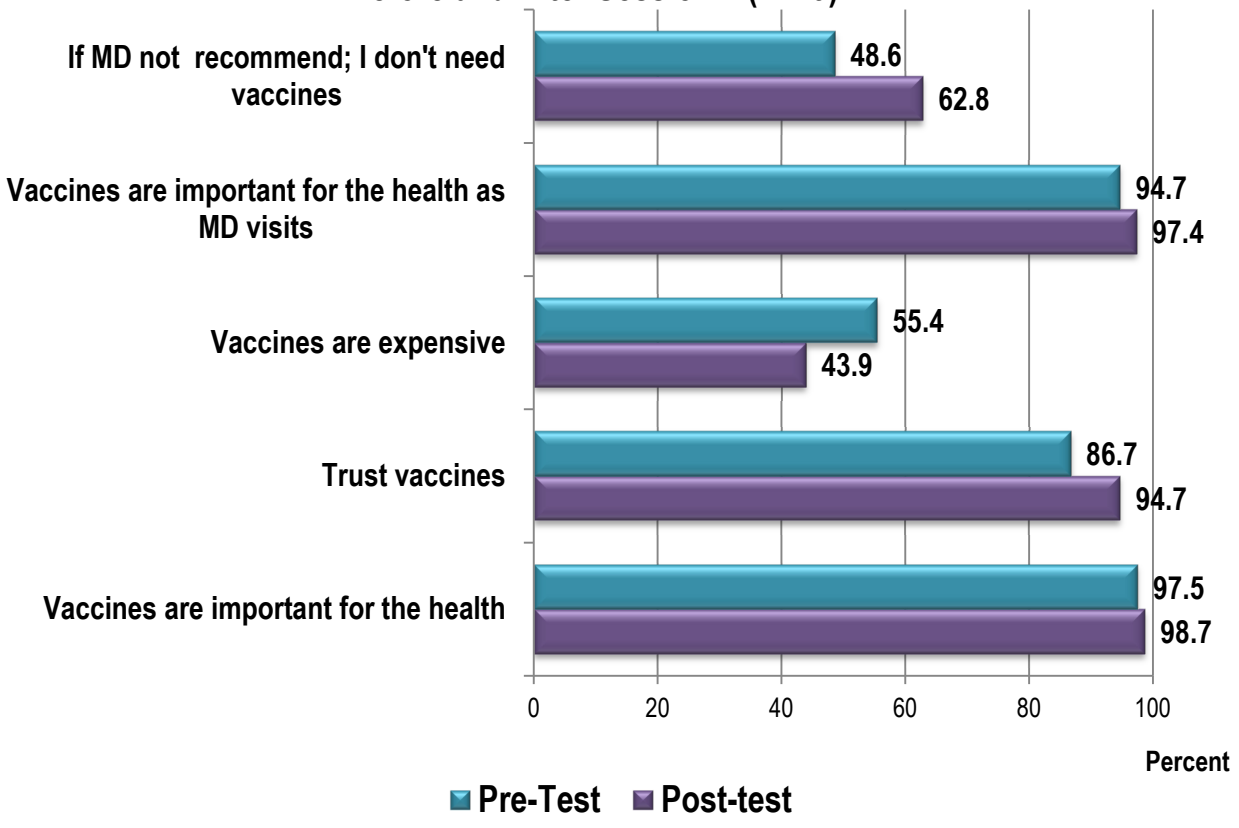


Figure 13
Percent Distribution of Participants Reporting Awareness of Vaccination Rights and Related Aspects to Get Vaccinated Before and After Session 2 (n=79)

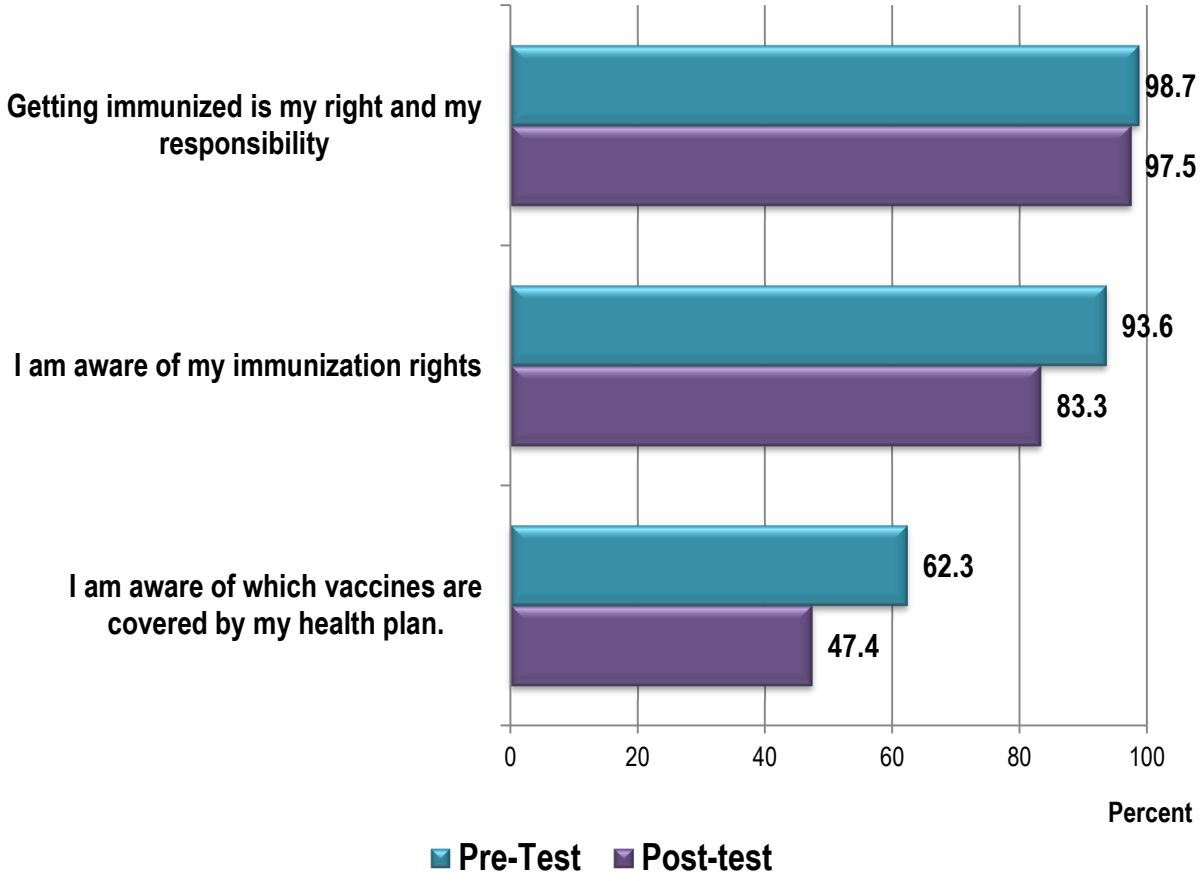


Figure 14

Percent Distribution of Participants Reporting Intentions Related to Get Vaccinated Before and After Session 2 (n=79)

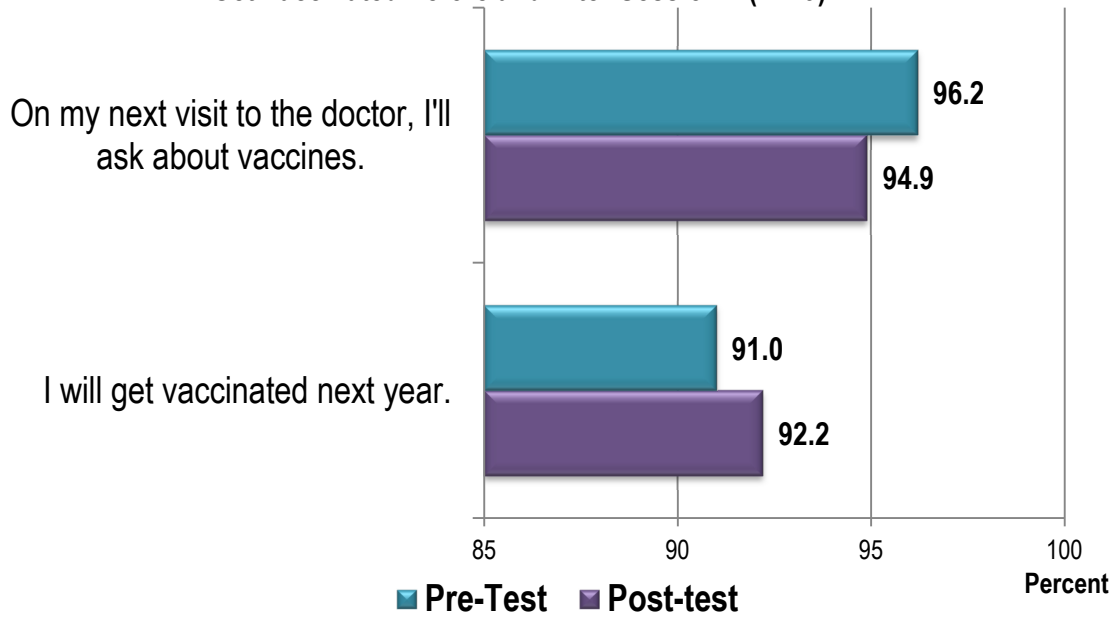


Table 6

Frequency Distribution of Participants to Pre-Tests and Post-Tests Answers to Open-Ended Question

Answers:	Frequency (number of participants)
Session 1 Pre-test: What is your opinion about vaccination?	
a. No comments	49
b. They avoid, prevent, and protect against disease.	14
c. Are important for health.	11
d. They are good.	10
e. They are necessary.	5
f. That they are beneficial and useful.	4
g. They have saved lives.	2
h. At this time I cannot comment on vaccines.	1
i. I listen to doctors, naturopaths, talk about vaccines.	1
j. They are convenient, but sometimes yield side effects to some people.	1
k. Whoever wants to do it, should do it.	1
l. Are important, but I do not like (them).	1
m. I need a lot of information. I'm scared by people's comments.	1
n. They have not done me wrong.	1
o. They are not for me but for those who are going up.	1

Table 6
Frequency Distribution of Participants to Pre-Tests and Post-Tests Answers to Open-Ended Question

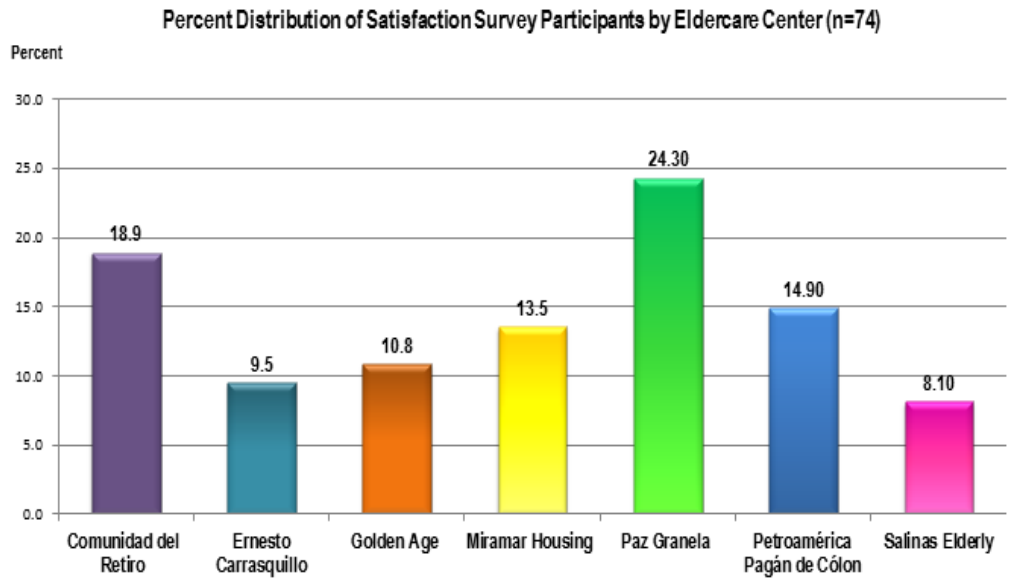
Answers:		Frequency (number of participants)
	Total Participants	102
Session 2 Post-test: What is your opinion about vaccination?		
a.	No comments	51
b.	Very important and necessary to prevent illnesses.	35
c.	They are necessary.	8
d.	Vaccines are very useful for people age 65 or older. They should be vaccinated to protect themselves from disease such as influenza and hepatitis C and B, and for shingles.	1
e.	They are good.	1
f.	I believe in them.	1
g.	Everyone should get them.	1
h.	Should got them if they are necessary.	1
i.	The doctor is who should decide whether or not we should get vaccinated.	1
j.	My doctor advised me to get vaccinated.	1
k.	I understand the importance, but personally I have my doubts.	
l.	I do not trust vaccines.	1
	Total Participants	102
Session 2 Post-test: What is your opinion about vaccination?		
a.	Are important for the health	9
b.	Helps prevent illnesses	9
c.	Are necessary	8
d.	Must receive vaccines	2
e.	Are effective	1
f.	Are reliable	1
g.	Reduces health services cost	1
	Total Participants	**31**

SATISFACTION

As part of the evaluation, a consumer satisfaction questionaire was distributed in some of the facilities to assess the usefulness of the intervention for making decisions on vaccinations. It icludes 10 close-ended questions and three open-ended questions. The close-ended questions assess participants satisfaction with the usefulness of theintervention, its organization, how easy or not were the materials distributed, the perceived capacity and performance of the itervention facilitator, overall satisfaction, and whether or not would recommend the intervention to their peers. The response scale was a likert scale of three alternatives:"Strongly agree", "Not Agree, nor Disagree", or "Strongly Disagree" with the statements presented in the survey. Participants were asked to choose the alternative that best match their response.

Seven eldercare facilities participated in the satisfaction survey (see Figure 15). Most of respondents reported that were satisfied with all program components assessed (see Table 6), the only item that received one response of strongly disagree (not satisfaction) was "The material distributed was easy to read and understand." The Center with the highest (perfect) mean score was"golden Age", followed by "Salinas Elderly" (see Figure 16).

Figure 15



Three open-endede question were included in the Satisfaction Survey to assess the following: 1) "What did you like the most?"; 2) "What would you change of educational sections?"; and 3) "What other issues related to vaccination would like to be discussed?". Table 8 presents participants responses to these questions. Half of those who responded (51.8%; n=29) indicated that what they like the most was the performance of the facilitator. A great majority

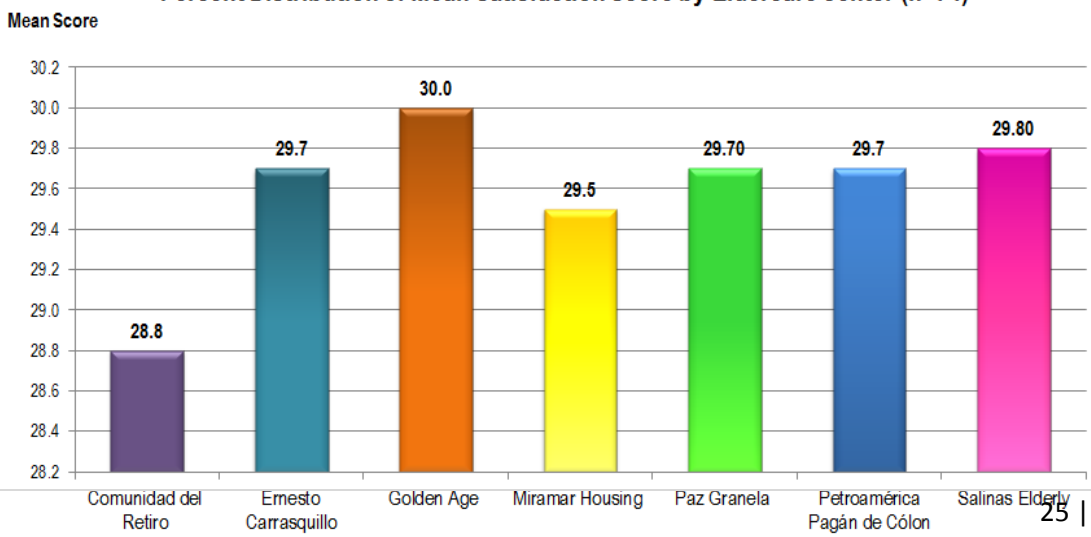
(84.9%; n=39) will not change anything about the educational activities. Some will increase the frequency of educational

Table 7. Percent Distribution of Participants by their Responses to the Satisfaction Survey

1. How much do you agree with...	Strongly agree	Not Agree, nor Disagree	Strongly disagree
	% (n)	% (n)	% (n)
a. I learned a lot in this intervention.	97.3	2.7	-
b. What I learned will help me enforce my rights related to vaccination.	100	-	-
c. I feel more confident to ask questions of my doctor or healthcare provider about vaccines.	95.8	4.2	-
d. I had the opportunity to participate in the sessions and discuss information with other participants.	94.5	5.5	-
e. The sessions were well organized.	98.6	1.4	-
f. The material distributed was easy to read and understand.	91.8	5.5	2.7
g. The facilitator knew the material well.	100	-	-
h. The facilitator answered my questions and clarified my doubts.	100	-	-
i. I would recommend this initiative to other seniors.	100	-	-
j. I felt comfortable participating in the sessions.	98.6	1.4	-

Figure 16

Percent Distribution of Mean Satisfaction Score by Eldercare Center (n=74)



interventions, and the font size of the written materials. Respondents suggest that interventions should be repeated including topics related about specific vaccines, such as, shingles, tetanus and diphteria; the origin and benefits of vaccines, among other issues related. They also asked for information on costs, rights, and acces to vaccines (see Table 8).

Table 8

Frequency Distribution of Participants Answers to the Satisfaction Survey Open-Ended Questions

What did you like the most?	
Answers:	**Frequency (number of participants)**
Positive perception of facilitator: • Clearly explained • Professional • Organized • Clear information • Doubts were clarified	29
Everything	16
Information about:	
• Vaccines	10
• Diabetes	1
Socialization	2
Total Participants	56

What would you change of educational sections?	
Answers:	**Frequency (number of participants)**
Nothing	39
Increase frequency of educational interventions	4
Font size of materials	1
Coffee	1
Government Health Plan should pay for vaccines	1
Total Participants	46

What other issues related to vaccination would like to be discussed?	
Answers:	**Frequency (number of participants)**
Nothing else for now/ Everything is fine	9
All topics related to vaccines we may need; repeat it.	5
Topics about specific vaccines: Shingles, tetanus, diphtheria	4
I don't know	4
Information on origin, components, benefits of vaccines and immune system role	4
More information on costs, rights and access to vaccines	2

More time for the topic	1
Total Participants	29

As part of the implementation evaluation of this aim, we interviewed the main facilitator of educational activities to assess whether or not there were any challenges for the implementation of the intervention and changes. In addition, we attended one of the educational activities to observe the intervention implementation. Some of the challenges and changes implemented in the intervention identified by the facilitator are listed in Table 9.

Table 9
Facilitator's Perception of Challenges Observed and Changes Implemented During the Intervention

Intervention Component	Challenges Observed by Facilitator	Changes implemented
1. **Initial Visit -**during the preparation phase a visit was coordinated with the social worker. The purpose of this visit was to explain the objectives of the program and the logistics of the operation, to establish agreements and to schedule activities	Eldercare facility's administration personnel level of commitment • "*The success of the intervention in terms of scope and speed of the process depended on the Administration's commitment to meet …agreements."*	• A strategy was developed to stimulate commitment to the initiative • A continued educational activity (3 contact hours) for Social Workers, Managers and Nurse was done, sponsored by the Office of the Ombudsman for the Elderly
2. **Inclusion of family in educational activities - T**he preparation phase included discussion with the institutions' administrative staff to facilitate the inclusion of family and friends of residents / older participants in educational sessions	• In eldercare centers and retirement homes (housing projects) it is not common the presence of relatives. • Time where activities were scheduled (Monday through Friday between 8 am and 4 pm)	None
3. **Number of educational sessions** - the **i**ntervention was initially designed to be completed in two meetings or visits. Each educational session was no more than 2 hours in a period of 7 to 14 days between them.	Attendance declined at the second educational session	One educational session was done including activities that facilitated group interaction providing the most relevant information.
4. **Follow-up visits 3-6 months after intervention -** Initial follow-up visits were conducted by the evaluation team during pilot testing phase	In retirement homes, the Administration did not favor person-to-person contact • participants did not comply with the follow-up activities	• Follow-up monitoring had to be done by public invitation • Follow-up monitoring was facilitated by institutions' administrative staff
5. **Recruit community leaders –** The intervention encouraged to recruit community leaders during planning phase to reach and recruit participants	Only in two retirement homes residents' council or association were organized. • The kind of relationship between administration and	Meetings were done with residents' council or association to plan educational activities when possible

Table 9 Facilitator's Perception of Challenges Observed and Changes Implemented During the Intervention		
Intervention Component	**Challenges Observed by Facilitator**	**Changes implemented**
	community groups could be enabling or a barrier to implement intervention.	
6. Pre and post assessment tests	In all activities was not possible to implement the pre-post tests • Time constraints • Number of participants varied from the beginning to the end of activity • Three different tests	One shorter test was designed and implemented

Results in this report include the experience of this intervention after the pilot test phase. Table 9 presents the perception of the facilitator in charge of the coordination and performance of the educational activities. It includes specific intervention components where most prominent challenges were identified and changes performed to address them. The challenges included from the planning and preparation phases where scheduling and logistics arrangements were developed to assessment strategies that aim to evidence possible intervention outcomes.

From these results it is evident that networking efforts to develop strong relationships with the eldercare facilities administration is a must. Administrative staff could help since the organization of the activities, contacting community leaders, promoting the activities, monitoring the follow-up, and measuring the amount of people who were vaccinated in the institution after the educational sessions. To enable a smooth initiative implementation, the facilitator recommended to establish a signed coordination agreement process detailing the institution's and "*Voces*" responsibilities, more effective advertising to ensure at least 15 participants in each educational activity, presence of institution's staff during sessions assisting in identifying participants' special needs and facilitating their learning process. A lesson learned with this initial experience was that training institutions' staff before intervention implementation is key to strengthening the commitment to the initiative.

Reducing the number of educational sessions was a strategy used to ensure the participation of various facilities. The materials developed could be used as a manual that includes several strategies to deliver the information according the audience needs. Some of the activities participants suggested that this information should be repeated and increase the number of

activities, so this intervention offers an array of strategies that could be used to present vaccination information.

In terms of assessment strategies, in addition to the challenges of implementing the pre-and post-tests as designed in all activities and to all participants, equivalent or alternate assessment strategies to assess changes in knowledge and attitudes must be considered. Elderly audiences do not favor filling out questionnaires, in addition to the physical and cognitive challenges that these methods may present to them. Strategies that could follow the same active and creative styles such as the intervention developed should be considered, that is, surveying participants about knowledge asking them to raise their hands in favor or not of a specific knowledge or attitude statement, using props such as cards to request answers from the audience, while keeping scores of their responses, as a group, could give the facilitators a global idea of potential changes in knowledge and attitudes toward vaccination and vaccination practices.

CONCLUSIONS

The eldercare facilities intervention reached an audience of 321 participants from the last week of July 2015 to March 2016. Most were female with a mean age of 75.5 years old. From the total sample, 46.0% reported bieng vaccinated in the past year, but, 14 participants reported receiving more than two vaccines, estimating the vaccination rate to 28.0%. When asked which vaccines they received, the most common vaccine reported by participants was Influenza. The most frequent reason for not being vaccinated in the past year was not knowing about vaccines (13.85%), followed with concern about its side effects (7.5%). These results justify to keep doing interventions like this one since there is the need for more knowledge about vaccines. These interventions should consider that the Doctor's Office (20.5%) and the Pharmacy (20.5%) were the preferred settings with equal proportion, among those that got vaccinated. Most of the questions measuring knowledge show improvement when the number of participants answering correctly in both of the pre-test and the post-tests were compared. Specifically, the improvement was related to know what are the vaccines recommended for adults 65 and older, and that Pneumococcus is the leading cause of pneumonia in adults aged 65 years or older, among other items. Results related to attitudes about vaccination show some improvement after the intervention. In particular, in terms of how individuals follow the advice of their physicians related to vaccines, how expensive vaccines are, and how trusty vaccines are. There is still the

need for more information in specific topics such as the level of awareness of their immunization rights and which vaccines are covered by their health plans. A consumer satisfaction questionnaire was distributed in some of the facilities to assess the usefulness of the intervention for making decisions on vaccinations. Results show that the majority reported being satisfied with all program components assessed, the only item that received one response of strongly disagree (not satisfaction) was “The material distributed was easy to read and understand.”

In terms of intervention implmentation, results show it is evident that networking efforts to develop strong relationships with the eldercare facilities administration is a must. Administrative staff could help since the organization of the activities, contacting community leaders, promoting the activities, monitoring the follow-up, and measuring the amount of people who were vaccinated in the institution after the educational sessions. A lesson learned with this initial experience was that training institutions’ staff before intervention implementation is key to strengthening the commitment to the initiative.