

***INFLUYENTES: A STRATEGY TO IMPROVE FLU VACCINATION COVERAGE
AMONG HISPANICS IN PITTSBURGH, PA***

by

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ABSTRACT

Although vaccination has proven to be the best flu prevention method, misconceptions and myths regarding the vaccine and the disease, are factors that affects intentions to get the vaccine, and set Hispanics' health in disadvantage when compared with non-Hispanic Whites. Hispanics are more prone than Non-Hispanic Whites to develop chronic and respiratory diseases, which place this population in high risk to develop flu complications. Therefore, it is of pivotal public health significance, to develop strategies that can address flu misperceptions in Hispanics. This essay proposes a local strategy in Pittsburgh, PA called *InFLUyentes*, as a possible method to increase vaccination coverage among Hispanics. *InFLUyentes*, the Spanish word for influential, endeavors to prepare members, from all educational levels of the Hispanic community, to positively change other's flu misperceptions. With the support of a health promotion campaign, *InFLUyentes* will be ready to intervene with accurate information, whenever a misleading comment about flu is presented in their daily environment. The ultimate goal of the *InFLUyentes* strategy is to facilitate accurate information-based decisions regarding flu prevention, and to eventually aim to integrate yearly flu vaccinations into a new community norm within Hispanics in Pittsburgh. *InFLUyentes* strategy bases its educational information on

previous health belief and focus groups studies, regarding flu perception in Hispanics, and utilizes the social contagion theory to integrate the information to the community. Community-based approaches are the best method to create community solutions, which take in consideration the actual needs, perception, motivations, and norms of a community. These are pivotal factors that will lead to the creation and implementation of an effective intervention. A limitation of this strategy is that it will not necessarily impact everyone, since some people may not accept the corrections to their flu misperceptions. Further investigations on the impact of the *InFLUyentes* strategy should be addressed. Throughout this project, competency of important Public Health concepts, such as strategic planning, health communication, cultural competency, and infectious disease management, were demonstrated.

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PREFACE

I want to dedicate this essay to God, because I can do everything through Him who strengthens me; To Libertad Chiclana and Elías De Jesús, who taught me the passion for community service, leadership and unconditional love, because of them I am who I am today; to my beloved husband, who had faith in me and who always give me all his support with patience, wisdom and love.

Achieving my MPH degree was not a solo task and therefore, I want to acknowledge those people who had a significant impact in my journey. I would like to thank Mrs. Paula Davis, Dr. Phillip Palmer and Dr. Patricia Documet, for their guidance and being true mentors whenever I felt lost. Also, I want to thank to Dr. Yohei Doi for giving me the opportunity to grow as a researcher and supporting me with my professional endeavors. Special thanks to Jamie Sokol, for all her support, encouragement when I needed it the most and for helping me to organize my ideas for this project. I also want to thank Dr. Anthony Silvestre for teaching me the importance and value of listening not only in his class but through his task as my advisor; and to Dr. Felter for being so supportive and comprehensive.

Last but not least, I want to thank my family and friends for being so understanding and my family at the Latin American Cultural Union, for believing in me.

Life as a graduate student has been a self-awareness process that not only prepared me to become a better public health professional, but also a more receptive, cultural competent and inclusive person. I learned to stop for one moment and *see* the real need in a community, rather

than impose a solution to what *I thought* they would need. Moreover, I understood that each of us has a solution for a small part of the problem, but it is working together how we can actually solve the problem. This is what public health is about; coming together to solve a health issue from different aspects, simultaneously, in order to achieve the well-being of an entire community. I am glad and proud to become part of the public health field!

1.0 INTRODUCTION

Influenza, or flu, is a common and highly contagious respiratory viral disease. The flu virus belongs to the *Orthomyxoviridae* family, and it is categorized in three genres: *Influenzavirus A*, *Influenzavirus B* and *Influenzavirus C* (Couch, 1996). The influenza A affects animals and humans and has been the cause of many epidemics and pandemics (Smith & Westwood, 1949); influenza B, also affects humans although only causing moderate epidemics (Francis, 1940), whereas influenza C barely affects humans (Kimura et al., 1997).

Influenza A viruses are the most problematic because of the numerous characteristics and combinations of hemagglutinin (H) and the neuraminidase (N), which are proteins localized on the virus envelope (Couch, 1996). There are 16 different antigenic subtypes of H and nine different subtypes of N, resulting in multiple possible combinations for each influenza virus (Hinshaw, Webster, & Rodriguez, 1981). The most frequent combinations currently encountered in humans are H1N1, H3N2, and H1N2. Influenza vaccines help the immune system to recognize H and attack the virus or kill infected cells (Ekiert et al., 2009). However, the flu, while replicating inside the host's cell, suffers numerous mutations that may result in a completely new combination. Therefore, the host cell can no longer recognize and it neither the immune system nor current vaccine can provide protection (Ekiert, et al., 2009).

The flu spreads easily from person to person through droplets when an infected person coughs or sneezes, making this disease highly contagious. Symptoms of flu include cough, fever,

muscular pain, soreness, congestions and/or headaches. Lack of appetite, rhinitis and drowsiness can also be symptoms (Yuen et al., 1998). These symptoms may worsen if the person has pre-existing conditions. Nonetheless, if the conditions permit, healthy people may also have complications. The incubation period is one to four days and infectivity lasts approximately six days in adults, and up to ten days in children; in immunocompromised individuals or those with pre-existing conditions, infectivity could last up to several months (Yuen, et al., 1998).

Flu prevention methods include sneezing or coughing on the sleeve or in a disposable tissue, washing hands thoroughly, staying at home when sick. Vaccination has also proven to be the most effective prevention method. According to Mao et. al, vaccination is the most cost-effective intervention especially when the vulnerable are vaccinated first, since it decreases flu incidences in people who otherwise would develop severe outcomes such as hospitalizations or death (Mao, Yang, & Qiu, 2012). However, disparities related to social economic status (SES), ethnicity and other factors, strongly influence vaccination.

According to the Advisory Committee on Immunization Practices [ACIP] ("Prevention and control of influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP)--United States, 2012-13 influenza season," 2012) the groups that are more vulnerable to influenza complications are pregnant women; all children younger than 2 years old; people with immunocompromised conditions, and adults and children who have chronic conditions of the pulmonary or cardiovascular system. Healthcare providers, especially those that work with patients with chronic conditions are also included in the ACIP's list of groups that are more at risk.

Hispanics and African Americans are more prone, than non-Hispanic Whites, to chronic diseases such as diabetes and cardiovascular diseases (Roger et al., 2012). Moreover, Hispanics

and African Americans are less likely to receive the flu vaccine. According to the Centers for Disease Control and Prevention (CDC), flu vaccine coverage in the US for 2011-2012 in Hispanics and African Americans was 39%, compared with 43% in non-Hispanic Whites (CDC, 2010).

Hispanics are 15% of the US population. Notably, in the previous 2009 H1N1 Swine flu pandemic they were disproportionately affected by this pandemic flu, representing 30% of the confirmed cases. CDC reports showed that Hispanics and African American were 4 times more likely to become infected from flu and had around 2.5 times higher flu-related hospitalization rates than non-Hispanic Whites (CDC, 2010). Although socioeconomic status, language barriers, health insurance and health-care seeking-behavior may affect the vaccine uptake (Chen, Fox, Cantrell, Stockdale, & Kagawa-Singer, 2007), perceptions related to flu is also a pivotal factor in receiving the receive flu vaccination.

In the United States, flu can cause an approximately 25.34 million cases a year, costing about \$29.12 billion, where 65% is from indirect costs such as absenteeism, and 35% from direct medical costs (Mao, et al., 2012). In Pittsburgh, PA there are 1,750 to 2,000 flu-like illness medical visits per 100,000 persons each year, costing about \$75 to \$100 per capita (Mao, et al., 2012). It is important to notice that Hispanics have the highest rate of uninsured rate, according to the Office of Minority Health (Health, 2012). As a result, if not prevented, flu can become a major economic burden to Hispanics, since they are more likely to spend from \$250 to \$1,000 to recover from the flu, not including hospitalizations. In addition, this situation could create an unnecessary burden to free health clinics in Pittsburgh. Similarly, for those Hispanics that do have health insurance, still spend more than \$130 recovering from the flu.

These burdens in the Hispanic community can be prevented with the increase of targeted flu health promotion that can change Hispanics perception about the flu and its vaccine, in order to increase vaccine coverage in this population.

1.1 FLU PERCEPTIONS IN HISPANICS

According to a research about the H1N1 flu pandemic risk perception in Hispanics made by HMA Associates, a foundation that is dedicated to communicating multicultural relevance in messages to the community, risk perception may differ between different groups of Hispanics and can be sometimes factually incorrect (Velazquez, 2012). Researchers from HMA Associates grouped Hispanics population in two categories: the acculturated Hispanic (those who are proficient in English and that are familiar with the US health system) and the non-acculturated Hispanics (those who are not proficient in English and that are not familiar with the US health system). Internal categories within the groups were: those who lived in urban areas and those who lived in rural areas. The risk perceptions evaluated were trust, dread catastrophe, control/voluntary, and benefits/fairness.

Common findings between acculturated Hispanic and non-acculturated Hispanics in this study, were that these two groups did not trusted the US government; they were both concerned about the vaccine's side effects, and they all had high regard of a the doctor's advice in order to get the flu vaccine. In addition, these two Hispanic groups thought that by only hand washing and eating healthy food would prevent them from catching the flu, and that in order to accept the benefit of the flu vaccine, they would need their doctor's approval (Velazquez, 2012). Regarding the risk perception of the rural non-acculturated Hispanics, it was found that they were more

likely to get vaccinated in order to protect their children but not necessarily themselves. Non-acculturated Hispanic parents from rural areas were, overall, more fearful of H1N1 (Velazquez, 2012). On the other hand, most of the non-acculturated Hispanics from the urban areas did not engage in flu vaccination at all since they were more likely to think “it was not needed”.

In contrast, the acculturated Hispanics needed more flu vaccine safety information to trust the seriousness of the seasonal flu or flu pandemic. Also, myths of the vaccine’s side effects were deep-rooted and difficult to correct. Similar to the rural non-acculturated Hispanics, rural acculturated Hispanics were concerned about the infection, although urban acculturated Hispanics downplayed the seriousness of the pandemic flu they were more concerned about seasonal flu. Some of the misperception of preventive measures within the acculturated Hispanics was that breastfeeding was a preventive measure for their babies. Similar results have been found in other studies about the perception of flu and its vaccine among the Hispanic community throughout the U.S (Chen, et al., 2007; M. Harris, 2011; (Wooten, Wortley, Singleton, & Euler, 2012).

According to a study about ethnic barriers to flu vaccinations, where Chen (2007) surveyed 76 church congregations in Los Angeles and Honolulu, the top five reasons for Hispanics not getting vaccinated were: 1) that they do not need it because of immunity or natural products; 2) general excuses such as inconvenience, time and laziness; 3) the thought that the vaccine causes influenza; 4) access and cost issues and 5) healthcare provider did not give the flu vaccine (Chen, et al., 2007). Moreover, 58% of the Hispanic responders claimed to be “not at all concerned” about getting the flu; 43% said that flu could make them moderately sick and 40% said “it was no big deal”.

Likewise, Harris (2011) conducted focus groups with Hispanics, among other groups, about their perceptions on flu and its vaccine. Once again, they found that Hispanics thought flu was not important, and that preventive measures such as washing hands and staying home when sick were enough in order to be protected, hence, choosing not to get vaccinated. In addition, the researchers also found that Hispanics did not trust the vaccine (M. Harris, 2011).

Similarly, Jiménez-Corona (2012) surveyed residents 18 year old and older from the cities of Mexico City, Monterrey, Guadalajara and Mérida in Mexico about their knowledge, attitudes and practices concerning the influenza AH1N1 and its vaccine, in 2009. Although overall they found that the general population was adequately knowledgeable regarding flu, the majority of those who refused to be vaccinated expressed that they did not trust the flu vaccine or vaccines at all. In this particular study, those who had higher educational level were less likely to accept the vaccine (Jimenez-Corona, 2012).

Wooten (2012) on the other hand, surveyed elderly Hispanic over 50, and 52% believed the vaccine was very effective and 11% believed it was not effective at all. From those surveyed, half thought that they could get the flu from the flu vaccine and the other half did not. In this study, Wooten observed that the higher the education (high school or higher), the more likely they were to be vaccinated. However, they perceived themselves to be more at risk to have flu-related complications which may have altered their willingness to vaccinate. (Wooten, Wortley, Singleton, & Euler, 2012).

All these examples of misperceptions about flu and the flu vaccine among Hispanics, confirm what the World's Health Organization (WHO) proposes as possible barriers to get vaccinated. These barriers are: concerns about vaccines, perceptions that flu is not severe, health care provider resistance to getting vaccinated and absence of a campaign that is directed to the

specific risk group ("Prevention and control of influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP)--United States, 2012-13 influenza season," 2012; Seale et al., 2010).

The above mentioned research recommends that an increased and clear awareness about the flu and its vaccine is needed in order to correct these misperceptions. Some of the strategies suggested were to provide not only information in Spanish but to have a culturally competent health promotion campaign and to have the information in an adequate literacy level. In addition, it was mentioned that the information should have limited number of key messages, and the messenger should be well informed, Latino and Spanish-speaker. All authors agreed that an increase in risk perception towards a positive one would help to increase the intentions to get vaccinated and could lead towards the action of getting vaccinated. In fact, Harris et. al. (2009) found a strong association between intentions to get seasonal flu vaccination and actually getting the vaccine (K. M. Harris, Maurer, & Lurie, 2009).

However, identifying the best approach to educate the Hispanic community about flu and to change their misperceptions about the disease and its vaccine may be a complicated task. Their perceptions highly depend on their environment, background, religious beliefs, nationality, interpersonal relationships, among other numerous factors. Even though researchers may understand the factors towards misperception, the interactions between these factors and how these interactions impact their perception of flu and its vaccine, creates a complex problem. The result of each interaction may result in numerous groups or stratum within the same community, making it even more difficult to reach an entire Hispanic community. Fortunately, health educator specialists and behavioral change researchers have used members of specific groups in a community in order to make an impact, inside out. These members of specific groups in a

community that help to educate, increase awareness or change a specific wellness trend in their environment are commonly called Community Health Promoters (CHP).

1.2 COMMUNITY HEALTH PROMOTERS

Cultural competence is an essential concept that should be present, before the development of a behavioral change of a particular population such as the Hispanic community. According to the Office of Minority Health, cultural competence is “*a set of congruent behaviors, attitudes, and policies that come together in a system, agency, or among professionals that enables effective work in cross-cultural situations*”. In other words, in order to bring a strategy or knowledge from one particular culture to knowledge, behavior, attitudes and policies will need to change. It is essential to know the background, experiences and barriers that exist in a particular population, in order to understand the best approach to develop a program, create an intervention or to send a specific message.

However, cultural competence is not sufficient; community, trust, acceptance, and relatedness are important values, especially in the Hispanic community, for them to listen to a message and actually act on it.

Community Health Promoters (CHPs) are trusted members of a community that are trained to educate their community about a particular health issue. CHP has been frequently used as a community participatory approach, and has proven to be an important approach, that provides the trust, acceptance and relatedness required to educate a community, such as the Hispanic community (Documet, 2011; Manos et al., 2001; Montgomery County, 2009).

Approaches with CHPs are highly recommended when outreaching to vulnerable populations and those who are hard-to-reach (Osorio L, 2011). The utilization of CHP assures that the health message is received by the targeted community in an adequate cultural competence and literacy-level and facilitates sustainability (Documet, 2011).

Utilizing CHP to educate Hispanics about flu and flu vaccine would address the three main cultural values that are crucial to understand how Hispanics perceive information and therefore are important to consider when communicating with to them. These values are:

- Family relationships or “Familismo” – Hispanics also view biological family and neighbors and friends as important family relationships. It is very important to Hispanics to take care of the family and they take very seriously what family has to say regarding their health decisions. This aspect could determine their risk susceptibility to get the flu. (Velazquez, 2012).
- Present orientation or “Presentismo” – Whereas the Anglo-Saxon population are more likely to believe in the saying “better safe than sorry”, Hispanics often think more of what affects them now and if the event relates to their specific situation (Velazquez, 2012).
- Personalism or “Personalismo” – Personalism in Latin America is “the practice of glorifying a leader or that person that genuinely care about them”. This aspect determines how severe their risk is. (Velazquez, 2012).

CHPs represent an important deliver of accurate flu-related health information in order to increase flu vaccination coverage among Hispanics and for flu vaccination to become a community norm.

1.3 HISPANICS IN PITTSBURGH, PA

The Hispanic community in Pittsburgh comprises 2.3% of the population, which is approximately 7,000 Hispanics ("Interactive Hispanic/Latino Block Map of Allegheny County," 2011). Although 7,000 Hispanics is not a large population, that number does not include those Hispanics that live outside the city but that work in Pittsburgh, nor those Hispanics that are undocumented. It is significant to note that there are several initiatives in the city of Pittsburgh to increase diversity and inclusion of the Hispanic population such as *Hola Pittsburgh* (Vibrant Pittsburgh, 2012). Therefore, an increase in the Hispanic population in greater Pittsburgh area is expected in the near future.

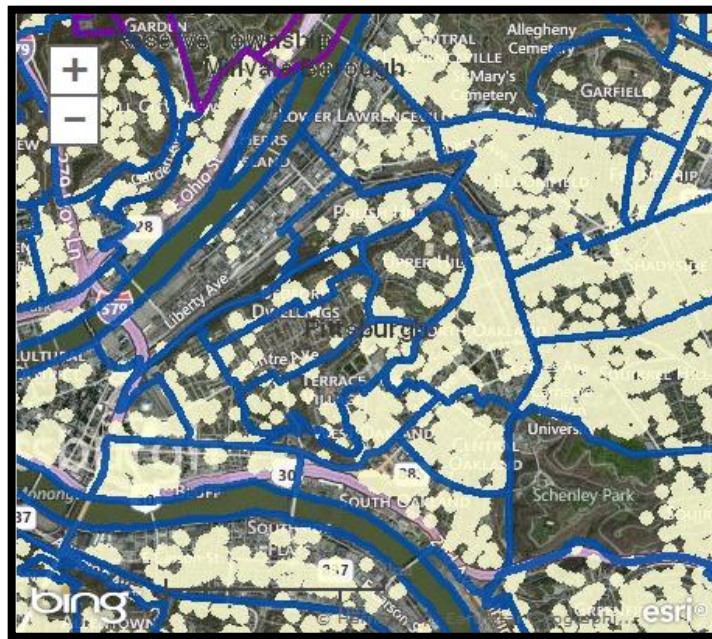


Figure 1: Hispanic population in Pittsburgh. White spot is a Hispanic family or individual
Source: Urban & Regional Analysis Program (URAP) - Pittsburgh Urban Blog

Currently, the Hispanic community in Pittsburgh is rather decentralized (Figure 1), since there are no specific Hispanic streets or neighborhoods like in other cities. These irregular

demographics, along with the apparent small number of Hispanics, are factors that limit the practicability of health promotion campaigns targeted to Hispanics.

On the other hand, creating a community-based approach that could work in a population with such demographics, could lead us to solve many of the challenges that can be encountered in any other community. The same way the flu pandemic is the preferred infectious disease scenario in a table top exercise for emergency preparedness (Oshitani, Kamigaki, & Suzuki, 2008), because of the many challenges that can train people for many other scenarios, creating a community-based approach in the Hispanic community of Pittsburgh to improve flu vaccination coverage could also train public health specialist to create approaches targeting any other hard-reach community.

1.4 SOCIAL NETWORK CONTAGION THEORY

Because the Hispanic community in Pittsburgh is so dispersed, the theory of social contagion can help an intervention utilizing CHPs to support its feasibility in a community with such demographic structure. The social contagion theory suggests that an individual will adopt behaviors and perceptions from the social network they frequent (Scherer & Cho, 2003). This theory highlights the essence of the interpersonal relationships in the community and how these relationships influence a particular perception about a health issue.

In terms of interventions utilizing CHPs, this theory suggests that individuals would be more likely to follow CHPs recommendations if the individual feels culturally-related to the CHP. One of the explanations for the social network contagion theory that most fit with the impact of CHP in community health perceptions is the cohesion equivalence (Hartman &

Johnson, 1990). This suggests that the chances of sharing a belief increases with the increase frequency of communication between those individuals.

Similar to an infectious disease, on which an individual that is infected he or she can also infect the people that individual he or she come in contact with, likewise an individual with a misperception about flu can spread the misleading information, leading to low flu vaccination intentions in a community. On the other hand, if CHPs with accurate information about flu and flu vaccine can educate the people they come in contact with and change their misperceptions about this health issue, it could lead to higher flu vaccination intentions.

In this sense, an intervention utilizing CHPs would create a “behavioral vaccine” (Embry, 2011) where the accurate information about the flu and flu vaccine, which can lead to vaccination, would be also preventing the community to become infected with the flu. The success of this “behavioral vaccine” would then create a community norm where everyone in the community acquires the desired behavior (Wakefield et al., 2001).

Nonetheless, this analogy would also suggest that, similar to infectious diseases, there would be people that will be immune to the infection; some will be more reactive than others and some will be more likely to pass it on or be “infectious”.

Although social network contagion theory may not fully capture all behavioral patterns, it does provide an intervention option that positively utilizes the social ties existent in a community. This theory also explains how to increase the knowledge or to create a trend of a desired behavior in a community. Increasing accurate flu-related knowledge, and addressing a number of indirect factors, can lead to intention. Those with the intentions to get the flu vaccine are more likely to actually get vaccinated (K. M. Harris, et al., 2009).

Following the social contagion theory and utilizing CHPs this essay proposes a grassroots strategy called *InFLUyentes* that can test if a system that utilizes several indirect factors is more likely lead to the desired behavior. *InFLUyentes* strategy aims to increase accurate flu-related knowledge through personalized health promotion utilizing CHPs specialized in flu prevention and targeted advertisement that includes common Hispanic proverbs, along with other indirect factors that may address flu vaccination barriers in Hispanics. The long-term goal of this strategy is to make the yearly flu vaccination a Hispanic community norm in Pittsburgh.

2.0 INFLUYENTES: THE COMMUNITY-BASED STRATEGY

“Influyente” is the Spanish word for “influential” which, according to dictionary.com, it means someone “whose actions and opinions strongly influence the course of events”. Rooted in the concept of being influential, the *InFLUyentes* grassroots strategy concentrates its efforts in training flu specialist community health promoters, or *InFLUyentes* (as they will be referred to), in order to start a flu vaccination trend in the community. *InFLUyentes* strategy aims to address the flu myths and misperception that hinders Hispanics to get the flu vaccine by focusing on previous health belief studies, creating personalized messages, utilizing a trusted source and providing a constant message in a daily based environment. According to the social contagion theory (Dodds & Watts, 2005), an intervention such as the *InFLUyentes* strategy, can utilize trusted members of the community in order to insert a community trend of flu vaccination and it, can spread throughout a community similar to that of an infectious disease. The *InFLUyentes* strategy could be implemented by the Allegheny Health Department, Consumer Health Coalition, or any private or public institution that intends to increase flu vaccination among Hispanics in Pittsburgh.

The *InFLUyentes* strategy utilizes Hispanic cultural values presented by Velazquez (2012) about the “familismo”, “presentismo” and “personalismo”, that can influence the impact of a message makes in the community.

2.1 GOALS AND OBJECTIVES

The ultimate goal of the *InFLUyentes* strategy is to increase the flu vaccination coverage among Hispanics in Pittsburgh, to equal that of non-Hispanic Whites, within two years of implementation. However, because flu vaccination is necessary each year, it is important to also introduce a norm to engage in such behavior in a yearly basis. Moreover, introducing the yearly flu vaccination as a community norm will also reach to those Hispanic newcomers who are newly integrated into the community and create sustainability to the intervention. Sustainability is one of the biggest challenges in a Hispanic-targeted intervention, since this population can be highly transient. Therefore, this strategy is also intended to show sustainability by maintaining same flu vaccination coverage as non-Hispanic Whites or increasing that percentage after six years of implementation.

The *InFLUyentes* strategy intends to communicate accurate flu-related information, by training members of different spectrum of the Hispanic community in Pittsburgh and having them to explain the importance and convince their peers, family and friends to get flu vaccinated. These trained members of the community will be called *InFLUyentes*.

InFLUyentes will interact with people who are in different stages of change (Prochaska & DiClemente, 1983) regarding flu information and the flu vaccine. People in the pre-contemplation stage may not have in their minds to get the flu vaccine since they might think the

vaccine is not necessary, they might be afraid of it, or may think that it is intended to benefit pharmaceutical companies and not to protect the people (Velazquez, 2012). *InFLUyentes* will also encounter people who may have received incorrect or incomplete information about how to prevent flu; these people considering to get the flu vaccine, but because of lack of information, laziness or even fear, have not engaged in flu vaccination (Chen, et al., 2007). Both, people in pre-contemplation and contemplation, might need convincing information in order to get to the desired outcome, which is vaccination.

On the other hand, there will be people who have the correct information, and that know the benefits of it, but because of time, money or knowledge of where they can get the vaccine, do not get vaccinated. Also, there will be people who are already got the flu vaccine, but need to be reminded to get it the next year as well.

Information from previous health belief studies regarding flu and flu vaccination among Hispanics will be used in order to create personalized messages that *InFLUyentes* can use in order to intervene in these stages. The fact that *InFLUyentes* will be in the person’s daily environment and will receive the message in a daily basis will help that person to go from pre-contemplation to “higher” stages (Figure 2).

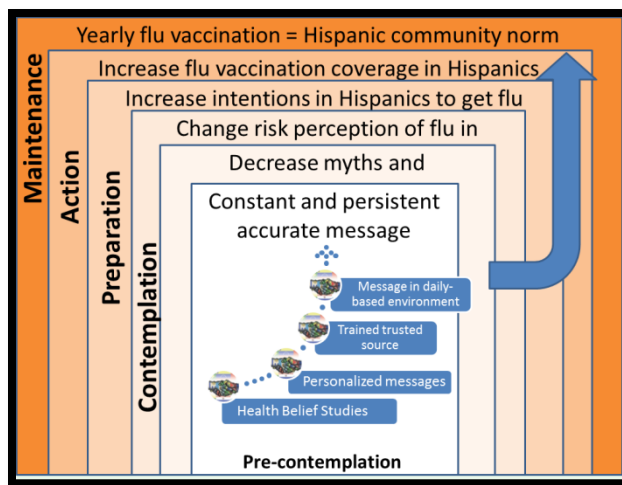


Figure 2: Strategic goals of the *InFLUyentes* strategy

In order to achieve these goals, the *InFLUyentes* strategy will consist of:

1) An *InFLUyentes* Advisory Board (IAB)

The role and functions of the IAB is based on the community advisory board of Project Eban ("The role of Community Advisory Boards (CABs) in Project Eban," 2008). Members of the IAB should be those who are most influential member of a specific targeted group in the Hispanic community (i.e. student, young professional, hard-to-reach, etc.). In Pittsburgh, there are already influential leaders that are respected and accepted to the community. These leaders are coordinators or volunteers of community-based organizations that targets each one of the particular groups in the Hispanic community (Figure 6). The advisory board will be recruited by email, referrals and direct contact, and will go through the same training as the *InFLUyentes* which will help to evaluate the effectiveness of the *InFLUyentes* trainings and educational materials. Also, they will be compensated \$50 per meeting on their time (Roberts, 2005). IAB will also help *InFLUyentes* organizers to recruit and train *InFLUyentes* and to evaluate the effectiveness of this strategy.

2) *InFLUyentes* : flu-specialized community health promoters

The IAB will recruit and help to train the influential Hispanics in Pittsburgh from different spectrums of the community about flu and its vaccine. Those who successfully finish the training will be identified as an *InFLUyente*, which will imply that they are flu-related health promoters that can provide accurate and evidence-based information about flu and its vaccine.

The responsibilities of an *InFLUyente* will be: 1) To be informed and updated on flu related information and staying up-to-date with flu-related news around the US and inform others; 2) Share advertisements and videos and intervene in any misleading comment via

their social media, if they have access; 3) To encourage others to get the flu vaccine and 4) To provide insight into flu vaccination within their daily environment.

These *InFLUyentes* will develop the ability to change someone else's perception about flu and convince that person to get the flu vaccine. *InFLUyentes* will intervene in any misleading comments about flu, presented in their daily environment (home, work, gatherings, etc.) and will provide the information to eradicate the myth or misperception, with the goal of encouraging peers, family and friends to get the flu vaccine. Because *InFLUyentes* will be intervening in their own daily environment, peers, family and friends of the *InFLUyente*, will be receiving constant and accurate messages of flu and its vaccine. These constant messages are expected to increase the intentions and actions of getting the flu vaccine.

3) An *InFLUyentes* campaign

There will be two aspects of the *InFLUyentes* campaign; the first one will be to increase the popularity of *InFLUyentes* within a particular Hispanic groups, and the other one to bolster *InFLUyentes* efforts, by sending a message of flu vaccination encouragements.

It is expected that if Hispanics know that, there is someone they trust in their social network who that can answer flu-related questions; they will go to that person for information. It is also expected that whenever this "flu health promoter expert" or *InFLUyente* corrects a misperception, they can trust the accuracy of the information. Therefore, in order to for *InFLUyentes* to be recognized trained flu health promoter expert within the Hispanic community of Pittsburgh, there will be a promotional campaign through social media, public service announcements (PSA's), Hispanic newspapers and posters (Figure 3). All *InFLUyentes* will appear in the promotional campaign for their particular

targeted group shown in Figure 6. For example, figure 3 shows a young Hispanic *InFLUyente*, creating a “peace sign” with his hand, which will symbolize the “V” for “Vacúnate”, the Spanish word for “get vaccinated”. This will be the symbol in all printed material, for all the groups. In addition, at the bottom of the printed material, there will be a message in Spanish that will say “Name of the InFLUyente is and *InFLUyente* certified, prepared to answers all your questions about flu and its vaccine. Look for him!” . The expected outcome is that people in his/her environment recognize the *InFLUyente* in the advertisement will look for the *InFLUyente* and engage in a conversation regarding the campaign. *This* campaign will consist of three main messages: 1) to trust an *Influyente*; 2) to address one particular misperception; and 3) to get the flu vaccine. These last two messages are shown in Table 1.



Figure 3: Example of an advertisement utilized for the *InFLUyentes* campaign

- 4) Involving *InFLUyentes* in local flu vaccination activities;

The Allegheny Health Department, as well as vaccination centers such as CVS and Rite Aid pharmacies, already organizes several flu vaccination clinics throughout the year. As part of the *InFLUyentes* strategy, *InFLUyentes* should be informed of these events, and to encourage their peers, friends and family to participate on these activities. As a result, the *InFLUyentes* will supplement flu vaccination efforts and would serve as a Hispanic outreach task force, which will help such events to attract the Hispanic population.

5) Rewards for *InFLUyentes* and IAB

Although research has suggested that many people participate in these types of initiative with an altruist motivation (Shim, Chapman, Townsend, & Galvani, 2012), it is also true that higher and more personal incentives need to be implanted in order to maintain motivation in a long-term basis (Roberts, 2005). Therefore, in order to keep *InFLUyentes* and IAB motivated, they will be rewarded for their attendance to meetings and trainings related to the *InFLUyente* strategy. In addition *InFLUyentes* will be compensated for every five persons they refer to get the flu vaccine and that actually get it. Encouraging peers, family and friends to get the flu vaccine is the *InFLUyentes*' minimum requirement. Those *InFLUyentes* that go the extra mile by organizing flu vaccination activities, flu-related workshops will also be rewarded (i.e. gift cards, awards, etc.).

6) Partnerships and Sponsors

It is important to partner with vaccination centers and clinics, since they are key components to help evaluate whether the strategy is making an impact or not. Moreover, partnerships with health-related institutions, organizations or groups, are also important since they could help with the implementation and maintenance of the *InFLUyentes* strategy. Partnerships should not be limited to health-related organizations, but also includes

businesses and employers since increasing flu vaccination can significantly decrease absenteeism and health care costs (Campbell & Rumley, 1997). In addition, looking for sponsors is a crucial step for this strategy since it will bolster the implementation of the *InFLUyentes* campaign, rewards system.

7) Reminder system

The ultimate goal of this strategy, beside of increasing flu vaccination among Hispanics in Pittsburgh, is also to maintain flu vaccination in a yearly basis. Therefore, those who get vaccinated should be reminded to get the flu vaccine again the following year. Once the person is vaccinated, these intentions should be reinforced for the next flu season. Hence, a reminder postcard that includes a sentence that reads “I will get the flu vaccine because _____”, completed by the recipient the year before, will complement the efforts of the *InFLUyentes* (Figure 4). At the back of the postcard, there will be a message that will read:

“Hello _____

Thank you for your pledge to vaccinate against the flu. As you may know, this is a yearly pledge to protect yourself and those you love. Don’t let it take you by surprise, get the flu vaccine today at (closest vaccination clinic to their address)”

The faces in the postcards should be the faces of the *InFLUyentes*, as part of the *InFLUyentes* campaign as well. These postcards will be scheduled to arrive to Hispanic home at the beginning of fall, or as soon the new flu vaccine for that year becomes available.

8) Continuous Evaluation

InFLUyentes strategy should be evaluated before, during, and after implementation in order to assess its impact. Before implementing the strategy, it should be presented and explained to the IAB, to determine whether would be feasible or not to implement as it is.

During the *InFLUyentes* training, the educational materials should be assessed by the trainees to determine if the intended message is effective. Also, the system that will be assessing the number of people getting flu vaccinated due to an *InFLUyentes* referral should be evaluated for practicability. *InFLUyentes* and IAB should meet periodically, at least monthly, in order to discuss experiences and feedback they are receiving from the targeted community. This strategy should be clear and simple, but flexible enough so it can evolve along with the Hispanic community and their flu perceptions.

Figure 5 shows an overall picture of what the *InFLUyentes* strategy intends to achieve. A traditional logic model of the *InFLUyentes* strategy can be found in Appendix A.

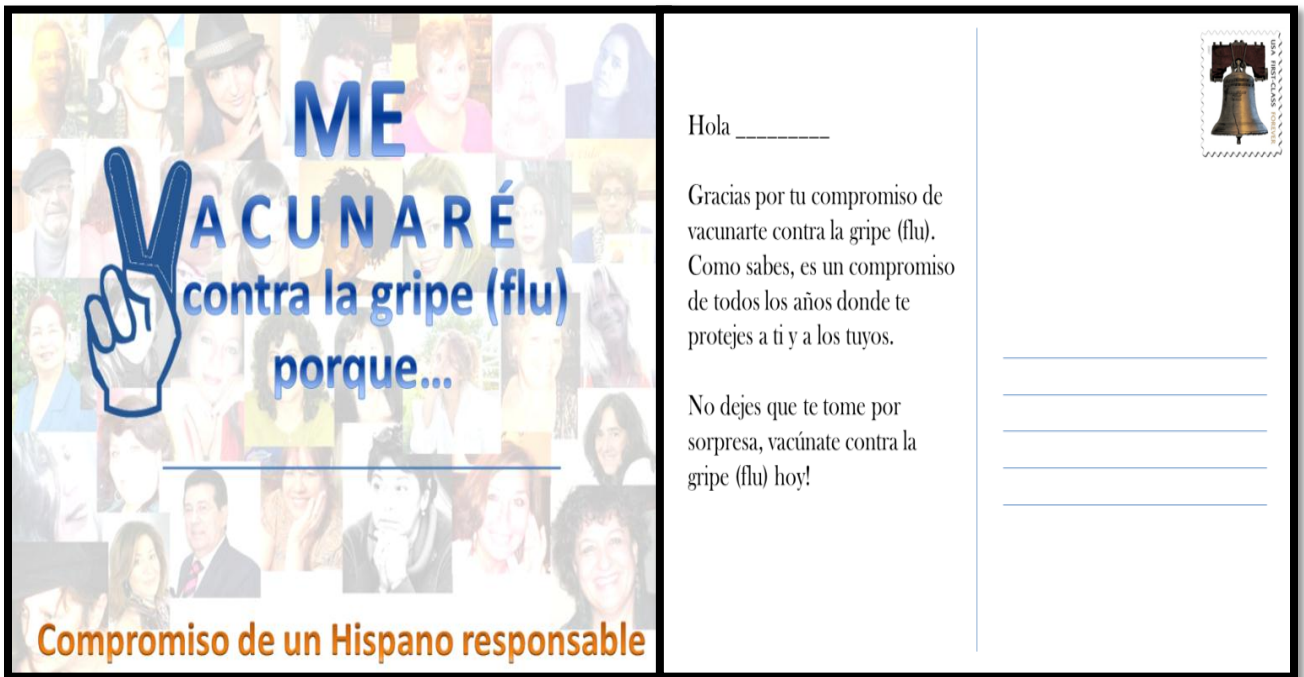


Figure 4: Reminder postcards (front and back) to remind Hispanic individuals and families to get the flu vaccine again the following year

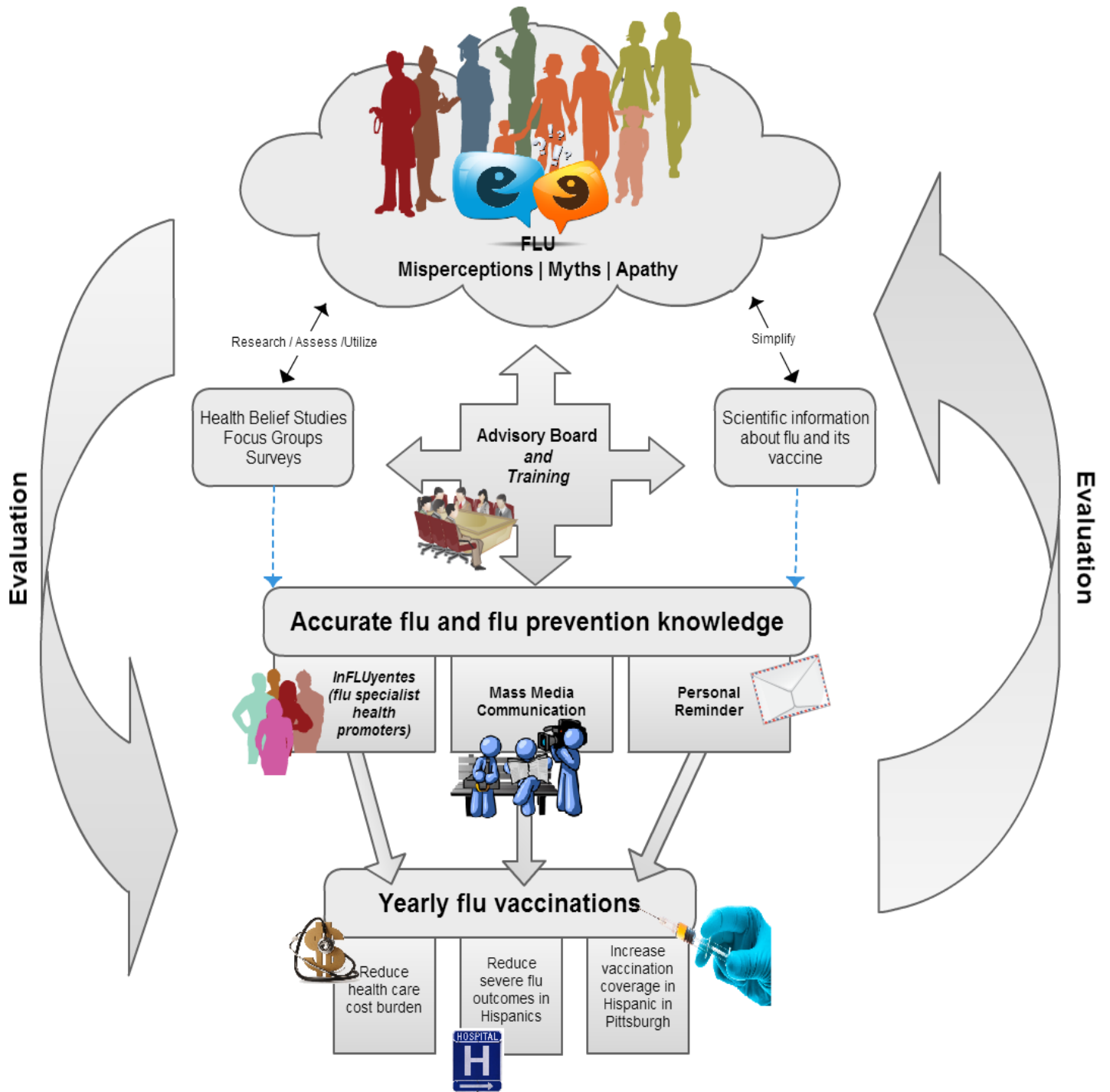


Figure 5: Logic model towards yearly flu vaccination
 Diagram created with Creately Application.
 Source: www.creately.com

[online diagramming & design] creately.com

2.2 INFLUYENTES IN THE MAKING

Why do some people get sick with the flu and why other people do not? Why do we need a vaccine every year? How the virus does evolve? Why some people get the vaccine and still get sick? The accurate answers to these questions are sometimes encountered in the scientific aspects of the disease; answers that has to do with the agent, environment, host and the interaction between these. Having these answers simplified to an adequate educational level where even the least educated person can assimilate it, is pivotal for the insertion of the idea of getting vaccinated against flu. Therefore, the *InFLUyentes* strategy needs to recruit the right people from the Hispanic community of Pittsburgh and efficiently train them with the right skills and information.

2.2.1 Recruiting

2.2.1.1 *InFLUyentes* Advisory Board (IAB)

Members of the advisory board will be those influential members of the Hispanic community. In order to find them, a community survey would be required to ask who will be the person Hispanics are more likely to listen to. Fortunately, there are numerous Pittsburgh's Hispanic organizations that serve specific groups or different strata (Figure 7) of the Hispanic community in the City. For instance, organizations in Pittsburgh that would serve the Hard-to-Reach would be The Latino Family Center, Latino Engagement Group for Salud and the St. Regis Catholic Church; a group that would work with young professionals would be the

Association of Latinos in Finance and Accounting (ALPFA); and the Students and Latinos United against Disparities (SALUD), which brings together students from health-related fields with Spanish-speakers from the community. Leaders and members of these groups are well respected and trusted in their particular targeted group. Therefore, it is preferred that leaders or coordinators of these organizations to be recruited for the IAB.

First, a personal email will be sent directly to each leader of a targeted group-serving organization, inviting them to an initial meeting where the *InFLUyentes* strategy will be

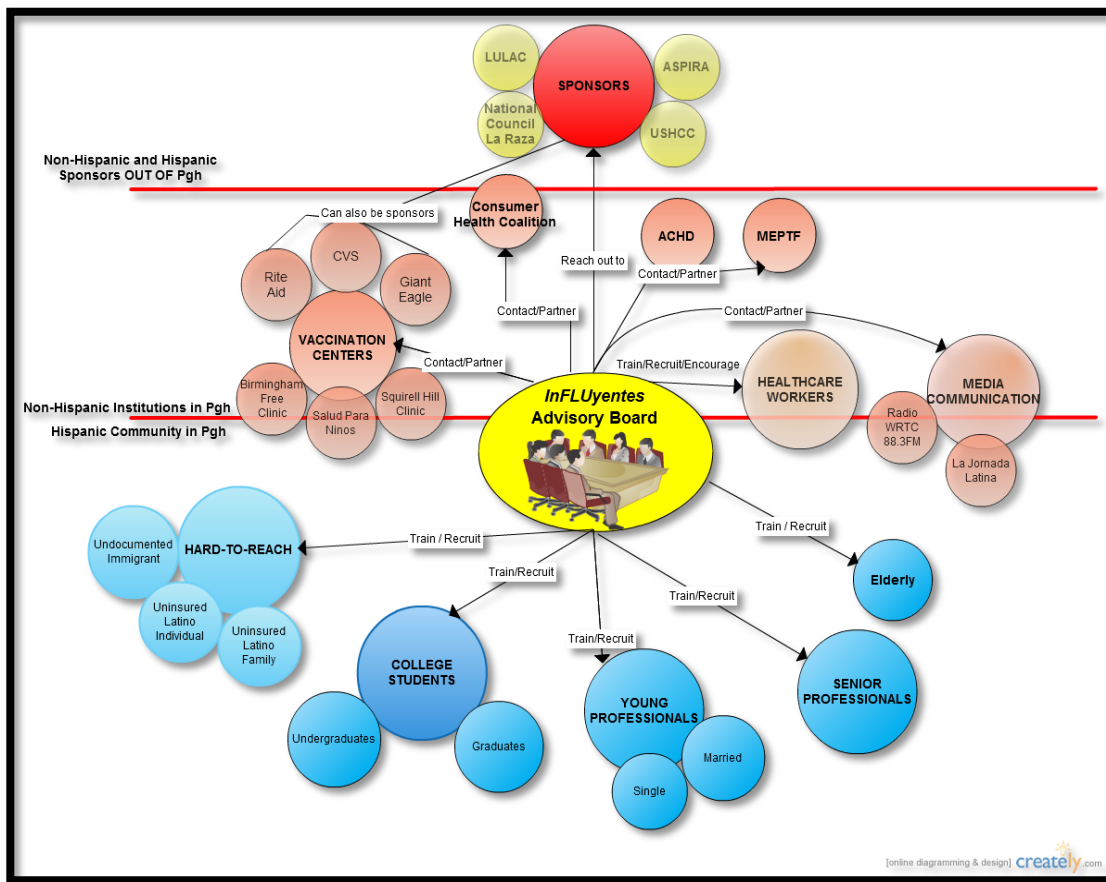


Figure 2: InFLUyentes Strategy stakeholders' map
 Diagram created with Creately Application. Source: www.creately.com

presented. At the presentation, goals and objectives, rewards and compensation will be explained. At the end of the presentation, an application form will be distributed, in order to collect their demographic information, interest, assets for the IAB and availability.

The goal is to find someone who is accepted and trusted in a specific targeted group in the Hispanic community (Figure 7), that has keen interest in the *InFLUyentes* mission and that can provide meaningful contribution to the strategy.

2.2.1.2 *InFLUyentes*: Flu Specialist Community Health Promoters

10 Spanish speakers, preferably those who were elected members of the advisory board will be assigned as recruiters. Five of them will be responsible for sending recruiting emails, distributing flyers and attending to special events, in order to recruit potential *InFLUyentes*.

Similar to the characteristics of a member of the *IAB*, they *InFLUyente* should be accepted by the particular group targeted and must be someone who has frequent contact with people of that particular targeted group of the Hispanic community. There will also be an initial presentation and application, in order to triage the most appropriate candidate. The ideal number is to recruit from 6 to 15 *InFLUyentes* per particular Hispanic group.

2.2.2 Curriculum

The curriculum for *InFLUyentes* will consist of 10 weeks of 2.5 hour classes, twice a week (Montgomery County, 2009). Time, days and location will be decided depending of the availability of the group. It should be noted that time, days and location may vary depending on the targeted group.

The purpose of the curriculum will be to provide the *InFLUyentes* with the information and skills required to change the community perception about the flu and the flu vaccine. The objectives of this curriculum will be to:

1. Increase knowledge about the flu virus and interaction with the immunologic system, in a simple and adequate educational level
2. Increase knowledge on the flu prevention methods
3. To provide the required information to eradicate flu myths and misperceptions
4. To develop skills of public speaking, negotiation and conflict management required for the *InFLUyentes* strategy
5. To develop the ability to evaluate the educational materials utilized in the workshops and eventually to educate the community

2.3 THE MESSAGES

A particularity about the *InFLUyentes* health promotion campaign is that it will utilize common Hispanic sayings or proverbs, in order to increase the cultural relevance and get the Hispanic community's attention. These Hispanic proverbs or sayings are funny and catchy which increases the likeliness of these flu health promotion messages to get integrated into the Hispanic community and to foster our long-term goal of yearly flu vaccination as a community norm. These messages will appear in poster, Public Service Announcements (PSAs), flyers and other types of advertisements. This particular part of the *InFLUyentes* campaign is to bolster educational efforts of the *InFLUyentes* by also sending the message of getting the flu vaccine.

In Table 1, it can be noticed that each particular Hispanic proverb is targeting a specific flu perception. These messages will help the *InFLUyentes* strategy by making members from the targeted Hispanic group to contemplate of getting the flu vaccine.

Table 1: *InFLUyentes* campaign: Get the flu vaccine

<i>InFLUyentes</i> Campaign Messages				
Main message: <u>Get the flu vaccine</u>				
PERCEPTION TARGET	HISPANIC PROVERB	ENGLISH LITERAL TRANSLATION	PROVERB MEANING	MESSAGE
"They do not need the vaccine"	"A todo puerquito le llega su san Martín"	Every pig, gets its Saturday	Everyone will get paid for the sacrifices	Flu affects everyone, even your pocket.
Flu vaccine causes the disease	"El león no es como lo pintan"	The lion is not how they paint it	Not everything is as people say it is.	The FLU VACCINE leads to PROTECTION, not the disease
For those who may not want to listen	"El que no sigue consejos no llega a viejo"	Those who not follow advice won't get to live long	Follow advice to come out well	"Follow the lead of those who know, GET THE VACCINE"
For those who think that flu vaccine is not 100% effective	"Mejor cuidarse, que lamentarse"	Better be safe than sorry	Better be safe than sorry	Get the flu vaccine NOW. Later could be too late.
Healthcare workers that do not get the flu vaccine	"En casa de herrero, cuchillo de palo"	In the blacksmith's home, they use a wood stick	When there is the facility to make or get a certain thing, there is often lack of it.	Be a good inFLUence, GET THE VACCINE
Those who think flu vaccine is only once	"La vacuna como las flores, cada ano una nueva cosecha"	The original saying is "Women are like flowers, every year a new crop"	To say that they will always be more women. Our meaning is "every year there a new vaccine"	Every year there's a new flu virus. GET the flu vaccine, every year!
For those who don't like vaccine	Al mal paso, darle prisa	A step you don't like, make it quick	If you do not like do something, do it quickly so you finish with it soon	Get the flu vaccine NOW, so you won't have to worry later!
For those who already got the vaccine	Pavo que se sale del corral, termina en la sopa	Turkey that gets out of the barnyard, ends in the soup	Do not go out of good manners or end up badly	Got the vaccine last year? Do it this year as well!

Continued Table 2: *InFLUyentes* campaign: Get the flu vaccine

For those who give incorrect or incomplete information about flu	Ni tanto que quemé al santo ni tanto que no lo alumbre	Not much that burn the saint, nor too many to lose the shine.	You should not exaggerate neither adding or subtracting information	Don't add or subtract. Get the FACTS. Talk with an <i>InFLUyente</i>
For those that do not get flu vaccinated because of the price	Salió más caro el caldo que las albóndigas	It ended up more expensive than meatballs	When something that you suppose cheap, is expensive	Not getting the flu vaccine, at the end will be more expensive

2.4 SPONSORS AND PARTNERSHIPS

2.4.1 Partnerships

In order to successfully implement the *InFLUyentes* strategy, it is essential to partner with different institutions and sectors inside and outside the Hispanic community (Figure 7). One of the most essential partnerships is with the vaccination centers. There should always be a clear communication between the *InFLUyentes* strategy coordinators and the vaccination centers, since they will be the ones receiving the people targeted. *InFLUyentes* strategy coordinators have to know the cost of the vaccine and if there have been any changes on health insurance policy, whether that particular vaccination center has enough vaccine, etc. In addition, vaccination centers will also bolster the *InFLUyentes* strategy by asking the client whether they were referred by an *InFLUyente*, to give the client the post card to fill out and to collect that information in a given form.

Also, another important partnership is with the media. They are the ones who will distribute and support the *InFLUyente* campaigns; to make the *InFLUyente* popular within their

Hispanic targeted group and to publish the messages about getting the flu vaccine. In addition, non-profit health-related institutions and organizations such as the Allegheny County Health Department (ACHD), the Minority Emergency Preparedness Task Force (MEPTF) and the Consumer Health Coalition, could also help us to support the distribution and reach of the *InFLUyente* campaign. Moreover, these organizations can complement their own flu health promotion or flu pandemic preparedness efforts, with the implementation of the *InFLUyentes* strategy.

2.4.2 Sponsors

With the intentions to facilitate collaboration and funding for this community-based approach, the *InFLUyentes* strategy should be an independent non for profit organization which will allow a broad range of institutions to sponsor this Hispanic-targeted initiative. One example of a possible sponsor is the National Council of La Raza, an organization dedicated to support and advocate for Hispanic issues, that in 2008 funded a similar initiative with community health promoters in Montgomery, Maryland (Montgomery County, 2009). In addition, private institutions that also may provide vaccination and could sponsor this strategy are pharmacies such as CVS, Rite Aid and Giant Eagle, among others. These organizations and institutions mentioned are only examples of who could be a possible sponsor for the *InFLUyentes* strategy and does not mean that they actually support it.

3.0 PROGRAM EVALUATION

Continuous evaluation is an important component of this strategy that should not be ignored. This strategy is intended to be structured, but flexible enough in order to evolve with the flu perception and culture of the community. Therefore, all components should be continuously evaluated. The purpose of this evaluation is to assess whether the *InFLUyentes* strategy had an impact in the percentage of Hispanics in Pittsburgh getting the flu vaccine. Some of the aspects that would be evaluated includes but is not limited to:

1. Are the *IAB* and *InFLUyentes* well informed about flu and flu vaccine?
2. Is the curriculum feasible for *InFLUyentes* to attend?
3. Is the curriculum feasible for *InFLUyentes* understand and teach forward?
4. Are the targeted Hispanic groups responding to the *InFLUyentes* campaign?
5. Does the Hispanic community feel comfortable talking about flu with the *InFLUyentes*?
6. Does the Hispanic community perceive the *InFLUyentes* as flu-knowledgeable?
7. Are *InFLUyentes* increasing the knowledge of flu and flu vaccine, in their Hispanic targeted groups?
8. Is the increase of knowledge also increasing the intentions to get the flu vaccine?
9. Are the vaccination centers asking the client whether they were referred by an *InFLUyente*?

10. Are the vaccination centers giving the client the postcard reminder for them to fill?
11. Is the *InFLUyentes* strategy having an impact in the flu vaccination coverage among Hispanics in Pittsburgh? Are Hispanics getting vaccinated in a greater number?

3.1 METHODOLOGY

3.1.1 Focus groups

Although the educational information and messages are based on and utilized from previous flu-related initiatives, a focus group should be conducted in order to assess the effectiveness of the educational materials, curriculum and message channel. Questions to ask may include:

1. Where are you getting the information about the flu from?
2. Why those sources?
3. What do you like or don't like about these resources?
4. Is the message intended the one that is received?

3.1.2 Surveys

In order to assess the change of perceptions and intentions, a community survey should be conducted, before and after the *InFLUyentes* strategy implementation, in order to assess the

impact of increased flu prevention awareness in the intentions to get the flu vaccine. These surveys could be conducted either in person, online, telephone or by mail.

3.1.3 Data Analysis

Data from the Allegheny Health Department vaccination registries should be collected, in order to analyze the impact of the *InFLUyentes* strategy on the flu vaccine coverage in the Hispanic community and whether it matches or equals the flu vaccine coverage of non-Hispanic Whites.

3.1.4 Self-report for Satisfaction

In order to assure sustainability of the *InFLUyentes* strategy, surveys and focus groups should be conducted to the members of the IAB and the *InFLUyentes* in order to track their level of motivation and enthusiasm for the project. In addition, changes on motivators should also be assessed. It is also important to assess the satisfaction of those who are partners, in order to keep them motivated to work on this strategy.

4.0 PUBLIC HEALTH SIGNIFICANCE

Important milestones in the history of Public Health, has dramatically changed the quality of life of human beings. However, infectious diseases are still a challenge for health-related professionals. Although chronic diseases are currently a trend of interest for health related professionals, there is always the threat of rapidly evolving microbes that could take infectious diseases again in the number one priority in public health.

Even if health professionals and researchers understand each particular factor that can become a barrier to prevent infectious diseases (i.e. the host, the agent, ethnicity, health system, perceptions, norms, etc.), it is almost impossible to predict the interaction between all these factors. Most diseases, either infectious or chronic, are multi-dimensional issues that require multi-dimensional approaches working collaboratively.

Infectious diseases can be prevented if the individual changes his or her behavior to a safer one. However, approaches in the community, institutional and government level need to be addressed as well, in order to get that person to change and to spread the behavioral change throughout the community. The literature review from this essay (see introduction) suggests that people do not engage in a behavioral change in order to prevent diseases, mainly because lack of knowledge or the correct knowledge. In addition, a common barrier to the access of knowledge is that the available information is not either in their adequate literacy level, nor they trust the source or simply does not relate to them at all. In order to understand the best approach to

educate and help that individual to change his or her behavior, his or her culture values and factors that makes that individual to have the undesired behavior, should be understood. This way, the approach would not only bring accessibility, but also acceptability of that new information or behavior from the community. Thus, in order to impact the community and help them to prevent infectious diseases and change their behavior, for example towards vaccination, it is pivotal to create a multi-dimensional intervention that addresses all these factors and that collaborates with other initiatives with similar goals.

This is exactly what the *InFLUyentes* strategy is proposing. It utilizes different approaches to send the message of flu vaccination.

In addition, would provide knowledge, accessibility and acceptance for and from the community, and eventually influence a social norm in the Hispanic community of Pittsburgh. Moreover, because it is utilizing *InFLUyentes* or flu specialist health promoters from the different particular groups in the Hispanic community of Pittsburgh this strategy can spread the message of flu vaccination throughout the community, overcoming the challenge of a scattered community and of any educational, economic or citizenship status barrier.

According to the social network contagion theory which suggests that the spread of community perception influences the perception of the individual, these *InFLUyentes* strategy could change the Hispanic community perception, in complement with several components. These components, together as a system, are more likely to lead to yearly flu vaccination as a Hispanic community norm. These components include:

1. *A community advisory board with already influential members of the Hispanic community*
2. *Flu specialist community health promoters (InFLUyentes)*

3. *A marketing campaign to increase popularity of InFLUyentes in their community*
4. *A health promotion campaign based on Hispanic sayings or proverbs to encourage them to get the flu vaccine*
5. *Postcard reminders to help increase yearly flu vaccinations*
6. *A collaboration with different institutions and key stakeholders*
7. *Continuous evaluation of the strategy*

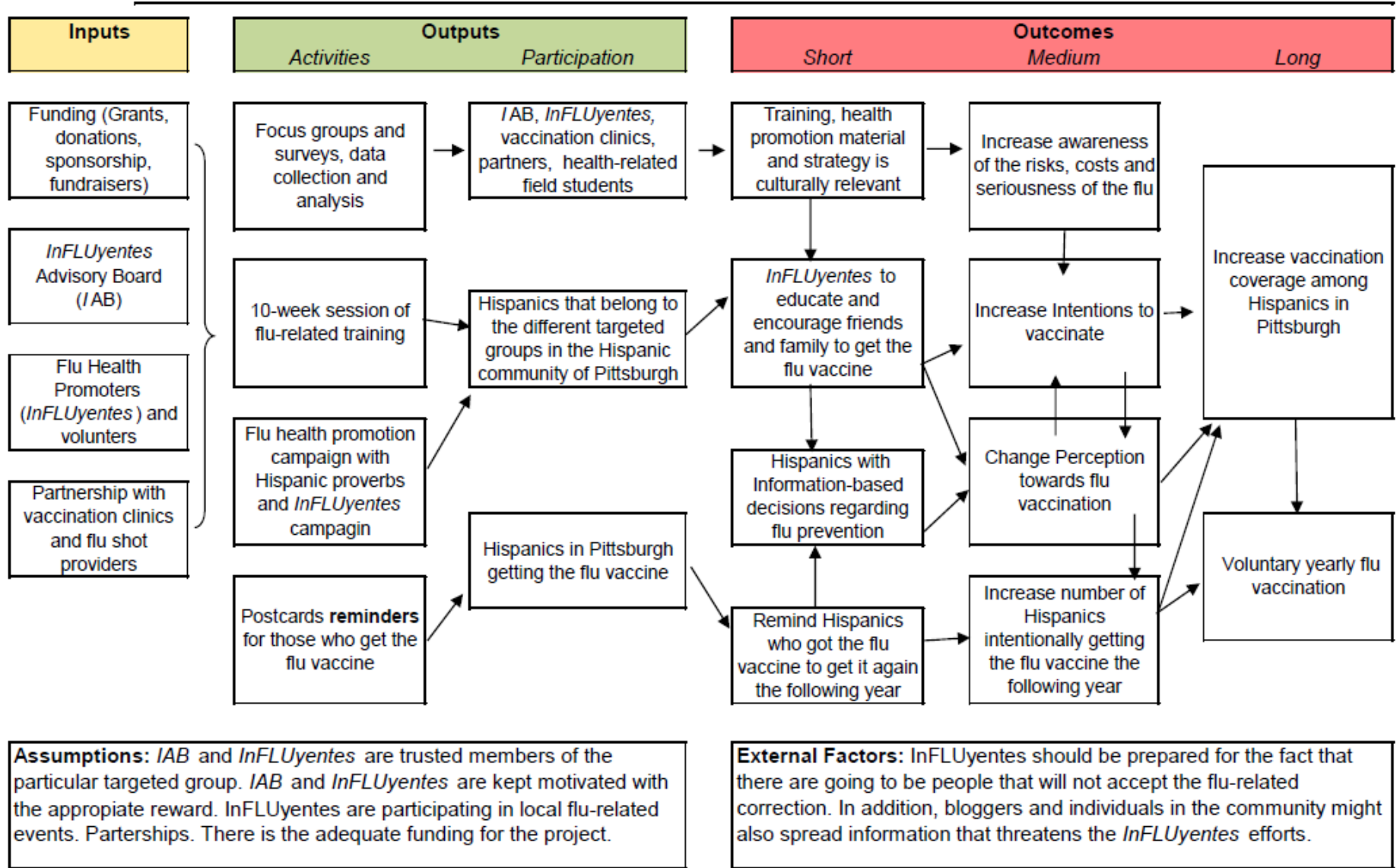
It is important to note that this strategy focuses in the implementation and assumes that a community needs assessment and a situation analysis has been already conducted. Furthermore, this strategy does not addresses specific issues in the different social ecological levels (SEs) such as legal or institutional since it is intended to impact the community, interpersonal and individual barrier to get vaccinated against the seasonal or pandemic flu. Although this strategy is expected to be generalized and applied to other populations, barriers from the SEs to get vaccinated should be examined first and taken into consideration when implementing this strategy.

InFLUyentes strategy is a community-based approach that if proven effective, it can be of a pivotal public health significance that will reduce the incidences of flu while decreasing the costs burden caused by flu outbreaks. Because this strategy is cultural sensitive, it may be implemented in other hard-to-reach communities, in addition to be also implemented as an intervention to many other social issues.

The *InFLUyentes* strategy can also be a method that can help in community flu pandemic preparedness, response and mitigation strategies, since it can use the same system to educate and send a message to the community.

APPENDIX A

InFLUyentes Logic Model



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