

Can the Health Literacy Attributes and Practices of Immunization Providers Successfully Address Racial and Ethnic Disparities in Immunization Rates among Medicare Patients? Lessons Learned from Conversations with Providers

About the Authors

Terry C. Davis, Ph.D., is a professor of medicine, pediatrics, in the Feist Weiller Cancer Center at the LSU Health Science Center at Shreveport, Louisiana. For the past 35 years she has investigated the impact of patient literacy on health and health care, and she has more than 140 publications related to health communication. Her achievements include the development of the Rapid Estimate of Adult Literacy in Medicine (REALM) and of user-friendly patient education and provider training materials that are used nationally.

Dr. Davis has served on health literacy advisory boards for the American Medical Association and the American College of Physicians as well as on the FDA's Center for Drug Evaluation and Research. She is a member of the National Academies' Roundtable on Health Literacy, Healthy People 2020, Health Literacy/Health Communication Section, and she serves on the U.S. Pharmacopeia Convention Expert Panel on Health Literacy. She received the Louisiana Public Health Association's Founders Award for Significant Achievement in Public Health Research. Dr. Davis has a productive record of federally funded research developing and implementing low-literacy interventions to improve the health outcomes of vulnerable populations. Her wide-ranging work focuses on improving cancer screening in rural federally qualified health centers, the self-management of diabetes in safety net settings, the use of health coaches to facilitate weight loss in community clinics, and improving prescription medication labeling.

Connie Arnold, Ph.D., is a medical sociologist and professor of medicine at Louisiana State University Health Sciences Center in Shreveport and the Feist-Weiller Cancer Center. She has over 25 years of experience conducting health literacy research and has over 50 publications on health literacy, health communication, and preventive medicine. Dr. Arnold has extensive experience working with simplifying patient education and research consent documents. She also has experience working with regional safety-net clinics, providers, and patients to develop and test literacy appropriate interventions.

Dr. Arnold has a productive record of federally funded research developing and implementing low-literacy interventions to improve the health outcomes of vulnerable populations. Her wide-ranging work focuses on improving cancer screening in rural federally qualified health centers, the self-management of diabetes in safety-net settings, and the use of health coaches to

facilitate weight loss in community clinics. Dr. Arnold is the principal investigator on a 5-year American Cancer Society health literacy intervention to evaluate follow-up strategies to improve regular colorectal screening in rural federally qualified health centers in the state. She is the Health Literacy Core co-director on a National Institutes of Health grant for the Louisiana Clinical and Translational Science Center.

Jennifer Dillaha, M.D., is the medical director for immunizations and a medical advisor for health literacy and communication at the Arkansas Department of Health (ADH). Under her leadership, low health literacy has been recognized as an important public health problem in Arkansas, and the Health Department has made improving health literacy a cross-cutting priority. Prior to her current roles, Dr. Dillaha served as the special advisor for strategic initiatives in the Office of the Director and the director of the Center for Health Advancement at ADH. She is a member of the National Academies Roundtable on Health Literacy. She is a physician with specialty training in internal medicine and subspecialty training in infectious diseases and in geriatric medicine.

Acknowledgments

The support of Sanofi Pasteur made the research and writing of this report possible. We appreciate the opportunity to conduct this important work. The authors would especially like to thank the project officer, Melissa French, for her guidance throughout the study. We would also like to thank the director of the Roundtable on Health Literacy, Lyla M. Hernandez, and the chair of the Roundtable, Bernard Rosof, without whom this project would not have taken place. We are also grateful to Alexis Wojtowicz, senior project assistant, for help with the administrative and logistical tasks of the project. While we are totally responsible for the content of this report, it would have been impossible to carry out the project without the able assistance of the Roundtable staff. We would also like to express our appreciation to the staff and leadership of the National Minority Quality Forum for providing us with the preliminary data that began this project.

Finally, the authors also would like to thank the following individuals for offering their expertise and insights about effective strategies and potential barriers to influenza and pneumonia immunizations among senior adults across the country:

Joan Bryar Angeletti, RN, MSN – Director of Clinical Support Services, Access Community Health

Network Chicago, Illinois

Olamide Banjo, Pharm. D. – Safeway Pharmacy, Albertsons Safeway Inc., East Coast Division,

Lanham, Maryland

Jennifer Fabre, ANP/FNP-C, CDE – Chief executive officer and clinical coordinator, Teche Action Clinics, Franklin, Louisiana

Frances Ferguson, M.D. – Albany Area Primary Health Care, Albany, Georgia

Laurie Anne Ferguson, NP – Varnado Family Practice Clinic, Greensburg, Louisiana

Carey Fils, RN – Surrey Street Community Health Center Lafayette. Lafayette, Louisiana

George Henderson, M.D. – Medical director, Family Medicine, David Raines Community Health Centers, Shreveport, Louisiana

Keasha Henson, M.P.H. – Assistant regional administrator, Office of Public Health, Region 7, Shreveport, Louisiana

Terry Kevil, NP – Martin Luther King Health Center, Shreveport, Louisiana

Naishadh Mankad, M.D. – Lea Regional Medical Center, Hobbs, New Mexico

Jane Montesane – Director, Martin Luther King Health Center, Shreveport, Louisiana

John B. Miller, M.D., M.P.H. – Medical director, Partnership Health Center, Missoula, Montana

Lawal Mumuney, Pharm.D. – Safeway Pharmacy, Fort Washington, Maryland

Caleb Owusu, Pharm.D. – Rite Aid Pharmacy, Baltimore, Maryland

Steve Sherwood, Pharm.D. – Fred's Pharmacy, Whitehouse, Texas

Sugar Singleton, M.D. – San Juan Health Partners Family Medicine, Aztec, New Mexico

Steve Sparks – Director, Wisconsin Health Literacy, Madison, Wisconsin

Abbie Splawn, Pharm.D. – Overton Pharmacy, Overton, Texas

Felix Valbuena, Jr. M.D., FAAFP – Chief executive officer, Community Health and Social Sciences
Center, Detroit, Michigan

Martha Whyte, M.D. – Regional medical director, Office of Public Health, Region 7, Shreveport,
Louisiana

Gary Wiltz, M.D. – Chief executive officer and clinical chief health officer – Teche Action Clinics,
Franklin, Louisiana

Rhonda Wright, RN – UAMS Family Medical Center, Texarkana, Arkansas

Ron Yee M.D., M.B.A., FAAFP – Chief medical officer, National Association of Community Health
Centers, Bethesda, Maryland

Abstract

This project investigates the application of health literacy principles to the goal of increasing the rates of adult immunizations. We were interested in learning about the current efforts under way among those engaged in administering influenza and pneumococcal immunizations to adults age 65 and over, with particular attention to ethnic and racial minorities. We used qualitative methods to identify the strategies and approaches of health professionals engaged in this work in a variety of settings. This paper reports on the experiences, insights, and attitudes of the health professionals interviewed and offers practical health literacy–directed strategies to others who are engaged in this work.

Background

Although vaccines reduce the burden of preventable illness, adult immunization rates in the United States remain well below Healthy People 2020 goals, and disparities continue to exist, with black and Hispanic adults having immunization rates below those of white populations. The Centers for Disease Control and Prevention (CDC) estimates that every year tens of thousands of people die from vaccine-preventable illnesses. The danger is especially high for people over 65. The burden of illness is also high. Studies of vaccine-preventable influenza have found that higher immunization rates could have prevented a substantial number of cases and hospitalizations (Williams et al., 2015).

There is a growing sense of urgency around this issue. In 2016 the U.S. Department of Health and Human Services released the National Adult Immunization Plan (NAIP), which laid out goals and paths to implementation for increasing the numbers of immunized adults. Other

organizations such as the American College of Physicians are spearheading their own efforts to raise immunization rates among adults. In addition, the administration of vaccines is moving out of physicians' offices and clinics and into the community, with one in four adults who receive the flu vaccine getting it in a pharmacy or other settings (HHS, 2016). Adults 65 and over are also receiving flu vaccines at health fairs, assisted living sites, and other community locations. The energy behind the effort to raise adult immunization rates is encouraging and exciting.

We spoke with people who are on the frontlines of promoting the immunization of adults, particularly minorities and those living in low-income urban and rural areas, to investigate whether attempts to increase adult immunization rates were being undertaken in accordance with the principles of organizational health literacy—specifically, that providers and staff give patients useful, easy-to-understand information and ensure that the receipt of immunizations is convenient and accessible¹. This paper seeks to address three questions:

- 1) What are the experiences of successful immunizers in clinics, pharmacies, and other settings?
- 2) Are these organizations and clinics engaging in health-literate practices to make it easier for patients to access understandable and useful vaccine information and appropriate shots?

¹ A health literate organization makes it easier for people to navigate, understand, and use information and services to take care of their health. More information on organizational health literacy is available at <http://nationalacademies.org/hmd/Activities/PublicHealth/HealthLiteracy/Attributes-of-Health-Literate-Organization.aspx>. (accessed January 10, 2018)

- 3) What lessons can be drawn from their experiences for others seeking to increase adult immunizations, particularly in low-income and minority populations?

By answering these questions, we hope to contribute to the efforts to raise adult immunization rates by illuminating and disseminating successful, health-literate strategies to those engaging in immunizing adults.

Literature Review

We reviewed recent literature related to racial and ethnic disparities in adult immunization rates in the United States. Disparities in immunization rates among adults aged 65 years and older have persisted over the years and, indeed, continue to exist, having most recently been documented in the 2015 National Health Interview Survey (NHIS). During the 2014–2015 flu season, Asians had the highest influenza immunization rate (83.5 percent), while whites (75.1 percent), blacks (64.3 percent), and Hispanics (64.1 percent) had lower rates (Williams et al., 2015). Disparities in 2015 pneumococcal immunization rates indicated that whites had the highest rate of having ever received a pneumococcal vaccine (68.1 percent), while blacks (50.2 percent), Hispanics (41.7 percent), and Asians (49.0 percent) had lower rates (Williams et al., 2015).

A number of studies have examined possible explanations for the observed racial and ethnic disparities in immunization rates among older adults. The majority have examined disparities related to influenza immunization; fewer studies have examined disparities in pneumococcal immunization or in both. The 2015 NHIS found that racial and ethnic disparities in immunization rates decreased when they were adjusted for socioeconomic factors, but the

disparities were not eliminated. This finding suggests that other factors not measured by the NHIS are associated with disparities in immunization rates.

Recent studies have found that racial and ethnic disparities in influenza immunization rates occur among a variety of patient groups, including those at high risk for influenza-related complications due to chronic health conditions or comorbidities, and in a variety of settings, including pharmacies (Lu et al., 2017; Stafford et al., 2013; Wang et al., 2014; Yoo et al., 2015). Lu and colleagues (2017) postulated that “these racial and ethnic disparities may be caused by a multitude of factors including different quality of health care, mistrust of the health care system, low health literacy, negative views on preventative care and vaccination, and insufficient exposure to preventative care” (p. 7). These findings are consistent with older studies that found that disparities in influenza and pneumococcal immunization rates persisted even when access to care, health care coverage, and socioeconomic status were taken into account (Egede et al., 2003; Rangel et al., 2005).

Wang and colleagues (2015) noted racial and ethnic disparities among adults aged 50 and older who were community pharmacy patients. When their analysis was adjusted for differences in socio-demographic and health status characteristics, there remained a significant difference between the immunization rates of whites and of blacks, but not for whites compared with Hispanics. The authors noted that prior research had found that “resistant attitudes and beliefs about immunizations are highly prevalent among Blacks, in comparison to Hispanics and Whites” and suggested this as a possible explanation for the differences in immunization rates. The authors also suggested that the possibility of distrust in the health system and a “lack of support for in-pharmacy vaccinations among pharmacy staff practicing in

minority neighborhoods could be another possible reason for these observed disparities” (p. 7–8).

The resistance and distrust noted by Wang and colleagues is often referred to as vaccine hesitancy. In a comprehensive review article, Schmid and colleagues (2016) concluded that “confidence, as well as complacency, are major reasons for influenza vaccine hesitancy. Complacency was mostly expressed by low worry, low perceived risk and severity of the disease. The lack of confidence was expressed by doubts about the safety and effectiveness of the vaccine as well as lack of trust in health authorities, and among other knowledge gaps, the belief that the vaccine can cause the flu” (p. 19).

Almost all of the studies that we reviewed noted racial and ethnic disparities in influenza and pneumococcal immunization rates among their older adult population. However, one study did not. Appel and colleagues (2006) reported a lack of racial and ethnic disparities in immunization rates among the older adults served in an urban public health system of federally qualified health centers. In their study, which was carried out between 2001 and 2003 on 740 patients aged 66 and older with a minimum of three primary care visits during the previous 2 years, white patients had lower pneumococcal immunization rates (61 percent) than did patients who were black (73 percent), English-speaking Hispanic (76 percent), or Spanish-speaking Hispanic (77 percent). A similar comparison of the influenza immunization rates among their patients showed no differences related to race and ethnicity. These were unexpected findings. The authors noted that “inclusion only of regular patients who are engaged in care may miss important variation in access to care that is borne out by population based studies” (p. 1056) and likely reflected “important structural and cultural characteristics”

of their organization. For example, many of the community health center and hospital physicians, nurses, and medical assistants came from the same communities as their patients, which resulted in high racial, ethnic, and language concordance between health care providers and the patients they served, leading to improved outcomes. It was unclear, however, how such concordance actually leads to a lack of racial and ethnic disparities in immunization rates and whether such concordance is necessary for eliminating the observed disparities.

Several studies have examined the impact of health literacy on immunization status (Castro-Sanchez et al., 2016). Bennett and colleagues (2009) conducted a cross-sectional study of a nationally representative sample of U.S. adults aged 65 and older from the 2003 National Assessment of Adult Literacy and found that low health literacy mediated racial and ethnic disparities in influenza immunization rates. In a study of the impact of health literacy on influenza and pneumococcal immunization rates among Medicare enrollees in a managed care organization, blacks had lower influenza and pneumococcal immunization rates than whites (Howard et al 2006). The researchers observed, however, that health literacy did not explain the differences in receipt of immunizations, and they suggested that managed care plans that encourage patients to use preventive services may diminish the disparities in immunization rates by race that would be attributable to health literacy.

In summary, our literature review found ample evidence of racial and ethnic disparities in influenza and pneumococcal immunization rates among older adults. These disparities persisted over time and occurred among a variety of patient populations and in a variety of settings. We also found that demographic and socioeconomic factors did not fully account for the observed racial and ethnic disparities. Health literacy and a perception of close

relationships with providers were found to have an impact on racial and ethnic disparities with regard to immunization rates. However, the studies to date have focused on measuring the health literacy characteristics of the patient population. Little work has been done to understand the impact of the health literacy attributes and the practices of health care organizations on racial and ethnic disparities related to immunization rates. Appel and colleagues (2006) postulated that the characteristics of the health system they studied may have accounted for the lack of racial and ethnic disparities in immunization rates among their patient population. We wonder if the concordance they identified in health care providers with the patients served is perhaps a surrogate for attributes and practices that make the health care system they studied a health-literate organization.

Methods

This project is focused on identifying the approaches—both individual and organizational—employed by sites that provide immunizations to adults. To maintain this focus, we defined the scope of the project to minimize the influence of other structural causes of low adult immunization rates and disparities between populations. In particular, we focused on the Medicare-eligible population of adults 65 and over so that payment would not be an issue, and we examined only two immunizations—influenza and pneumococcal—both of which are recommended for people over 65. We viewed Immunization approaches from a health literacy perspective—that is, does the system make information about immunizations easy to understand and make immunizations accessible and convenient for patients?

We began by reviewing the recent literature on adult immunizations in order to provide context on rates, disparities, and challenges. We also received Centers for Medicaid & Medicare Services data showing the number of immunizations administered to black and Hispanics by ZIP code. This allowed us to see the variation in immunization rates across the country and underscored the need to interview people in geographically diverse areas. The goal of this project, however, was to determine what we could learn by stepping outside the published literature and population level data and speaking to those with on-the-ground experience in promoting and administering immunizations to adults, particularly those 65 and over, and black and Hispanic populations. The interviews that we conducted with individuals around the country are the foundation of this project.

We used peer-to-peer networking to identify people with a wide variety of roles and experiences in immunizing older adults within low-income and minority populations, specifically blacks and Hispanics in both urban and rural areas. We found our interviewees by contacting professional organizations such as the American Pharmacists Association, the American College of Physicians (ACP), and the National Association of Community Health Clinics. We also contacted federally qualified health centers, colleges of pharmacy and medicine, offices of public health, and nonprofit organizations serving seniors and those with low literacy. With help from these individuals and organizations we were able to connect with 23 professionals in 11 different states. Most of the interviews (18) were with senior providers in community clinics and pharmacies.

We spoke with physicians and nurse practitioners in urban and rural clinics, public health departments, and community agencies as well as with senior pharmacists at both chain

and independent stores in urban, suburban, and rural areas. The health professionals we interviewed had firsthand knowledge and experience in immunizing black and Hispanic individuals who were 65 or older. The interviewees served diverse, but predominately low-income populations in terms of socioeconomic status and were integrally involved with their communities. Interviewees were invited to participate over e-mail or by phone and were given background information on the project, the authors, and the Roundtable on Health Literacy. The interviews took place via conference call. The authors put together a moderator's guide based on the literature review and expert opinion which contained sample questions and was shared with the interviewees before the interview took place.

It is important to note that this project was not intended to be a survey but rather a series of conversations. The value of these conversations is their flexibility and the opportunity to follow up on interesting ideas or answers. Trained qualitative researchers interviewed participants via telephone. The interviews averaged 45 to 60 minutes in length and followed a semi-structured interview guide. The interview guide was designed to capture the flu and pneumonia immunization strategies and experiences of diverse sites in immunizing patients aged 65 and over.

The interviews began with general questions about the site, the population served, and current efforts. The questions became more specific and tailored to the interviewee as the conversation continued. The interviews were not recorded. However, two experienced qualitative research note takers and a primary interviewer participated in each interview. Each note taker produced a summary of the interviews. The team identified themes and categories.

After completing the interviews, the team refined the resulting themes, which are presented in this paper.

There are some limitations to this approach. First, we were limited in the number of individuals we were able to interview—23 individuals in 11 different states. Given the time necessary to identify, contact, and coordinate with each interviewee it was not feasible to interview more senior providers or community agency or organization leaders. We tried to overcome this limitation by ensuring that we interviewed a diverse group in terms of the type of provider or organization as well as the geographic location. Second, as noted above, we discussed only two of the CDC-recommended immunizations for adults over 65—influenza and pneumococcal vaccines. We do not know if our interviewees' experiences in administering these two vaccines would apply to the other recommended immunizations. In addition, the difference in recommended frequency for the two vaccines—flu annually and pneumococcal usually one dose of each of two pneumococcal vaccine types for all persons aged 65 and older—led to flu dominating the conversations. Finally, also as noted above, we focused on individuals 65 and older in order to eliminate the effect of cost on the decision to accept an immunization. This complicates, but does not obviate, the potential lessons learned from this project for populations younger than 65 and for undocumented individuals.

Qualitative Interviews

Successfully immunizing adults 65 and older for flu and pneumonia requires a multi-step process of engaging patients, assessing vaccination status, providing recommendations and educating the patients about appropriate vaccines, administering the vaccines, and

documenting the immunizations. The clinic and pharmacy senior providers, public health officials, and leaders in community agencies whom we interviewed implement systems to make immunization accessible and convenient for patients. Patient education, staff training, tracking, advertising, and outreach varied by site. All leaders had a personal interest in serving their patients and their communities. Vaccine systems and communication were viewed through a health literacy lens (Can the patients understand the information given, and is it easy for them to get the immunization?). Successful strategies and challenges were identified. The following is a summary of themes identified.

Receptivity and Resistance

Findings from our interviews indicated most adults 65 and older were receptive to influenza and pneumococcal immunization. Although racial and ethnic disparities in immunization rates continue to exist, as reported in findings from large datasets, the providers we interviewed experienced little resistance to either the flu or pneumonia shot from seniors they care for, regardless of race or ethnicity. Several pharmacists and physicians said that the people who give “push back” don’t tend to be older adults (65 and older) but rather the 20-year-olds who have never been sick.

When we asked clinic and pharmacy providers specifically about resistance, almost all indicated that patients had more experience with the influenza vaccine and were more likely to have misconceptions about it than the pneumococcal vaccine. Patients were more likely to question the safety and efficacy of flu vaccine and less likely to perceive the flu as a severe illness. With vaccine resistant patients, providers reported that the pneumonia shot is an easier

sell because people do not have to do it every year and do not have negative experiences associated with it.

The most common misconception was that the flu shot will give you the flu. This belief did not seem to vary by race, ethnicity, income or site. The belief appeared to be based on patients' perceptions that they or someone they knew had gotten the flu soon after receiving the shot. No provider reported hearing this expressed about the pneumonia shot. Other resistance was expressed as, *"I have never had the flu, so I don't need to be immunized," "I follow what my parents did—eat well," "If it ain't broke don't fix it," and "I don't want to put all those chemicals in my body."* One community agency leader said that some Hispanic patients thought the flu vaccine would make men sterile. Other providers for Hispanic patients had never heard of this belief. One provider said that a few older African American patients remembered the swine flu epidemic where some people had died and were concerned about *"what was being injected into them."* One urban pharmacist in Maryland said that he found people with higher education to be more accepting of flu shots, while a rural physician in New Mexico found people with higher education to be more likely to question the necessity of immunizations.

Senior clinic or pharmacy providers said that most people were receptive to a recommendation by the first-line provider they encountered, such as a drug store clerk or pharmacy technician or an intake nurse at the clinic. They said that those who were resistive and had misconceptions were usually receptive to brief, personalized information from a trusted physician or senior pharmacist if that provider was confident and genuinely cared about the patient. Physicians are notified about the need for more education by the clinic prevention

checklists or a nurse's note. At chain drug stores senior pharmacists said they had learned to have an ear for what is going on at the front desk, so they could chime in when needed.

All senior providers we interviewed see patients daily. Most senior providers reported listening to patients' concerns and giving them accurate, up-to-date information on the vaccine, its timeliness, risks, and benefits. As one provider said, *"You need to be willing and prepared to take the time to explain why it was important for them to be immunized."* These providers often personalize the recommendation. Here are a few examples from primary care providers:

"Because of your health condition it is important for you to get the flu shot." *"Because you have a new grandchild who cannot get immunized yet, you need to get immunized."* *"There are already cases of flu in our community."* *"This is not the shot of the 1980s."* *"If you have been exposed to the flu very recently you can still get the flu—it takes 2 weeks for the flu shot to take effect [explained the mechanism]."* Pharmacists also tailored their recommendations based on the patient, such as whether the patient is diabetic or has a chronic illness that makes it particularly important to get a flu shot. One small town provider said it helped if he let them know *"my wife, children, and I all take it; I recommend this for my parents."* One urban provider tells his patients *"I am the first one to get the flu shot at our clinic."* One chain drug store pharmacist said, *"It is incumbent on the pharmacist to know your customers and tweak the message for your store and your customer base."* Providers at all sites noted that having a good relationship with patients keeps pushback low. A member of a public health unit in one state said, *"We stress how dangerous flu is for young grandbabies and children. Vaccinating yourself helps protect your grandchildren from getting it."*

Several providers said that spending time with patients and being curious about their concerns shows that you care. One doctor said that addressing patients' concerns about the vaccine really does not take that much time—he estimated 5 minutes, while another doctor estimated 1 minute. Although a few patients in all settings still refused, providers believed it was important to stay consistent and to ask at every visit or every time a person came to the pharmacy. *“This lets them know you see immunization as important; the patient may decide to get immunized next time or next year.”*

Resistance from Minority Groups: Blacks and Hispanics

Most pharmacists and providers we interviewed found that most patients of all races and ethnicities were receptive to being vaccinated. Among those who were resistant, the majority changed their minds when given information and explanations, especially by a senior provider. One nurse said, *“Minority populations still defer to what the provider recommends in this clinic.”* Several providers in various settings and geographic locations said that the idea that African American seniors do not want to be vaccinated is a myth. Providers also indicated that blacks and Hispanics were receptive when asked by the “right person.” When probed, providers said that such a person is someone the patient knows and trusts, someone the patient believes has his or her best interests at heart. One chain drug store pharmacist said, *“Trust is particularly important for minorities. Knowing patients' names is important.”*

Providers who work with large numbers of Hispanic patients said they were generally more receptive to immunization than other groups. Some providers mentioned that recent immigrants may not be familiar with immunizations because they never received them growing

up and therefore are more resistant to the idea. Language may also be a barrier with non-English speaking patients. One provider of predominantly Hispanic immigrants said that over the years, *“many resistant, Spanish-speaking patients will eventually develop trust in you and get the shot.”*

Value of Personal Relationships, Trust and Sense of Mission and Community

All providers said the key to immunizing patients is genuinely caring for them, knowing current guidelines, and being confident in informing patients. The providers we interviewed are leaders in their clinic, public health department, or pharmacy; are fully engaged in their sites' immunizing plan; and view immunization as part of their health care mission. These providers believe that personal dedication matters and that part of their immunization practice is to reach out, connect, and communicate with their patients. They are dedicated to helping patients stay as healthy as possible. The agency leaders whom we interviewed believe that making information readily available and making the delivery of vaccines convenient are important parts of their service to seniors. Also, it is important to note that, as the chief medical officer of the National Association of Community Health Centers said, *“community health centers tend to have higher immunization rates than the general public because of the continuity of care they offer, the trust their patients have with the providers, and these clinics are embedded in the community.”*

Almost all of the providers whom we interviewed are extremely patient- and community-centered. Relationships with patients are important to them, as one provider noted: *“Patients need to trust you and to feel you care about them. Patients can tell if you care*

for them, are honest with them and genuinely like to take care of people.” For patients who have misconceptions, senior providers said that it is essential to listen to them, to be curious about their concerns, and to address them with current evidence. They said that patients usually realize that providers who take time with them, listen to their concerns, and explain the current vaccines and their benefits have their best interest at heart. In rural areas longstanding patient and community relationships engendered a strong level of trust in providers working in clinics and pharmacies. One small town provider said, *“I care for seven generations in one family, from newborn to a 97-year-old. I have known these people a long time.”* One urban provider noted also that *“it helps that I see the whole family.”* Rural providers often comment that these people know you, they see you at the gas station, the grocery store, etc. One small town independent pharmacist said, *“People in this town know me. I have built up a business over the years.”* One urban chain drugstore pharmacist said, *“You have to love your community and the people you serve.”*

Systems Approach: “Leadership Matters”

Successful strategies in pharmacies, clinics, and community agencies are driven by senior leadership. Senior providers and corporate and agency leaders set immunization as a priority for their sites and promote organized training for the whole system so that all clinical staff buy into the importance of vaccinating from the top down. The immunization plan for chain drug stores is set by corporate headquarters and tailored by store pharmacy leadership. One senior pharmacist said, *“Corporate gives you a goal based on number of prescriptions you have filled. Once the goal is set, the pharmacists meet with their teams and come up with a*

game plan. It is incumbent on the pharmacist to know their customers and tweak the plan for their store and your customer base.” In independent drug stores the plan is created by senior pharmacists and based on current guidelines and plans that were successful in the past or were appropriate for their town and customers. In clinics, the plan is created by senior clinical staff and is often based on the most effective plan in previous years.

Training and Education of Provider and Staff: Knowledge and Confidence are Important

The clinics and drug stores with the most effective systems provided all providers and staff with training on CDC Advisory Committee on Immunization Practices (ACIP) recommendations² for adult immunizations—what is new and improved and what supplemental information they needed to know. The training included the importance of making patient-centered care and preventive care a priority in health care. Chain drug store training included the purpose of being a pharmacist and how to make services more accessible and convenient. Chain drug stores held cluster meetings, and the corporate office arranged conference calls and provided pharmacists with pocket cards with vaccine talking points. The corporate office immunization leader said, *“The more comfortable the pharmacists are with that information the more comfortable they are about talking to patients about it.”* The same is true for staff and technicians as well.

In clinics the plans were clinic-based, or if the physicians were internists they sometimes adapted the ACP *I Raise the Rates*³ plan. In that ACP plan, clinics identify a chief vaccination

² Available at <https://www.cdc.gov/vaccines/hcp/acip-recs/index.html> (accessed December 11, 2017).

³ For more information see <https://www.acponline.org/clinical-information/clinical-resources-products/adult-immunization/i-raise-the-rates> (accessed December 11, 2017).

officer (CVO) or champion who is trained by ACP in three 1-hour webinars on the importance of adult immunizations and how team members can help protect all the practice's patients. In addition, ACP provides personalized coaching calls with members who have been CVOs to help develop and implement a plan for increasing immunization rates in their practice. The champion is incentivized for participation with a stipend or a funded trip to the annual ACP internal medicine meeting. Others are given funding to provide lunch for clinic staff to promote immunization and celebrate the team that does a good job of increasing immunization rates. The ACP plan has talking points for physicians on what to say if patients refuse immunization. Individual clinics modify the messages and plan based on their patient population and needs. One urban clinic pays for all its staff to attend training provided by its state on the current recommendations on influenza.

In public health departments, immunization plans for seniors were partly driven by the state department of health and fine-tuned by clinics in each region. In all clinics with a system approach, the clinic held monthly "lunch and learns" or regular in-service training to help sustain the clinic immunization vaccine plan and to make sure everyone was on the same page. Senior leadership believed that the regular meetings helped the staff stay consistent and confident in asking patients about flu shots at multiple levels. Everybody is included in education about immunizations: pharmacy technicians, clerks, and pharmacists. Chain drug stores made simple, easy-to-read handouts for patient education as well as reminders for technicians since they are not pharmacists. Clinics sometimes made pocket cards with information about how to discuss immunization questions with patients. One nonprofit organization developed a workshop about adult immunizations for the people they served

across the organization's state and trained volunteers to lead workshops. Notably, the most successful programs provided the vaccines on-site. In public health departments, nurses were required to stay current on immunization and the services they provided by attending state and regional training sessions and on-site training as well as by taking part in webinars.

Standing Orders in Clinics

The most common systems approach in all clinic and public health sites was the use of standing orders. A standing order regarding immunizations empowers nurses to give a vaccine to patients without having to wait for a doctor's order or for an appointment. Champions (usually a nurse practitioner or a physician) on site encouraged staff to keep up with standing orders. Training was important. The ACP plan and some clinic plans had very specific information or prescriptions for the nurses, so that the nurses knew exactly who they could immunize and for what as well as what the educational message for patients should be.

With standing orders during triage, the nurse could ask if a patient would like a flu shot and then the patient could get the shot before the provider came in. If the patient declined, the nurse used whatever method of communication the team had pre-decided to use (in the chart, check list on sticky note, or word of mouth) to let the provider know the patient had refused the shot. The method varied by the provider/nurse team. One clinic left flu questionnaires in the exam rooms. When the provider talked to the patients, about half would agree to get the immunization. The physician commonly probed, listened, and explained. Why don't you want the shot? What are your concerns? Common provider-delivered education included: *"It's not a live vaccine, you can't get flu from taking it"* and *"I recommend taking ibuprofen to minimize*

discomfort.” Providers commonly went through the risks of not taking the vaccine, especially if the patient was at high risk for pneumonia or other health problems. One said that it’s important to *“let them know you care and spend time with them.”*

Public health clinics checked immunization records of their seniors when they come to the clinic (including when coming for WIC⁴ for their grandchildren) and offered them needed vaccines. One physician, who is the chief executive officer of a clinic, noted that providers are only as good as the system. A pharmacist said, *“There is no perfect system. You need to tailor your strategy for your store.”* Every store and clinic interviewed was different from the others. However, successful plans involved all staff and included a good way of tracking and reporting rates, as one person put it *“so we will know whether we are doing a good job and where we can improve.”* Everyone on the team should be invested in improving immunization.

Other clinics with standing orders also had flu shot days or flu shot pop-ups (temporary 1-day clinics) at the front of the store or clinic. Some clinics used the electronic health record to develop a list of patients 65 and older to whom they then sent a reminder that they were due for a flu shot. One clinic had a pre-visit team meeting, and the team went over the preventive health care checklist to see what the patients needed before they arrived for their visit.

Organizing Teams, Tracking Progress, and Offering Incentives

Several of the pharmacies and clinics reported that they had found that organizing into teams was productive. Providers said tracking immunization rates of each team member and

⁴ WIC stands for the Women, Infants, and Children program which is a supplemental nutrition program funded by the federal government but implemented by the states.

providing feedback to the entire clinic or pharmacy motivated everyone. Tracking fed into providers' competitiveness while also serving the goal of getting patients immunized. Chain drug stores also conducted quality improvement comparisons among their stores. Some of the drug store chains and clinics used incentives to help motivate teams. For staff this ranged from gift cards to lunch and in-store discounts. Providers were also incentivized by cash prizes and company recognition.

Public health departments viewed immunization as part of their public health mission. Quality improvement and analysis were done on clinics' immunization rates. Comparisons of these rates were made by clinics in their regions and in the state and distributed to all clinics.

Tracking among/between Sites

Clinics found that tracking of immunizations was problematic if patients did not receive immunizations on site. Commonly used tracking systems do not allow pharmacies and clinics to easily share information. Some pharmacies tried to assist clinics in their tracking efforts by faxing information to clients' providers. When this was not done, the clinics had to rely on patients' memories. The chain drug store pharmacists whom we interviewed said that their pharmacies checked insurance records to ensure that patients were due for immunizations.

All states have immunization registries. These are required for children and can also include adults, although they are not commonly used for adult vaccines except in public health clinics. One clinic said, *"The issue is that there is no interoperability between systems, and a clinic must receive training from the state and get a user's license and agreement to use it"*.

None of the pharmacies or clinics in the 11 states where we conducted interviews reported that their states had mandatory adult registries.

Materials Given to Patients and Health Literacy Appropriateness

As required by federal law, all providers gave patients the appropriate CDC Vaccine Information Statements (VIS)⁵ with each shot. These VIS information sheets explain the benefits and risks of each vaccine. According to the CDC website, the VIS provides “*enough information that anyone reading them should be adequately informed.*” Providers said that they appreciated that the VIS sheets were available in multiple languages (38 for flu, 21 for PCV13, and 18 PPSV). Few providers (mostly nurses) used the VIS statements as teaching tools. Most providers relied on oral communication and personalized patient education rather than depending on written materials to educate patients. In one community clinic providers developed their own material for patient education about pneumonia vaccines which included posters, provider education, and “scripts” for nurses.

Although the VIS sheets were developed to be easy to read and understand, some providers did not think they were literacy appropriate for their populations. A few providers found that the *Immunization Action Sheets (IAS)*⁶ developed by the Immunization Action Coalition (IAC) were more literacy appropriate and useful. The IAC materials are shorter than the VIS sheets (225 words versus 1175 words), have more white space, and contain illustrations. The IAS flu handout has a more action-oriented title, *Protect Yourself from*

⁵ Available at https://www.vaccines.gov/more_info/vis/index.html (accessed December 11, 2017)

⁶ Available at <http://www.immunize.org/> (accessed December 11, 2017)

Influenza: Get Vaccinated versus the VIS title, *Influenza (Flu) Vaccine (Inactivated or Recombinant): What You Need to Know*. Reading grade levels for the VIS are 8th grade level for flu and 9th for pneumonia, according to the Flesch-Kincaid readability formula.⁷ IAS flu and pneumonia handouts are both 7th grade reading level. The suitability as determined by the Patient Education Materials Assessment Test (PEMAT)⁸ is greater for the IAC materials than for the VIS. For example, for IAS flu the understandability and action ability scores are 88 percent and 60 percent [out of a possible 100 percent], compared with 54 percent and 60 percent for VIS. Pneumonia IAS was 93 percent and 100 percent versus 46 percent and 40 percent for VIS.

Chain drug stores used materials created by their corporations in addition to the VIS sheets. These were available at the pharmacy and in pop-up flu clinics organized by the drug stores. In the interviews, pharmacists did not comment on their appropriateness. Locally owned independent pharmacies reported getting materials for patients and signs from their wholesaler.

Outreach and Advertising

The pharmacists we interviewed in chain drug stores and in independent pharmacies were involved in flu shot outreach in their communities. One pharmacist said, “*Go to them instead of them coming to you.*” Chain drug stores encouraged pharmacists to work with outside organizations such as nursing homes, nearby apartment complexes, churches, and

⁷ Available at <http://www.readabilityformulas.com/flesch-grade-level-readability-formula.php> (accessed December 11, 2017)

⁸ Available at <https://www.ahrq.gov/professionals/prevention-chronic-care/improve/self-mgmt/pemat/index.html> (accessed December 11, 2017)

other community organizations. Both independent and chain pharmacies conducted pop-up flu shot clinics in various sites: senior centers, apartments where a large number of seniors lived, nursing homes, health fairs, council-on-aging sites, Friday night football games, businesses, and school systems (for administrators and faculty). One small town pharmacist said he hoped to set up a pop-up flu clinic in parks for recreational vehicles where retired seniors often park when traveling. Pharmacies also advertised in store fliers and on posters and signs placed in front of the stores and inside the stores. Some pharmacies had immunization tables with flowers and seasonal displays that had a staff member present. These staff members answered questions, recommended the shot, and distributed pamphlets created by the drug store.

Some pharmacies in grocery stores had incentives for patients to get “points” on their store rewards cards or a reduction in the cost of groceries. Clinics were less likely to advertise but some had information on their doors or posters inside the clinic or on a “*big electronic bill board that switches messages.*” Some clinics had walk-in flu clinics run by nurses once a week. Some clinics also partnered with pharmacies which then offered health fairs, vouchers for vaccines, and special vaccine days at the clinics.

Both clinics and drug stores had flu shot messages on their answering machines, and some clinics had a flu shot message on the automatic phone reminder of upcoming appointments. One independent pharmacist texted patients about the availability of flu shots. All interviewees also mentioned informal word-of-mouth dissemination of the message that flu shots were fast and convenient at the local clinic or drug store.

Public health departments viewed large public health immunization campaigns as very important. Each region conducted its own outreach efforts, such as advertising in newspapers

or billboards, advertising on TV, and speaking to community groups. Public health nurses also provided significant outreach by providing flu shots at health fairs with city employees and school systems as well as conducting pop-up immunization clinics in churches and community centers after hours or on weekends. These nurses also used storms, hurricanes, and floods as an opportunity to immunize people in shelters. One state's department of health sent out flu reminder postcards to those 65 and older. However, only individuals who had previous immunizations were entered into the system. Therefore, this notification missed many people.

Challenges

The people we interviewed identified a number of challenges to immunizing our target population. For example, some small clinics were not able to stock pneumococcal immunizations because they are too expensive for the clinic to purchase. These clinics referred their patients to a pharmacy to receive this vaccine. Other clinics stated that it was challenging to stock an appropriate number of flu vaccines. Concerns about purchasing vaccines that would not be used caused clinics to limit their outreach.

Timing was another issue mentioned by our interviewees. Pharmacies tended to initiate flu shot campaigns in late August. Clinics often waited until late September or early October. Providers stated that they believed that it was better to wait to ensure that the immunization would last through the entire flu season. Additionally, most primary care providers we interviewed said they believed that the CDC recommends waiting until fall. However, the CDC's ACIP recommendation for the 2017–2018 influenza season states, *“Optimally vaccination should occur before the onset of influenza activity in the community. Health care providers*

should offer vaccination by the end of October. Community vaccination programs should balance maximizing likelihood of persistence of vaccine induced protection though the season with avoiding missed opportunities to vaccinate or vaccinating after onset of influenza circulation occurs” (Grohskopf et al., 2017). The American Academy of Family Physicians recommends that providers offer the flu vaccine as soon as it becomes available and continue to provide it throughout the flu season.

Interviewees also mentioned several challenges that occur outside the clinic or pharmacy that have an effect on immunization rates. For example, a number of rural providers noted that in rural areas it can be difficult to arrange for transportation to clinics just for vaccines. In order not to miss an opportunity to have its patients immunized, if a rural clinic has not yet received its vaccine supply, providers recommended that their elderly patients or those living in the country get their flu shots at the pharmacy.

Summary of Lessons Learned

The people that we interviewed viewed immunization as a process rather than a discrete task on a checklist. Successful immunizers adopted a systems approach that aligned closely with health literacy principles and the attributes of a health-literate organization. Specifically they had support from their leadership, adequately prepared their workforce, and used health-literate communication strategies such as tailoring their messages and using plain language. Below are the key lessons from our interviews:

- **Provide strong leadership.** Impassioned and consistent investment from senior providers who believe immunization is important is key.
- **Adopt a team approach with a knowledgeable, trained staff.** All staff need up-to-date training on current guidelines, a clear message from senior providers that immunizations are important, and the belief that all staff are viewed as key in recommending vaccines.
- **Designate a champion.** Having a champion of immunizations helps sustain and promote immunizations over the long term.
- **Adapt the workflow to include immunizations.** Standing orders and making flu shots easy and accessible are key to a successful immunization program.
- **Cut down the number of steps if possible.** Coupling the influenza vaccine with the pneumonia vaccine (if applicable) has been proven to be an effective strategy.
- **Be patient-centered.** A consistent theme across all organizations was *“Take time to listen to patients’ concerns and confidently address them.”*
- **Recognizing part of core mission is dedication to patients, customers and community.** *“You have to love your community and the people you serve.”*
- **Continue to ask.** If a patient refuses immunization, ask during the next visit or the next year.
- **Make it a priority.** Reminders and consistent recommendations let patients know that providers believe immunizations are important.
- **Always work to improve.** Tracking and quality improvement are both informative and motivating.

- **Foster accountability.** Requiring adult immunizations to be a quality indicator might help increase rates.

These strategies were consistently cited by our interviewees as the keys to successfully immunizing adults over 65 against flu and pneumonia. Although not all of them used the words “health literate” to describe their approach to immunizations, they were, in fact, following the principles of health literacy in their day-to-day work – by meeting people where they are, addressing concerns in every-day language, and checking in to ensure that people understand. Undertaking this project was not only informative but also very rewarding. We were impressed and at times touched by the level of dedication and determination displayed by the providers whom we interviewed.

It is important to note that although there is a sustained level of effort devoted to adult immunizations, the immunization rates still fall short of our goals, and disparities between different groups remain. This project may help us to move closer to achieving those goals and eliminating disparities. We hope that providers and organizations who are interested in increasing their success in immunizing adults against flu and pneumonia find helpful information in this paper.

REFERENCES

- Appel, A., R. Everhart, P. S. Mehler, and T. D. MacKenzie. 2006. Lack of ethnic disparities in adult immunization rates among underserved older patients in an urban public health system. *Medical Care* 44:1054–1058. http://journals.lww.com/lww-medicalcare/Abstract/2006/11000/Lack_of_Ethnic_Disparities_in_Adult_Immunization.13.aspx (accessed December 29, 2017).
- Bennett, I. M., J. Chen, J. S. Soroui, and S. White. 2009. The contribution of health literacy to disparities in self-rated status and preventive health behaviors in older adults. *Annals of Family Medicine* 7:204–211.
- Castro-Sanchez, E., P. W. S. Chang, R. Vila-Candel, A. A. Escobedo, and A. H. Holmes. 2016. Health literacy and infectious diseases: Why does it matter? *International Journal of Infectious Disease* 43:103–110.
- Egede, L. E., and D. Zheng. 2003. Racial/ethnic differences in adult vaccination among individuals with diabetes. *American Journal of Public Health* 93:324–329.
- Grohskopf, L. A., L. Z. Sokolow, K. R. Broder, et al. 2017. Prevention and control of seasonal influenza with vaccines: Recommendations of the Advisory Committee on Immunization Practices—United States, 2017–18 Influenza Season. *Morbidity and Mortality Weekly Recommendations and Reports* 66(RR-2):1–20. DOI: <http://dx.doi.org/10.15585/mmwr.rr6602a1>
- HHS (U.S. Department of Health and Human Services). 2016. National Adult Immunization Plan. <https://www.hhs.gov/sites/default/files/nvpo/national-adult-immunization-plan/naip.pdf> (accessed December 29, 2017).
- Howard, D. H., T. Sentell, and J. Gazmararian. 2006. Impact of health literacy on socioeconomic and racial differences in health in an elderly population. *Journal of General and Internal Medicine* 21:857–861.
- Lu, D., Y. Qiao, N. E. Brown, and J. Wang. 2017. Racial and ethnic disparities in influenza vaccination among adults with chronic medical condition vary by age in the United States. *PLOS ONE* 12:e0169679. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0169679> (accessed December 29, 2017).
- Rangel, M. C., V. J. Shoenbach, K. A. Weigle, V. K. Hogan, R. P. Strauss, and S. I. Bangdiwala. 2005. Racial and ethnic disparities in influenza vaccination among elderly adults. *Journal of General and Internal Medicine* 20:426–431.
- Schmid, P., D. Rauber, C. Betsch, G. Lidolt, and M. L. Denker. 2016. Barriers of influenza vaccination intention and behavior—A systematic review of influenza vaccine hesitancy, 2005–2016. *PLOS ONE* 12:e0170550. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0170550> (accessed December 29, 2017).
- Stafford, K. A., J. D. Sorkin, and E. K. Steinberger. 2013. Influenza vaccination among cancer survivors: Disparities in prevalence between blacks and whites. *Journal of Cancer Survivorship* 7:183–190.
- Wang, J., K. D. Munshi, and S. H. Hong. 2014. Racial and ethnic disparities in influenza vaccinations among community pharmacy patients and non-community pharmacy

respondents. *Research in Social and Administrative Pharmacy* 10:1–22.

<http://www.sciencedirect.com/science/article/pii/S1551741113000624>

Williams, W. W., P.-J. Lu, A. O'Halloran, et al. 2017. Surveillance of vaccination coverage among adult populations—United States, 2015. *Morbidity and Mortality Weekly Surveillance Summary* 66(SS-11):1–28. <https://www.cdc.gov/mmwr/volumes/66/ss/ss6611a1.htm> (accessed December 29, 2017).

Yoo, B.-K., T. Kasebe, and P. G. Szilagyi. 2015. Decomposing racial/ethnic disparities in influenza vaccination among the elderly. *Vaccine* 33:2997–3002.

<http://healthyamericans.org/assets/files/TFAH2010AdultImmzBrief13.pdf> (accessed December 29, 2017).