

**2015 National Conference of Family Medicine Residents and Medical Students:
AAFP Foundation Immunization Awards Posters**

IM-1 Implementation of a Multimodal Approach Intervention for Influenza and Pneumococcal Vaccination during the 2014-15 Flu Season

*Brian Hanson, MD; Andrew Wood, MD; Carly Mangels, MA; Laura Webster, MD; and Anibal Martinez, MD
Rose Family Medicine Residency Program*

Abstract: Rose Family Medicine Residency clinic, located in Denver, CO, implemented a multimodal intervention to increase influenza and pneumococcal vaccination rates for our population of patients aged 65 and older. The intervention focused on adopting a team-based vaccination workflow, an education campaign for patients, providers, and staff, and telephone reminders to patients. While calling patients, we also conducted a phone-survey to assess attitudes towards vaccination, independently estimate our vaccination rate, and determine the prevalence of internet access in our elderly population. At the close of the 2014-2015 flu season our influenza and pneumococcal vaccination rates increased compared to each of the previous two seasons. This quality improvement project and the survey results suggested several promising interventions to pursue during the next flu season.

IM-2 Increasing Influenza and Pneumococcal Vaccination Rates amongst Seniors in a San Diego Border Community

*Mikela Yarawamai, MD and Marianne McKennett, MD
Scripps Family Medicine Residency Program*

Abstract: Scripps Family Medicine Residency Program is located in Chula Vista, CA, a border region of San Diego. Chula Vista Medical Plaza is our outpatient clinic where 79% of patients are Latino, 86% of patients live at or below 200% federal poverty level, and 27% of patients are uninsured. This demographic also reflects our population of those 65 and over as well. Our project was designed to improve immunization rates amongst our senior population >65 years old in our outpatient clinic, hospital setting, and at community outreach fairs throughout the 2014-2015 flu season. Twenty-four residents in the Scripps Family Medicine Residency took part in the project by analyzing the immunization statuses of their patient panel using the i2i tracking system and registry. We also improved our vaccination rates through community outreach fairs and a review of our hospitalized patients. Over the past three years, our average influenza immunization rate amongst our seniors was 30% and we improved this to 53% over the 2014-2015 flu season. We also improved our pneumococcal immunization rate from 61% to 83% by the end of the project. Our efforts to effectively track immunization statuses, dispel myths surrounding the flu vaccine, and prioritize immunizations for our patients significantly improved the amount of flu and pneumococcal vaccines administered throughout our project.

IM-3 Increasing Senior Immunization Rates using a Multipronged Approach

*Anne Anderson, DO and Camille Collett, MD
St. Mark's Family Medicine Residency*

Abstract: The goal of this project was a 25% increase in pneumococcal and influenza vaccination rates for patients over age 65 in St. Mark's Family Medicine Residency Clinic. We achieved a 22% increase by implementing a multipronged approach. First, we used our EMR to establish baseline data, track progress, and implement changes to ensure up to date vaccination records. Second, we created a workflow that decreased costs and facilitated data collection. Third, we established a program for vaccine sustainability in our clinic. Project successes included EMR use, new quick text, the new employee/resident orientation program, and Diabetes Day. Project pitfalls were barriers to communication with patients and community agencies, patient refusal of vaccines, and being unable to complete a community project. While we were close to reaching our goal, the above pitfalls highlight the need for further education and outreach, and increased use of USIIS and sustainable vaccination documentation programs.

IM-4

RISE Project (Richmond Immunization in Seniors and Elderly)

*Matthew Chan, MD; Luis Manriquez, MD; Will Perez, MD; Sree Atluru, MD and Emily Myers, MD
Oregon Health and Science University Family Medicine Program*

Abstract: Richmond Clinic is a federally qualified health center (FQHC) that cares for a medically and socially underserved population in the Portland area, springing from issues of low income and underinsured/uninsured status, to low health literacy. The second year residents planned to boost the percentage of adult patients aged 65 years and older who are vaccinated against both seasonal influenza and pneumococcal to achieve a 90% vaccination rate by the end of the 2014/2015 influenza season in alignment with the goals of Healthy People 2020. Multiple interventions included: 1) Patient outreach via letter and phone calls, 2) Instituting change in workflow processes for identifying patient's vaccines by having team coordinators scrub for charts, 3) Reconciliation of immunization database on EMR, 4) Identifying patients living in nursing homes whose charts required reconciliation in EMR, 5) Incorporating new ACIP recommendations into clinical practice at Richmond via development of clinical algorithm to be used by clinicians, and 6) Performing relational meetings with patients to identify potential barriers, and create stronger relationships between community and clinic. Overall, Pneumovax demonstrated an uptrend in total vaccine completion rate, with a pre-project total completion rate of 68%. For influenza, total completion rates for the season had increased compared to prior years, from 31% in the 2012-2013, 32% in 2013-2014, and 50% in 2014-2015 season.

IM-5

Invasion of the Body Aches: Using Classic Movies to Scare up Better Immunization Rates

*Joshua Stringam, DO and Lenny Salzberg, MD
Southern Regional AHEC Family Medicine Residency*

Abstract: The Southern Regional Area Health Education Center patient population is a predominantly low wealth community with 12% age 65 and older and 41% non-white. A multipronged approach was used to increase patients' awareness of the need for immunization against influenza and pneumococcus. We contacted all patients over age 64 who had not yet been vaccinated this flu season using scripted telephone calls. We also created age-specific videos and poster linking the flu with "The Creature from the Black Lagoon", "Invasion of the Body Snatchers", "The Invisible Man" and "North by North West", classic movies that were popular when our target audience was younger. These videos were shown on a continuous loop in two waiting areas and posters were made from stills from the videos and placed on every exam room door in the Family Medicine Center. Other interventions included pop-up notes in the EMR, daily huddle sheet reviews with staff about immunization status, in-service training and e-mails to providers and staff on both the necessity of immunization and how to overcome patient resistance. Comparing immunization rates between the previous year and the project year, influenza vaccination rates for seniors increased from 51.3% to 64.1, and Pneumovax rates increased from 40.5% to 53.1%. We hypothesize we would have seen a larger increase in influenza immunization rates if not for some strong (negative) external factors. A December 4, 2014 CDC report regarding the ineffectiveness of the particular influenza vaccine was picked up by the media. When we analyzed our immunization rates, the influenza immunization rate fell off dramatically after December 4. We also experienced a positive impact from the release and marketing of Prevnar 13 on our pneumonia immunization rates as several patients were newly aware of the need for immunization against pneumococcus due to the television advertisements.

IM-6 **Idalia Rodriguez Memorial Immunization Project: Improving Pneumococcal and Influenza Vaccination Rates Among People 65 and Older**

Rachel Seltzer, MD, MPH; Alan Schumacher, MD; Algele Sumulong, MD; Joyce Troxler, MD and Jade Zamora, MBA

Hidalgo Medical Services (HMS) Family Medicine Residency Program

Abstract: There is a significant discrepancy in vaccination rates between American Hispanic/Latino populations versus non-Hispanic/Latinos. Given the demographics of our regional Area Health Education Center population here in Southwestern New Mexico, and the fact that our geriatric community is more vulnerable to morbidity and mortality related to influenza and pneumococcal disease, we sought to improve our influenza and pneumococcal vaccination rates among community members ages 65 and older by 25% relative to our baseline rates. We utilized Plan-Do-Study-Act (PDSA) cycles to guide our improvement process around increasing vaccination rates among community members ages 65 and older. We conducted several PDSA cycles, including hosting several events on-site and off-site, and implementing trigger-reminders to initiate conversation about immunizations between patients and their providers. We successfully improved our pneumococcal vaccination rates by 43.6%. We improved our influenza immunization rates by 11.5%, though did not reach our aim of a 25% relative improvement from baseline. Residents, faculty, and providers at large improved our knowledge base around current indications for these immunizations. In addition, residents and faculty learned how to better implement improvement initiatives through addressing workflows and processes, optimizing specificity, asking questions of data sets, and defining populations.

IM-7 **Organizational Strategies to Improve Influenza and Pneumococcal Vaccination Compliance in Patients Age 65 and Older**

Eunice Gititu, MD; Edward Agabin, MD; Prasand Kesavan, MD; Janis Coffin, DO; Carla Duffie, DNP; Patrick Hatch and Holly Andrews

Georgia Regents University Family Medicine Residency Program

Abstract: The objective of this study was to increase influenza and pneumococcal vaccination rates in our senior adult patient population; patients age ≥ 65 , while evaluating the effectiveness of clinical interventions during the 2014-2015 flu season. A series of standing orders were initiated allowing nursing staff to administer vaccines to eligible patients during intake. Patient schedules were reviewed weekly and charts flagged for patients needing vaccinations. Early in the flu season, eligible patients were sent a postcard highlighting vaccination facts encouraging them to call for an appointment. Later in the season, a second post card was sent to those patients still not compliant. An automated telephone message was also utilized that allowed patients an option to speak with a clinic representative to schedule an appointment. Internally, we hosted an educational session for faculty, residents and clinical staff to highlight vaccination guidelines and encourage their participation in the ongoing push to increase vaccination rates. Data were analyzed to assess the change in rate of vaccination using Chi-square test for proportions using SAS v.9.3. There was a statistically significant decrease in the percentage of patients who received the flu vaccine from the 2013 – 2014 flu season to the 2014 – 2015 flu season (45% vs. 39%; $p = 0.001$); however there was a statistically significant increase in the percentage of patients who received the pneumococcal vaccine from the 2013 – 2014 flu season to the 2014 – 2015 flu season (22% vs. 47%; $p < 0.001$). Implementation of standing orders resulted in a streamlined workflow allowing nursing staff to evaluate and administer vaccinations during intake. This has significantly increased the likelihood of vaccination compliance at each visit. It is important to note that information from the CDC, released in December 2014, indicated a significant mismatch between the influenza vaccines and the viruses in the community with H3N2 being the most common circulating strain. It is unclear if this influenced vaccination rates in the population later in the flu season once this information was widely available and frequently publicized on common news outlets.

- IM-8 **Improving SIU-QFM Influenza and Pneumococcal Vaccination Rates for Seniors**
Priyanka Costa, MD; Deena Jacob, MD; Ravi Mehta, MD; Thomas Miller, MD, Timothy Ott, DO, Diane M Hughes, MBA and Jill Zwick, RN BSN
Rose Family Medicine Residency Program

Abstract: Our goal was to increase vaccine rates by integrating preventative care with influenza and pneumococcal immunizations for persons 65 years and older during the 2014-2015 season. We corresponded through letters, telephone calls, and automated messaging system to increase vaccination rates by attending "walk-in" vaccination clinics or Medicare wellness exams. Despite barriers, SIU-QFM accomplished our goals by achieving a 61% (10% increase) influenza vaccination rate and a 56% (14% increase) pneumococcal vaccination rate. Our project helped us to identify barriers that impeded our prior vaccination rates. In the future we would like to encourage transparency among healthcare facilities to allow collaborative care to our patients.

- IM-9 **Reciprocity: Caring for our Past. Interventions for improving Influenza and Pneumococcal immunization rates among Seniors in New Brunswick Community**
Yasmen Srour, MD; Karen W R Lin, MD; Rhina Acevedo, MD; Jason Krystofiak and Mary Ellen Lisman
Rutgers Robert Wood Johnson Medical School Family Medicine Residency at RWJ University Hospital

Abstract: In order to improve immunization rates in New Brunswick, Robert Wood Johnson Family Medicine Residency program residents were actively involved in the process and were led by three resident champions. PGY-1 residents designed educational flyers (7 English and 6 Spanish) and created 2 videos that focused on vaccination awareness and common misconceptions. The PGY-2 class incorporated the process into "Geriatrics" and "Community Medicine" rotations and created a set of Geriatric Preventive Care series highlighting pneumococcal and influenza prevention. The PGY- 3 class created PowerPoint slides presentations on influenza and community acquired pneumonia during "Practice Management" and non-inpatient rotations. Second and third year residents provided 11 presentations and six co-sponsored activities, within a 50-mile radius, reaching greater New Brunswick communities. During the community outreach activities we gave 38 influenza and 13 pneumococcal vaccines to uninsured seniors. The Family Medicine Office served 1058 senior patients during the project period and influenza immunization rates increased from 7.4% to 30.8%; pneumococcal immunization rates increased from 11.1% to 12.3%. Some of the challenges encountered included: trying to convince patients to obtain the flu vaccine despite what the media portrayed, obtaining aggregated data from different electronic medical record systems used in hospital and ambulatory office; coordinating with community partners; and locating silent uninsured seniors in New Brunswick apartments. This senior immunization project has elevated the reputation of RWJ Family Medicine Residency in the community, received appreciation from community partners, and allowed 15 residents to bond as a team and enjoy the activities of education, clinical care and community outreach.

IM-10 Immunize and Save Lives: The Kaiser Los Angeles Medical Center Hospital and Community Based Immunization Intervention

Natalie Rose Mourra, MD

Kaiser Los Angeles Medical Center Family Medicine Residency

Abstract: A quality improvement project was implemented between September 2014 and March 2015 in an effort to increase influenza and pneumonia vaccination rates in adults ≥ 65 years of age hospitalized at Kaiser Los Angeles Medical Center, as well as its affiliated community sites. The project was centered on resident, physician and patient education in the hospital, as well as establishing sustainable access to vaccinations at community sites, including the Mobile Clinic Project at UCLA and Homeless Health Care Los Angeles. In the community arm, pneumococcal polysaccharide vaccines (PPSV23) were purchased and distributed to Homeless Health Care Los Angeles: 87 individuals ≥ 65 years of age were vaccinated; 80.2% of patients were male; 19.8% were female; 12.8% reported being HIV positive; 18.6% reported IV drug use; 38.4% reported tobacco use; 24.4% reported a history of COPD, 12.8% reported a history of asthma, and 5.8% reported a history of malignancy. A contract with the Department of Public Health, Los Angeles was established to distribute influenza vaccines to the Mobile Clinic Project site and 72 vaccines were administered to elderly (≥ 65 years of age) or high-risk individuals. In the inpatient arm, vaccination rates for influenza from September 2014 - March 2015 in hospitalized patients ≥ 65 years of age were 45% (537 out of 1191 eligible patients), a decrease from the prior 2013-2014 influenza season of 8%, however an increase from the 2012-2013 influenza season of 7%. The PPSV23 vaccination rate for hospitalized patients ≥ 65 years of age similarly decreased, from 14% in September 2013-March 2014 to 12% in September 2014-March 2015 (39 out of 310 eligible patients). The hospital-based intervention did not improve vaccination rates in hospitalized elderly patients for either the influenza or pneumococcal polysaccharide vaccines. Contributing factors to the decreased rate included issues with nursing administration of the vaccines and patient refusal. The community-based intervention succeeded in providing PPSV23 and influenza vaccinations to high-risk and elderly patients, and establishing a sustainable relationship with the Department of Public Health to continue influenza vaccine efforts in the coming years.

IM-11 Sustainable Improvements in Immunization Rates for Seniors: A Local and Community-Wide Effort

Achint Choksy, JD; Pradeep Raju, MD, Omar Siddiqi, MD; Peter Baldwin, MD, MBA, MPH; Clifton Nowell, DO; Matthew Nyholm, MD; Leslee McElrath, MD; Linda Lopez, MPH; Kara Yutzy; Elisabeth Righter, MD, FAAPF; Teresa Zryd, MD, MSPH and Lisa Collier Kellar, MD, MSCE
Wright State University Family Medicine Residency Program

Abstract: Our goal was to improve influenza and pneumococcal immunization rates, in patients 65 or older, by implementing effective system changes in our office and developing relationships with community organizations that allowed us to educate community members about adult vaccines. The study was operationalized in two parts: the Office Initiative and the Community Initiative. *Office Initiative* strategies included establishment of standing orders, improved physician-nursing communication protocols (improved pre-office huddles, color-coding patient lists, improved charting protocols, etc.), as well as the utilization of waiting area and patient room handouts/posters. In addition, office team incentives were established and awarded. Senior influenza vaccination rate for this flu season was 59.4% (increased 9.7%); pneumococcal vaccination rate was 82.3% (increased 12.6%). A refrigeration failure resulted in vaccine loss during several key weeks, which affected our ability to give many of our patients needed vaccinations. It is likely that we would have increased flu and pneumococcal vaccination rates even further had we not suffered the refrigeration loss. *Community Initiative* strategies were based on feedback from meetings with leaders of community groups and faith-based organizations. We developed educational presentations, handouts, and other information about adult immunizations and used these at community events. Effectiveness of the educational sessions and printed information was examined through pre/post surveys at community events, which showed an approximately 20% increase in knowledge about vaccines. Our community outreach programs have been successful in increasing understanding of the importance of adult vaccination and resulted in many commitments to obtain the vaccinations. Positive relationships developed with community organizations provided an avenue for outreach by our physicians to allow us to improve the health of our community into the future. Plans are in place to continue these office and community efforts into the coming years.

IM-12 The Ohio State University Family Medicine Senior Immunization Improvement Program

*Camille Morena, DO; Anthony Nguyen, DO; Nicole Kornder, MD; David Tessier, MD; William Buoni, MD and Fred Miser, MD
The Ohio State University Family Medicine Residency*

Abstract: We sought to improve our pneumonia and influenza vaccination rates for patients age 65 and older by addressing barriers to care and improving patient education. We designed and initiated a clinical quality improvement project to yield improved immunization rates in 261 patients ages 65 years and older seen by resident physicians at two urban family medicine residency program sites. A pre-assessment survey was used to determine patient, provider, and system barriers. The results from the survey were used to create 16 actions that allowed us to validate, disprove, and discover new barriers. Thirteen out of the 16 actions were successfully implemented which resulted in influenza and pneumococcal immunization rates of 45% and 77%, respectively during the 2014-2015 season. This was a 22 and 42 point increase for influenza and pneumococcal vaccine rates. Of the 13 actions implemented, the leading patient barrier was concern for the safety and efficacy of the vaccines. The major physician barrier was time constraints in the clinic to discuss the vaccines. The system barrier was maintaining an adequate supply of the vaccines. The most effective actions with greatest impact on the senior influenza and pneumococcal immunizations rates were immunization information systems at a population level, immunization information systems at point of clinical care, provider education, provider reminders, utilization of care coordinators, and patient educational videos.

IM-13 Initiative to Increase Influenza and Pneumococcal Immunization Rates in our Senior Population in the 2014-15 Influenza Season

*Labake Bankole, MD; Leslie Thomas, MD; Marianna Lacerda, DO; Helena Karnani, MD and David McInnes, MD
St. Vincent's Family Medicine Residency Program*

Abstract: The goal of the project was to achieve immunization rates of 75% in our senior patient population in the 2014-2015 influenza season. At St. Vincent's Family Medicine in the 2011-2012 season the influenza and pneumococcal immunization rates were 25.1% and 42.5%, respectively. As a team of two faculty and three residents we were excited to have an opportunity to work on a project to improve these rates. Key components of the project consisted of educating staff and physicians about current guidelines for these vaccines at morning report lectures, and providing talking points handouts. We then worked on educating patients about the importance of these vaccines through posters, written information, phone calls and counseling from health care givers. We used chart reminders and frequent updates at team meetings to encourage health care providers to order or record the vaccines if they were already given. We learned several strategies such as order delegation rights to all nurses, an automated call campaign, and finally involving the Primary Care Physicians in a mailing or telephone campaign to personally reach out to their patients. We have been able to greatly improve our senior vaccine rates: influenza immunization rates increased to 70% and pneumococcal vaccination rates to 76%. The most important impact of our project is that many additional patients received influenza and pneumonia shots this season with an expected improvement in outcomes. Also, residents on the team, and as a whole, have been able to participate in and observe a process improvement project and to see what effective changes can be made as a result. We plan to carry on this project to future years and resident physicians.

IM-14 Vaccinating on the Go: Utilizing a Mobile Health Van to Increase Vaccination Rates among Long Island Seniors

*Kevin M Reiter, MD; Keasha Guerrier, MD; Marlene Camacho-Rivera, PhD; Farideh Zonouzi-Zadeh, MD, FAAFP; Barbara Keber, MD, FAAFP and Tochi Iroku-Malize, MD, MPH, FAAFP
North Shore-LIJ Health System Southside and Glen Cove Family Medicine Residency Programs*

Abstract: Our program consisted of hospital-based and community-based approaches within the geographically defined areas of Bay Shore, Brentwood, and Glen Cove where Southside Hospital, Brentwood Family Health Center, and Glen Cove Family Medicine Center are respectively located. Our main objective in this project was to provide better care to our elderly via immunization for influenza and pneumonia as well as to educate this population about the importance of all required immunizations for their age group. We were aiming to serve a minimum of 1,200 seniors in order to increase the vaccination rate among seniors within our community by at least 25 percent. Additionally, we aimed to define the barriers to immunization in the elderly population and to ensure that our resident physicians are aware of these barriers while in the teaching clinic or in their future professional life. For our community-based approach we utilized the NSLIJ Healthcare System Mobile Van to provide free immunizations and education about the required vaccine series for seniors. Our two programs worked both collaboratively and separately through the months of October 2014 and February 2015 at senior centers, churches, community centers, street fairs, holiday events and health fairs. Comparing rates between the 2013 and 2014 flu seasons: Bay Shore senior immunization rates increased from 49.9% to 52.6% ; Brentwood senior immunization rates increased from 43.6% to 47.2%; and Glen Cove senior immunization rates saw the greatest improvement with an increase from 55.3% to 64.9% . Overall, we provided 7,506 influenza immunizations and 1,904 pneumococcal immunizations to seniors within our geographically defined area.

IM-15 Multi-dimensional Approach to Increasing Influenza and Pneumococcal Vaccinations in the Elderly Population in a Primarily Low-Income, Suburban Family Health Clinic

*Nicholle Henley, DO; James Meyers, DO; Hoang Tran, DO and Tracy Yee, DO
Pomona Valley Family Medicine Residency Program*

Abstract: We implemented a multidimensional intervention approach that includes outreach to the senior community and education of medical staff and faculty to attempt to increase our influenza and pneumococcal vaccination rate by 25% or more at the end of the 2014-2015 influenza season. Progress was tracked periodically by generating reports from our electronic health medical records as to how many influenza and pneumococcal vaccines were given. Chart review and patient recall was implemented mid-way through the season to increase vaccination rates. During the 2013-2014 influenza season our clinic saw 1346 seniors: 539 (40%) were vaccinated for influenza; and 65 (5%) were vaccinated for pneumococcal. During the 2014-2015 influenza season our clinic saw 1365 seniors: 519 (38%) were vaccinated for influenza; and 205 (15%) received a pneumococcal vaccine during the study period. Of the 205 seniors vaccinated for pneumococcal, 133 seniors received the PPSV 23 vaccine and 72 were given the PCV13 vaccine. Although we did not reach our goal of increasing the influenza and pneumococcal vaccine rates by 25%, we did successfully increase our pneumococcal vaccination rate. We concluded that although our interventions help to create a sense of community and were pro-vaccinations, they were indirect and ultimately did not help us to reach our goal. With a more direct intervention of patient recall, we were able to reach our pneumococcal goal. Thus, based on our experience, direct approaches were more effective at increasing vaccination rates than indirect approaches.

IM-16 Improving Long Term Outcomes of the Elderly Through Vaccinations

Sahar Zuberi, MD and Jennifer Gonzalez, MD

HonorHealth Family Medicine Residency Program

Abstract: The goal of this project was to achieve a 25% increase in the rate of influenza and pneumococcal vaccines provided to medically underserved patients, 65 and older, seen by HonorHealth Family Medicine Residency Program. To reach this goal we would need to administer 330 influenza vaccines and 93 pneumococcal vaccines. To help us reach this goal we raised awareness within the residency program, mailed reminder postcards, made telephone calls to remind patients, hung banners in English and Spanish outside the clinic advertising availability of vaccines, developed posters showing clinic physicians giving and receiving vaccinations, staff and physicians wore pins encouraging vaccination, patient education was provided in English and Spanish through an informative pamphlet and video dispelling common myths of vaccination and through one-on-one discussion during appointments. Barriers encountered included patients already having received the vaccines and refusal after learning they were less effective. We were not able to reach our goal for influenza immunizations (229 influenza vaccines administered); however we were able to reach our goal and provided 93 pneumococcal vaccines, including Prevnar after the new guidelines were released. In retrospect, we may have been able to reach our goals if we had notified providers about patients who needed vaccines daily, had started patient outreach much sooner, and reached out to homeless shelters and group homes in our community. Overall, we feel like we made an impact and hope to employ new strategies next year.