

Improving Immunization Rates for UCI Family Medicine Senior Patients

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INTRODUCTION

Influenza and pneumonia are common potentially serious, and even life-threatening, infections for senior patients over the age of 65. Over 60% of seasonal-flu related hospitalizations and 90% of deaths occur in senior patients.¹ *Streptococcus pneumoniae* can lead to bacteremia, meningitis, and pneumonia. Therefore, influenza and pneumococcal vaccines are important preventive measures and strongly recommended by the Advisory Committee on Immunization Practices at the Centers for Disease Control and Prevention.

UC Irvine's Family Health Center (FHC) is located in Santa Ana in Orange County, CA where the percentage of senior citizens is expected to grow from 12% to 20% of the total population by 2030.² In the clinic, nearly 800 senior patients were served in the 2014-15 flu season.

In order to support efforts to increase vaccination rates in the elderly population in this underserved community, the residency applied for and won an American Academy of Family Physicians (AAFP) Senior Immunization Award in 2014.

OBJECTIVES

The objective of this project was to increase influenza and pneumococcal vaccination rates in the senior patient population at the FHC by implementing and evaluating interventions during 2015-16 flu season.

Goals were to achieve 60% for influenza and 90% for pneumococcal vaccination rates.

Acknowledgements

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CONTACT:

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References

1. Impact of influenza on mortality in relation to age and underlying disease, 1967-1989. Sprenger MJ, et al. Int J Epidemiol. 1993; 22(2):334.
2. Data and Statistics – Facts about California's Elderly. http://www.aging.ca.gov/data_and_statistics/facts_about_elderly/

METHODS

Residents	Introductory didactic session in August Reminders – flyers, didactic sessions Reward for most vaccines given per month
Support Staff	Educational lunch for introduction to project Clinic huddles to share information, implement clinic flow Reminders at workstations Reward for medical assistant who gave most vaccines
Volunteers	Call senior patients for reminders
Clinic	In-clinic posters at entrance Send postcards Walk-in clinic using extant mobile van

RESULTS

	2014-2015	2015-2016
Influenza Vaccine Rate (%) September 2014 – March 2015	44.08% (350 / 794)	42.36 % (319 / 753)
Pneumovax Vaccine Rate (%) April 2014 – March 2015	10.61% (97 / 914)	25.58% (230 / 899)

753 and 899 senior patients in the flu season and in 1 year, respectively.

Over the duration of the project, there was noted to be gradual decline in vaccination rates over the last few months.

CONCLUSION

The results of this project show that there are significant improvements yet to be made to systematically improve vaccination rates at FHC.

Main themes for areas of improvement are

1. early preparation and initiation of interventions/initiatives especially given need for approval from institution
2. more frequent and inclusive information-sharing with all involved players (including registration, call center, medical staff and residents, attending physicians, volunteers) for sustained interest and commitment and for early identification of problems

Of those patients who received their vaccines this year, the vast majority of patients received the vaccines in FHC: 97% (310/319) for flu, 99% (229/230). This may signify that there needs to be greater efforts to increase patient education and self-advocacy to seek immunizations in general, and that if FHC were to implement more effective means of educating and executing immunizations, there is possibility of achieving our stated goals for vaccination rates.

The AAFP Foundation has allowed the residency program to expand the project for another year. Lessons learned from this project can and will be applied not only to the continuation of this immunization project, but to other QI projects at FHC.

OBSTACLES & CHALLENGES

Late in implementing and meeting project milestones due to lack of coordination, centralization of information	- Residents required to attend QI meetings - More frequent (weekly/monthly) project update - Centralize information to include call center, registration, staff - Regular (monthly) rewards from beginning of project - Actively involve residents – information booth? classes?
Insufficient outreach to target population, walk-in van not utilized	- Sending postcards early in project, phone calls mid-project - Information booth in clinic waiting room - Determine hours and staffing for mobile van early, be consistent
Impact on clinic flow	Implement MA-initiated standing orders for vaccines
Insufficient supplies, not checking supplies	Assign clinic manager to check with pharmacy for supplies

LESSONS GOING FORWARD



2016-2016 Senior Immunization Grant Awards RESULTS & FINDINGS: FINAL REPORT Form

Instructions

- Provide the information and data requested including Appendices 1-3.
 - Your Final Report is due by May 5, 2016.
 - Please include any attachments, graphs, pictures (jpg, if possible) or other items that capture the essence of the outcomes realized by your project.
-

Name of Family Medicine Residency Program : *University of California, Irvine Family Medicine Residency Program*

Contact Information

1. Name, Title, Email of person completing the report.
 - a. *Hau Do, MD; QI Chief Resident: Haudh@uci.edu*
2. Project Contact information if different from above.
 - a. *Same as above*

Title of Project: *Improving Immunization Rates for UCI FMC Senior Patients*

Statement of Goal(s) Include your Primary Metrics

Immunization Rates ("Primary Metric"): We served a total of 794 patients over the last flu season (Sept 2014-Aug 2015). Our goal is at least 508 seniors (65% influenza vaccine rate) will receive an influenza vaccine during the 2015-16 flu season; and 714 seniors (90% pneumococcal vaccine rate) will receive a pneumococcal vaccine

Residents ("Secondary Metric"): All 27 residents will participate in this project.

Impact on Target Population

1. PATIENT DATA – **Complete information in Appendix 1**.
2. KEY OUTCOMES (Please group by bullet points)
 - a. Overall, 44.18% of our senior patients were immunized with the influenza vaccine and 24.17% was immunized with pneumococcal vaccines
 - b. All 27 residents participated in the project
 - c. The vast majority (~97%) of the patients who are vaccinated received their vaccination at our clinic
 - d. Vaccination rates gradually declined from the beginning of the project towards the end of the project with peaks in vaccination rates in October 2015 for flu vaccine and in November 2015 for pneumococcal vaccine
3. KEY PROGRAM COMPONENTS (Please group by bullet points)
 - a. Patient and staff vaccine education
 - b. Vaccination administration – clinic flow
 - c. Data analysis
4. THINGS THAT WORKED BEST
 - a. Educating the patients about the importance of flu and pneumococcal immunization and their immunization status when the patients came to the visit
 - b. Educating residents and staff about the importance of giving out immunization
5. LESSONS LEARNED
 - a. Start early: UCI has multiple protocol and procedures that we were not aware of at the beginning of the project. Things took a longer time to be implemented as we needed to wait for

- approval from UCI administration. For example, we were planning on mailing mass amounts of vaccination reminder postcards in both English and Spanish in October. We had to wait for the English material to be translated to Spanish then wait for the material to be approved by UCI administration then wait for the postcard to be printed, then be labeled with patient home address, stamped and mailed. We finally were able to mail off the postcard in February.
- b. Frequent reminders for providers: our vaccination rate gradually declined over time. We implemented regular reminders during clinic huddles and didactics to remind providers to continue to give out vaccines
 - c. Provide earlier incentives for staff and residents to reward providers with the most numbers of vaccines given; part of the difficulty was delayed access to data of which residents and staff provided the highest numbers of vaccines
6. **PERSONAL STORY.** Please provide a personal account that shows a difference was made as the result of the work you and your team have done on this project. It can be a story that reflects on a resident or on someone from the patient population you are serving.
- a. One of my patients initially declined my offer for flu vaccine. She heard that a flu vaccine could make her sick. She stated that she had never been sick with a cold before in the winter and does not want to risk catching the cold from the vaccine. She does not smoke but does have uncontrolled diabetes and hypertension. I explained to her that she was actually risking catching the flu when she is not vaccinated instead of the other way around and that there is no evidence that flu vaccine causes the flu. I also explained to her that some patients, especially those with uncontrolled diabetes can catch the flu so severely that they require hospitalization. She wanted to have some more time to think about it. The next time when she came back to see me again, she agreed to get the vaccine. It showed me that sometimes as a provider we just need to be patient with our patients. Sometimes you can give them the information and allow them time to make the decision for themselves.

Impact of Interventions – Complete information in Appendix 2.

Impact on Residents and Team Members

1. Provide a general description of those who worked on the quality-improvement and/or community-based project (e.g., 18 residents, 3 medical students, and 2 MPH graduate students).
 - i. All 27 residents participated in this project. Education was provided about influenza and pneumococcal vaccines at resident meetings, clinic huddles, clinic team meetings, resident clinic morning report, and via e-mail.
2. Address the current and future impacts of this project on the residents &/or members of the team.
 - i. Understand the importance of influenza and pneumococcal vaccines
 - ii. Understand the procedures and protocol to implement processes in the clinic
 - iii. Better incorporate the immunization process to the clinic flow
 - iv. Understand that everyone plays a key role in a team to take care of the patient

Education and Outreach

1. Summary of accomplishments.
 - a. Called 750 patients
 - b. Provided educational information to all geriatric patients who visited the clinic during the flu season
2. List of clinical & patient education and outreach materials produced or used in this project.
 - a. Immunization project power point
 - b. Immunization reminder postcards
 - c. A call script was provided for undergraduate volunteers to call the patients
 - d. Vaccination posters around the clinic
3. List of presentations with the date(s) and brief description of the audience.
 - a. Influenza and pneumococcal vaccines presentation given to residents and attendings at didactics on 8/6/15
 - b. MA and staff educational lunch on 11/19/15
 - c. Residents and staff reminders during weekly Thursday didactics

- d. MA/resident reminders during clinics huddles
 - e. Vaccination presentation given to residents and attendings at educational resident clinic morning report on 1/6/16
4. Include the materials developed and implemented as an attachment (in a jpg or pdf format) or provide the web address where they can be accessed.

Sustainability Discuss how the FMRP and residents will carry best practices and gains into the future.

Residents and staff will be provided education of the importance of flu and pneumococcal vaccines at the beginning of the influenza season. The patient vaccination reminder postcard template has been developed and approved by UCI administration. These postcards will be readily available for mass mailing to all of the eligible patients. Eligible patients will be contacted earlier in the flu season. The MA will inquire about patient vaccination status as they room the patient, and then will update the patient immunization status in our EMR. The MA then can also put in the vaccination order to be approved by the residents if patient agreed to vaccine. Residents will discuss with the patient the importance of immunization, especially for patients who are hesitant or decline the vaccinations.

Our vaccination rates gradually but steadily declined from the beginning of the project toward the end of the project. The decline in total number of patients with flu shots during the last 3 months of the project as compared to number patients who got flu shot earlier in the season in our clinic was not because more people came in already having received the flu shot but because we were vaccinating fewer people. For the future, we will implement incentives earlier as well as have regular reminders during the didactics and clinic huddles especially as staff and providers start forgetting about vaccination in the later part of immunization season. We will also have volunteer staff call the patients earlier in the flu season, with incentives for the volunteer staff.

To encourage patients to participate, tables with vaccination information and small prizes promoting flu prevention (e.g. travel size hand sanitizers) will be provided.

Case Study Information– Complete contact information in Appendix 3.

Project Impact Statement for Funders What would you like those who supported this project to know about this project and the benefit you, your patients, and/or your Family Medicine residency program derived from receiving this grant?

We did not accomplish our goal this year. However, the project has helped us to gain valuable insights in to the clinic flow and the barriers and challenges in implementing new measures in the clinic. This project helped us to develop educational material to provide to the patients and the clinic team. We also now have the mailing material readily available to be mailed out at the beginning of the flu season. We were able cross barriers in clinic flow and develop measures to improve patient care. The patients received more detailed information about flu and pneumococcal vaccines and had their questions answered to make an informed decision about the vaccine. They also did not have to worry about the cost of the vaccines.

For me personally, it was a great educational and administrative experience and also to prepare myself for my ABFM boards. I also was able to spend more time educating my patients about the vaccines.

Appendix 1: PATIENT DATA for 2015-2016 Senior Immunization Grant Award

PLEASE PROVIDE THE DATA IN THE FORMAT THAT IT IS BEING REQUESTED. If you want to express your results in a different way, please complete the info below, as requested, and then include the additional information labeled, "Attachment to Appendix 1".

I. INFLUENZA VACCINE INFORMATION: 2016-2016 Flu Season

- la. Total # of seniors (adults aged ≥65) served by your residency who were **eligible** for an *influenza* vaccine from 9/1/15 - 3/31/16: 753
- lb. Total # of seniors who **received** an *influenza vaccine* from 9/1/15 - 3/31/16: 319
- lc. Historical Data – Enter data in the table by clicking on the box and typing in the numbers

Seniors (age 65 and older)	2013-2014 Flu Season (Sep 2013-Mar 2014)	2014-2015 Flu Season (Sep 2014-Mar 2015)	2015-2016 Flu Season (Sep 2015-Mar 2016)
Influenza Vaccine Rate (%)	44.18 %	44.08%	42.36 %
Numerator/Denominator (absolute numbers used to calculate rate)	334/756	350/794	319/753

- ld. Summary of methodology used to obtain the data and information:
UCI IT department did queries and ran analyses from our EMR. Inclusion criteria: patient who are age 65 or older at the time of their appointment who have been seen in our clinic at least 2 times since 09/1/13.

II. PNEUMOCOCCAL VACCINE INFORMATION: 2015-2016 Flu Season

*Note: New ACIP recommendations for PCV13 and PPSV23 use in adults aged ≥65 were issued on 9/19/14.

- IIa. Total # of seniors who were **eligible** for a PPSV23 vaccine who were served by your residency from 4/1/15 - 3/31/16 : 899
- IIb. Total # of seniors who **received** a PPSV23 vaccine from 4/1/15 - 3/31/16: 184
- IIc. Historical Data – Enter data in the table by clicking on the box and typing in the numbers

Seniors (age 65 and older)	2013-2014 (Apr 2013-Mar 2014)	2014-2015 (Apr 2014-Mar 2015)	2015-2016 (Apr 2015-Mar 2016)
PPSV23 Pneumococcal Vaccine Rate (%)	13.18 %	10.61 %	25.58 %
PPSV23 Numerator/Denominator (numbers used to calculate rate)	118/895	97/914	230/899
*Number of seniors who received PCV13 during specific time period			188

- IId. Summary of methodology used to obtain the data and information:
UCI IT department did queries and ran analyses from our EMR. Inclusion criteria: patient who age 65 or older at the time of their appointment who have been seen in our clinic at least 2 times since 09/1/13.






III. COMMUNITY-BASED PROJECTS ONLY: INFLUENZA & PNEUMOCOCCAL INFORMATION: 2015-2016 Flu Season

- IIIa. Total # of seniors served by this project through community outreach from 9/1/15 – 3/31/16: [Click here to enter text.](#)
- IIIb. Total # of seniors served through community outreach who **received an influenza vaccine** from 9/1/15 – 3/31/16: [Click here to enter text.](#)
- Is this data included in the data presented in question 1b and 1c? Yes No
- IIIc. Total # of seniors served through community outreach who **received a PPSV23 vaccine** from 9/1/15 – 3/31/16: [Click here to enter text.](#)
- Is this data included in data presented in 2c? Yes No
- IIId. Total # of seniors who **received a PCV13 vaccine** from 9/1/15 – 3/31/16: [Click here to enter text.](#)
- Is this data included in data presented in 2c? Yes No
- IIIe. Summary of methodology used to obtain the data and information:
[Click here to enter text.](#)


Appendix 2. IMMUNIZATION INTERVENTIONS: DEGREE OF IMPACT


Instructions:


- Place your cursor on the box and click to check the box.
- Please check only one box per row.
- Evaluate the impact of the intervention on increasing senior influenza and pneumococcal immunization rates.
- Add notes below the table, as needed, if you want to explain further.


IMMUNIZATION INTERVENTIONS	HIGH Impact	SOME Impact	LOW Impact	NO Impact	NEGATIVE Impact	Did NOT Use
Clinic Based Education 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community-Wide Education 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community &/or Local Government Partnerships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Home Visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mobile Clinic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Immunization Champion System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IIS at Population Level 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IIS at point of Clinical Care 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clinic EMR linked with State Immunization Registry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Patient Incentive Rewards 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Patient Reminder and Recall Systems	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patient-Held Paper Immunization Records	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Provider Assessment & Feedback	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provider Education	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provider Reminders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provider Friendly Competitions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standing Orders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduced Cost of Vaccine \$	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transportation reimbursement or vouchers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
List Other Interventions Below (not listed or to be more specific about your intervention). Add rows as needed						
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Interventions and Definitions below were extracted from the Community Guide <http://www.thecommunityguide.org/vaccines/index.html>

 **Clinic Based Education** approaches may include the use of brochures, videotapes, posters, vaccine information statements (VIS), electronic bulletin boards, and face-to-face sessions designed to inform and motivate patients to obtain recommended vaccinations in the clinic. These activities are usually delivered in advance of and in addition to the client-provider interaction

 **Community-wide Education** information is disseminated with the goal of informing, encouraging, and motivating individuals to seek recommended vaccinations. Content generally focuses on vaccination risks and benefits, as well as where and when vaccinations can be obtained.

 **Immunization information systems (IIS)** are confidential, computerized, population-based systems that collect and consolidate vaccination data from vaccination providers that can be used in designing and sustaining effective immunization strategies.

 **Patient Incentive Rewards** may be monetary or non-monetary, and they may be given to patients for keeping an appointment, receiving a vaccination, returning for a vaccination series, or producing documentation of vaccination status. Rewards are typically small.

\$ Reduced Cost of Vaccine examples include paying for vaccination or administration or reducing co-payments at the point-of-service.

NOTES:

AAFP Geriatric Immunization Grant Data Tables

#For Influenza Vaccine:

2015 Flu Season	Month of Appt Date	Count Distinct Patients (MRN)	Clients Who Received Flu Vaccine Anywhere	Received Flu Vaccine at SAFM	% Who Received Flu Vaccine Anywhere	% Who Received Flu Vaccine at SAFM
Sept 2015 thru March 2016	September 2015	270	0	0	0.00%	0.00%
	October 2015	265	133	131	50.19%	49.43%
	November 2015	200	68	67	34.00%	33.50%
	December 2015	257	63	60	24.51%	23.35%
	January 2016	252	26	23	10.32%	9.13%
	February 2016	272	18	18	6.62%	6.62%
	March 2016	294	11	11	3.74%	3.74%
	Flu Season Total	753	319	310	42.36%	41.17%

Flu Season	Count Distinct Patients (MRN)	Clients Who Received Flu Vaccine Anywhere	Received Flu Vaccine at SAFM	% Who Received Flu Vaccine Anywhere	% Who Received Flu Vaccine at SAFM
2013 Flu Season Total	756	334	319	44.18%	42.20%
2014 Flu Season Total	794	350	325	44.08%	40.93%
2015 Flu Season Total	753	319	310	42.36%	41.17%

#For Pneumococcal Vaccine:

April Thru Mar	Month of Appt Date	Count Distinct Patients (MRN)	Clients Who Received Pneumococcal Vaccine Anywhere	Received Pneumococcal Vaccine at SAFM	% Who Received Pneumococcal Vaccine Anywhere	% Who Received Pneumococcal Vaccine at SAFM
April 2015 thru Mar 2016	April 2015	279	10	10	3.58%	3.58%
	May 2015	250	6	6	2.40%	2.40%
	June 2015	290	10	10	3.45%	3.45%
	July 2015	225	12	11	5.33%	4.89%
	August 2015	244	10	10	4.10%	4.10%
	September 2015	270	19	19	7.04%	7.04%
	October 2015	265	29	29	10.94%	10.94%
	November 2015	200	37	37	18.50%	18.50%
	December 2015	257	26	24	10.12%	9.34%
	January 2016	252	27	26	10.71%	10.32%
	February 2016	272	17	17	6.25%	6.25%
	March 2016	294	31	30	10.54%	10.20%
		Group Total	899	230	229	25.58%

Season	Count Distinct Patients (MRN)	Clients Who Received Pneumococcal Vaccine Anywhere	Received Pneumococcal Vaccine at SAFM	% Who Received Pneumococcal Vaccine Anywhere	% Who Received Pneumococcal Vaccine at SAFM
Apr 2013-Mar 2014	895	118	111	13.18%	12.40%
Apr 2014-Mar 2015	914	97	94	10.61%	10.28%
Apr 2015-Mar 2016	899	230	229	25.58%	25.47%

University of California-Irvine Family Medicine Residency

PATIENT & RESIDENT EDUCATION PAVING WAY TO HIGHER VACCINATION RATES

We've all heard the adage, "Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime." This was very much on Dr. Hau Do's mind as he pondered a focal point for a planned Senior Immunization Grant application to the American Academy of Family Physicians (AAFP) Foundation. The 2015 grant awards supported quality improvement and/or community-based projects aimed at increasing influenza and pneumococcal vaccination rates in patients age 65 and older.

Dr. Do, then a second-year Family Medicine resident at the University of California-Irvine (UCI), was completing his geriatric rotation when he learned of the grant opportunity. "It caught my attention because I was getting the strong impression that our immunization rates at the clinic were not great. Sure enough, once I ran the numbers, the statistics backed me up."

Located in the heart of Santa Ana, CA, the Family Medicine clinic at UCI Santa Ana serves a largely Hispanic, underserved population. Language is a persistent barrier and health literacy is low. Dr. Do's decision to put patient and staff education at the heart of his project came easily.

Patient outreach began with the prominent display of eye-catching posters stressing the importance of flu and pneumonia vaccinations. In addition, clinic volunteers worked from a prepared script to personally call 750 patients, urging them to come in for their flu shots. "We

found that having them come in and talk directly with their provider was by far the most effective strategy in getting patients to accept vaccinations," said Dr. Do.

It was well into the flu season, however, before the scripts could be developed/approved and contact lists finalized. A mass mailing of vaccination reminder postcards (in English and Spanish) targeted for October 2015 also became mired in the red tape characteristic of large institutions. The time required for English-to-Spanish translation, UCI administrative approval, printing, labeling and mailing resulted in significant delays to the intended schedule. "We were finally able to mail off the postcards in February 2016," lamented Dr. Do. "Starting early was definitely one of the 'lessons learned' from both of these experiences."

UCI's 30 Family Medicine residents and two Medical Assistants (MA) staff stood to benefit from the targeted training and all agreed to participate. Dr. Do spearheaded the creation of a new PowerPoint presentation to support educational sessions that were integrated into resident meetings and covered such topics as who and when to vaccinate, contraindications, vaccine benefit and risk communication, and vaccination record maintenance and accessibility. Clinic huddles, clinic team meetings, resident clinic morning reports and e-mail messaging also became opportunities to further instruct and focus attention on achieving the

project's aggressive goal: vaccinating between 65% (508) and 90% (714) of patients age 65+.

Dr. Do said, "The project helped us gain valuable insight into the clinic flow and to identify and implement new measures." MA's adopted the consistent practice of inquiring about vaccination status as they roomed each patient, updating the Electronic Medical Record (EMR) accordingly. If the patient needed and agreed to the vaccine, the MA would immediately enter the vaccination order for approval by the resident physician. When a patient said "no" to the vaccine, MA's were encouraged to turn the refusal into an opportunity to educate and explain. Finally, the MA would inform the resident physician if the patient had lingering concerns so s/he could also follow-up.

Despite best efforts, outcomes fell short of goals during the project's initial year of implementation, with 42.36% of UCI's senior patients overall receiving the influenza vaccine and 25.58% the pneumococcal vaccine. Dr. Do admits that keeping patient vaccinations front and center will likely remain a challenge in a busy clinic where vaccination discussions can easily become buried in more acute concerns. Nevertheless, he affirms that UCI is now well-positioned to significantly increase its flu and pneumonia immunization rates in the future.

Topping Dr. Do's "project impact" list is a renewed appreciation for the power of good communication in boosting immunization rates—especially when combined with a dose of patience and persistence. "The project reinforced the unique position of physicians and nurses in communicating credibly and changing patients' minds about the benefits and risks of vaccinations."

He went on to describe a fairly typical encounter: "Having heard that a flu shot could make her sick, one of my patients initially declined my offer of the flu vaccine. She insisted that she had never been sick with a cold in the winter and didn't want to take any risks."

Dr. Do reassured her that there was no evidence that that flu vaccine causes the flu, pointing out, "Look, you're over the age of 65 and although you don't smoke, you have uncontrolled diabetes and hypertension—both serious health risk factors." After further discussion, he gave her some informational pamphlets, encouraging her to "think about it." "During her next appointment with me, I raised the subject again. This time, she agreed. I think just the fact that I kept talking to her about it reinforced how critical to her health I thought this was."

As a result of the project's focus on education, Dr. Do feels that he, along with other UCI Family Medicine residents and nursing staff, are doing a better job of advising patients about the importance of vaccinations and in addressing their questions and concerns. "The materials and scripts developed to support both patient and staff education are now approved and ready for use from day one of the next flu season."

Now, a patient's refusal is not the end, but often just the beginning of an important discussion. Dr. Do summed it up this way, "I've done my research; I have specific facts, so now I'm now much more proactive about talking to patients about immunization matters in general, whether it's flu, shingles, diphtheria/tetanus, pertussis or pneumonia." This added proficiency is a valuable skill all UCI Family Medicine residents will carry into their future practices.