

Pneumococcal and Influenza Vaccination Rate Improvement Initiatives for Elderly Patients

The Brooklyn Hospital Center, Department of Family Medicine, Brooklyn, New York
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INTRODUCTION

The Brooklyn Hospital Center's Family Medicine Center serves a diverse minority, low socio – economic, immigrant population which tends to be underserved in all areas of health care, including immunizations. Older adults are at increased risk for many preventable diseases. Vaccine preventable illnesses like pneumonia and influenza, cause over 60,000 deaths annually in the United States.^{1,2,3} Older Hispanic and African-American adults are much less likely to be vaccinated against influenza and pneumococcal disease than their white counterparts. Although great progress has been made, disparities in overall immunization coverage rates among racial and ethnic groups still exist. This disparity is of great concern in large urban areas with underserved populations because of the potential for outbreaks of vaccine preventable diseases. In this project, we addressed the barriers to immunizations for the elderly population and doubled the rates of persons vaccinated compared to previous year.

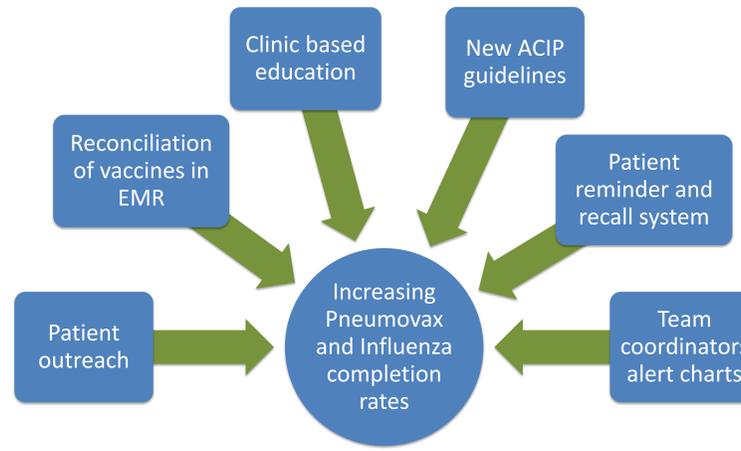
METHODOLOGY

- Target groups are individuals who are 65 years and older, served by Family Medicine Center of The Brooklyn Hospital Center
- Family Medicine Center residents utilized an in-house built in database called Eagle View, to populate the list of seniors who visited our clinic.
- Each patient's electronic records were evaluated for completion of adult immunizations, baseline immunization rate was established.
- Recruitment of unvaccinated patients was accomplished through phone reminder, events, poster advertisements that were displayed throughout clinic, hospital and surrounding community areas.
- Various in-clinic interventions was carried out, as shown below.
- Data of patients who had completed vaccinations was tabulated again at the end of the project to determine the effect of interventions.
- Reporting period: September 1, 2015 – March 31, 2016 (Influenza Vaccine) and April 1, 2015 – March 31, 2016 (Pneumococcal Vaccine)

INTERVENTIONS

- During community medicine rotations, residents made visits to various community locations such as senior centers and local adult day care centers.
- Patient outreach was achieved through telephone intervention and mailed correspondence.
- Instituted change in workflow processes to identify patients who need flu & pneumococcal vaccine.
- Reconciled immunization database in EMR.
- Provided outreach to identify potential barriers and enrich relationships between community and clinic.
- Conducted an evidence based approach to improve immunization rates.
- Posters were displayed to teach patients about the importance of vaccines and to increase awareness about the importance of vaccination.
- Held in-service trainings for front desk and nursing personnel to emphasize the importance of vaccination.
- Populated a call list of patients eligible for vaccination and scheduled calls.
- Counseled patients and administered flu and/or pneumococcal vaccines during routine visits.
- Reminded providers to prioritize immunizations at monthly meetings.
- Introduced needle aversion tools: Buzzy® – combined thermal and vibration pain relief

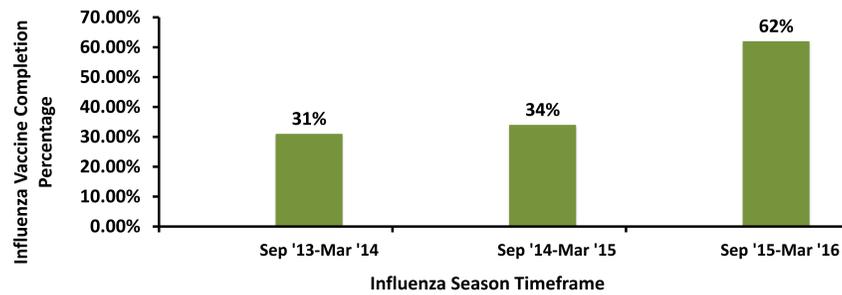
INTERVENTIONS



RESULTS

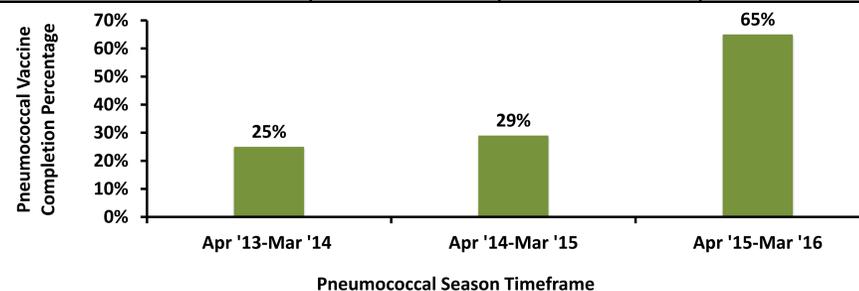
Percentage of Patients Vaccinated For Influenza By Year

| Seniors (age 65 and older) | 2013-2014 (Sep 2013-Mar 2014) | 2014-2015 (Sep 2014-Mar 2015) | 2015-2016 (Sep 2015-Mar 2016) |
|--|----------------------------------|----------------------------------|----------------------------------|
| Influenza Vaccine Rate (%) | 31 % | 34 % | 62 % |
| Numerator/Denominator (numbers used to calculate rate) | 216/697 | 266/784 | 568/915 |



Percentage of Patients Vaccinated For PPSV23 By Year

| 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 (%) | 25 % | 29 % | 65 % |
| Numerator/Denominator (numbers used to calculate rate) | 167/697 | 227/784 | 594/915 |



IDENTIFIED BARRIERS

- Limited availability of vaccines.
- Needle aversions.
- Missed opportunities.
- Lack of patient and community awareness about the need for adult immunizations.
- Lack of incentives for healthy adults to seek vaccination.
- High no show rate for booked appointments.
- Cultural barriers.

SUCCESSFUL INTERVENTIONS

- Phone Intervention, resident encounter reminders and educational encounters with patients.
- Engaged discussion in regards to implementing guidelines for pneumonia and influenza vaccination amongst the providers and medical staff.
- Enlisting Patient Navigators and Care Manager to perform phone outreach.
- Having posters on each exam room door and including immunization status on the daily report kept the immunization in the foreground.
- Targeting the posters to increase interest and stimulated conversation at office visits around immunizations.

CONCLUSIONS

- By identifying and addressing barriers to vaccination in adults 65 years and older, we were able to double influenza and PPS23 vaccination rate.
- Phone interventions were increased by 15% from last year and had a major impact on patient awareness.
- Influenza vaccine was given to 62% (up from 28% the prior year) of eligible patients.
- Pneumococcal vaccine was given to 65% (up from 36% the prior year) of eligible patients.
- Improvement in clinic workflow by collaborating with team members and ancillary clinic staff to improve our vaccination rate.
- Reconciliation of data in our EMR ensured more updated reflection of our immunization rates.
- Increase in immunization rates was attributed to proactive patient outreach.

ACKNOWLEDGEMENT

We would like to thank the AAFP foundation and Pfizer Inc. for supporting the senior immunization grant and for the improvement of public health through prevention.

REFERENCES

1. Centers for Disease Control and Prevention. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Morbid Mortal Wkly Rep 2000;49:1–38.
2. Centers for Disease Control and Prevention. Prevention of pneumococcal disease: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Morbid Mortal Wkly Rep 1997;46:1–24. Centers for Disease Control and Prevention. Active bacterial core surveillance (ABCs) report, Emerging Infections Program Network, Streptococcus pneumoniae, 1998. Atlanta, Ga: Emerging Infections Program Network; 1998.
3. Zimmerman RK, Silverman M, Janosky JE, Mieczkowski TA, Wilson SA, Bardella IJ, Medsger AR, Terry MA, Ball JA, Nowalk MP. A comprehensive investigation of barriers to adult immunization: a methods paper. J Fam Pract. 2001 Aug;50 (8):703.



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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

Contact Information

1. Name, Title, Email of person completing the report.
Sherly Abraham
Program Director
sabraham@tbh.org
The Brooklyn Hospital Center Family Medicine Residency Program
2. Project Contact information if different from above.

Title of Project: Pneumococcal and Influenza Vaccination Rate Improvement Initiatives for Elderly Patients

Statement of Goal(s) Include your Primary Metrics

All 21 Family Medicine residents have participated in this project to improve vaccination rates among the elderly. Residents have learned the Plan- Do- Check Act model and analyze results based actions to devise methods to improve compliance. They will also learn valuable skills on identifying roadblocks and areas of improvement to increase compliance and incorporate what they have learned into their future practices. More specifically, they will (1) gain knowledge on vaccinations and their guidelines, (2) learn skills to counsel patients on vaccination procedures and address different barriers to patient compliance, (3) learn about new technology available to target needle aversion, (4) create visual aids and use other tools to effectively communicate with patients in a manner that is understandable to the general public, and (5) organize community events to promote health.

Residents will learn crucial multidisciplinary team building skills as they will be involved in organizing teams with care coordinators, nurses, and medical assistants to accomplish the goals. This will improve the core dynamics of the clinic. The team will plan, implement, track, and share study activities on a regular basis. Any workflow and process related issues were discussed along with strategies to improve them. The target group for this grant are individuals who are 65 years and older, living in the borough of Brooklyn and surrounding the areas around The Brooklyn Hospital Center. The process of recruitment of these patients were through events, poster advertisements that were displayed throughout clinic, hospital and surrounding community areas.

Impact on Target Population

1. **PATIENT DATA – Complete information in Appendix 1.**
2. **KEY OUTCOMES (Please group by bullet points)**
 - a. We have doubled the number of patients who were vaccinated against influenza and pneumonia over the past year.
 - b. Phone interventions were increased by 15% and had a major impact in patient awareness.
 - c. Influenza vaccine was given to 62% (up from 28% the prior year) of eligible patients.
 - d. Pneumococcal vaccine was given to 65% (up from 36% the prior year) of eligible patients.
3. **KEY PROGRAM COMPONENTS (Please group by bullet points)**
 - a. During Community Medicine rotations, residents made visits to various community locations such as senior centers and local adult day programs.
 - b. Patient outreach via letter and phones.
 - c. Instituting change in workflow processes to identify patients who need flu & pneumococcal vaccine.
 - d. Reconciliation of immunization database on EMR.
 - e. Provided outreach to identify potential barriers and enrich relationships between community and clinic.
 - f. Conducted an evidence-based approach to improve immunization rates.
 - g. Posters were displayed to teach patients about the importance of vaccines and to increase awareness about importance of routine vaccinations.
 - h. Held in-services training for front desk and nursing personnel to emphasize the importance of vaccination.
 - i. Populated a call list of patients eligible for vaccination and scheduled calls.
 - j. Gave flu and/or pneumococcal vaccines during routine visits when patients were counseled.
 - k. Reminded providers to prioritize immunizations at monthly meetings.
 - l. Collected and analyzed data at preset intervals and at the conclusion of the project.
4. **THINGS THAT WORKED BEST**
 - a. Phone Intervention, resident encounter reminders and educational encounters with patients.
 - b. Supportive guidance and leadership from our project attending: Dr. Sherly Abraham
 - c. Engaged discussion in regards to implementing guidelines for pneumonia and influenza vaccination amongst the providers and medical staff.
 - d. Enlisting Patient Navigators and Care Manager to perform phone outreach.
 - e. We were able to help our staff members understand the importance and the necessity of immunizations. This helped changed their attitudes and helped patients better accept immunizations for themselves and the community.
 - f. Targeting the posters to increase interest and stimulated conversation at office visits around immunizations.
 - g. Phone calls were helpful in identifying patients who were resistant to immunizations, and in some cases allowed us to overcome aversion.
 - h. Having posters on each exam room door and including immunization status on the daily report kept the immunization in the foreground.
5. **LESSONS LEARNED-**
 - a. The success of this immunization project illustrated patient awareness and interaction with patients was key to the improvement in the immunization rates.
 - b. Immunization improvement requires patience, with tailored expectations in terms of degree of change or improvement that is desired; even incremental change can be considered successful.
6. **PERSONAL STORY. Please provide a personal account that shows a difference was made as the result of the work you and your team has done on this project. It can be a story that reflects on a resident or on someone from the patient population you are serving.**

Kirishanth Perinpanathan, M.D, one of the lead residents on this project, was a strong proponent of vaccinations before the project began. By participating in the project, he realized to be effective provider in getting the patients he saw vaccinated; he needed to be more informative and persuasive. Dr. Perinpanathan realized that giving advice was not enough; he needed to find out what the barriers were that led to patient vaccine refusal. For example, many of his patients had a fear of complications from the flu vaccine. Through this project, he learned that it was important to address this concern whether it was expressed or not, and he learned how to help many of his patients overcome this concern.

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).**

All 21 resident's worked on this project.

- 2. Address the current and future impacts of this project on the residents &/or members of the team. The future impact of this project involves continuous patient awareness campaigns, patient education and the importance of immunizations.**
 - The current impact for team members/ residents is an increased awareness of the importance of vaccinations, awareness of patient concerns regarding vaccines, and an understanding of USPSTF recommendations for integrating the new Pneumococcal vaccination protocol.
 - We expect immunization rates to continue to improve in the future.
 - This immunization project served as the centerpiece for redefining our medical education surrounding vaccines. In addition to becoming well-versed with indications, contraindications, treatments, and schedules for influenza and Pneumococcal vaccine, we also delved more into patient attitudes regarding vaccines, and the patient shared decision-making that is unique to vaccines.
 - Through routine office visits, we came to appreciate some of the myths held by patients surrounding not just Influenza and Pneumococcal, but vaccines in general, and the associated fears. This topic served as a profound educational experience as we will encounter these situations again in our careers.

Education and Outreach

- 1. Summary of accomplishments.**
 - a. Phone call and hard copy letter outreach to patients from clinic staff, with phone outreach performed primarily by support personnel.
 - b. Training provided for Residents in conducting motivational interviews with patients and family members.
 - c. Distributed pamphlets to educate patients about the need for immunization.
 - d. Improved our practice's rate of immunization for both influenza and pneumococcal disease.
- 2. List of clinical & patient education and outreach materials produced or used in this project.**

Adult Prevention- Vaccines Aren't Just for Children, Adults Can be Protected 2015, Flier and Pamphlet National Foundation for Infectious Diseases -Online

3. **List of presentations with the date(s) and brief description of the audience.** September 23, 2015, November 4, 2015 and January 13, 2016. During high clinic utilization days for patients aged 65 and greater residents presented to patients on the importance of immunization.
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** – Created in fliers and posters.
<http://www.adultvaccination.org/>

Sustainability

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

- The residents will learn the importance and carry best practices of immunizations in the future. They have gained knowledge on prevention of and influenza and pneumonia.
- The future impact of this project involves continuous patient awareness campaigns, patient education and the importance of immunizations.
- The residents have become very familiar with current ACIP immunization charts. They have learned the importance of the ACIP immunization footnotes. They have become proficient at using the electronic medical record system to quickly and correctly order immunization for seniors as well as all age groups.

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 would like to thank the AAFP foundation and the grant donors for supporting improvements in residency education and for supporting improving the public health through prevention. Immunizations are a major component. Our community would benefit from more disease prevention initiatives like this.
- The biggest benefit we received personally was the sense of accomplishment in making a significant difference in the lives of our clinic population.

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: 2015 - 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: 915
- lb. Total # of seniors who **received** an *influenza vaccine* from 9/1/15 - 3/31/16: 568
- 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 (%) | 31 % | 34 % | 62 % |
| Numerator/Denominator (absolute numbers used to calculate rate) | 216/697 | 266/784 | 568/915 |

- ld. **Summary of methodology used to obtain the data and information:**
 FM residents utilized our in-house built in database Eagle view to populate the list of seniors aged 65+ who visited our clinic. Each patient's electronic records were evaluated for completion of adult immunizations. Data was tabulated into a spreadsheet for all senior patients seen at each encounter who received influenza vaccination.

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.

- Ila. Total # of seniors who were **eligible** for a *PPSV23* vaccine who were served by your residency from 4/1/15 - 3/31/16: 915
- Ilb. Total # of seniors who **received** a *PPSV23* vaccine from 4/1/15 - 3/31/16: 594
- Ilc. 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 (%) | 25 % | 29 % | 65 % |
| PPSV23 Numerator/Denominator (numbers used to calculate rate) | 167/697 | 227/784 | 594/915 |
| *Number of seniors who received PCV13 during specific time period | | | |

- Ild. **Summary of methodology used to obtain the data and information:**
 FM residents utilized our in-house built in database Eagle (analytics) view to populate the list of seniors aged 65+ who visited our clinic. Each patient's electronic records were evaluated for completion of adult immunizations. Data was tabulated into a spreadsheet for all senior patients seen at each encounter who received pneumococcal vaccination.

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: 1200
- IIIb. Total # of seniors served through community outreach who **received an influenza vaccine** from 9/1/15 – 3/31/16: 568
- 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: 594
- Is this data included in data presented in 2c? Yes No
- IIIId. 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:

Use of Hospitals Eagle view database system and hospitals electronic health records were utilized to compile data. Data was tabulated into a spreadsheet for all senior patients seen at each encounter who received influenza and /or pneumococcal vaccinations.

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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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 type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Clinic EMR linked with State Immunization Registry | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Patient Incentive Rewards  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Patient Reminder and Recall Systems | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Patient-Held Paper Immunization Records | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Provider Friendly Competitions | <input checked="" type="checkbox"/> | <input 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| List Other Interventions Below (not listed or to be more specific about your intervention). Add rows as needed | | | | | | |
| Telephone outreach | <input checked="" 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"/> | |
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| | <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:

The Brooklyn Hospital Center Family Medicine Residency

MULTIPLE STRATEGIES & TEAMWORK LEAD TO UNPARALLELED VACCINATION SUCCESS

Perhaps destiny led Kirishanth Perinpanathan, M.D. to watch *Shark Tank* on television the night “Buzzy” was introduced as the next big benefit to preventive medicine. Buzzy is a natural pain relief device that applies vibration and ice to the skin to block out the body’s pain response. A resident in Family Medicine at The Brooklyn Hospital Center, Dr. Perinpanathan’s interest was immediately piqued. “Buzzy would be great for our patients with needle aversion,” he thought, filing the details away for possible future reference.

A year or so later, Dr. Perinpanathan and fellow resident physician Dr. Nada Al-Hashimi were approached by Sherly Abraham, MD, Program Director for The Brooklyn Hospital Center’s Family Medicine Residency Program about applying for a 2015 Senior Immunization Grant available through the American Academy of Family Physicians (AAFP) Foundation. These awards support the efforts of Family Medicine residency programs to implement projects that increase influenza and pneumococcal vaccination rates in patients age 65 and older.

Neither Dr. Perinpanathan nor Dr. Al-Hashimi had to be convinced of the importance of vaccinations, especially for elderly individuals. Their proposal outlined a multi-pronged approach to achieving the goals set for the project: increasing influenza immunization rates by 24% and pneumococcal immunization rates by 27% for patients 65 and older based on 778 seniors identified through the Family Medicine Center (FMC) Electronic Medical Records (EMR) database. Not surprisingly, the purchase of four

Buzzy devices found its way into the project budget.

Located in Kings County, NY and home to more than 2.5 million people, The Brooklyn Hospital FMC largely serves patients of African American and Hispanic descent. More than 20 percent of the population in Brooklyn is below the poverty level, and approximately 50% are supported by Medicaid. Due to the poor primary care physician-to-population ratio, Kings County is a designated Health Professional Shortage Area.

Many of The Brooklyn Hospital FMC elderly patients were unaware that they needed adult immunizations; others were fearful about the side effects or believed other common vaccination myths. Knowing that the informed participation of all FMC team members would be needed to address these issues, an education component was launched involving all 21 Family Medicine residents and the medical and front desk team members.

Drs. Perinpanathan and Al-Hashimi used weekly “Grand Rounds” as an opportunity to present details to residents on indications, contraindications, treatments, and schedules for influenza and Pneumococcal vaccines. Vaccination guidelines were shared in nurses’ huddles and in-service training sessions, and front desk staff was engaged in discussions regarding the importance and necessity of immunizations. Regular updates on FMC’s progress towards meeting project goals kept staff energized and engaged.

Video-aided training brought residents and nursing staff up-to-speed on the clinical use of Buzzy for patients frightened of needles. Drs. Perinpanathan and Al-Hashimi both praised Buzzy's effectiveness as a pain blocker for shots. Dr. Al-Hashimi explained, "My patients were always so surprised when I'd tell them, 'Okay, we're done!' They'd say, 'Really? I didn't feel a thing!'"

But in an unexpected twist, Buzzy's popularity revealed that although the device did what it did very well, that just wasn't enough to overcome patients' reluctance to accept vaccinations. "We initially thought that needle aversion was the main thing we needed to address," said Dr. Perinpanathan. "But we quickly discovered this just wasn't so--that in fact, fear of needles was often just an excuse used to mask other concerns, such as the fear of getting sick." From this experience, it became clear that training for providers also needed to delve into patient attitudes toward vaccines and help physicians and nursing staff develop skills in patient counseling and persuasion. "We all had to learn how to become salespersons," quipped Dr. Perinpanathan.

Looking back over what had become a quite robust education component, Dr. Perinpanathan noted, "This senior immunization project truly served as the catalyst for redefining our medical education surrounding vaccines." "We used lectures, case presentation, emails, grand rounds, daily huddles—we're always talking about it," added Dr. Al-Hashimi. "It's become a part of our daily work."

The project also spurred more consistent and effective use of features already available in the FMC's EMR system, and both physicians cite the "pre-visit planning" tool as the single most important factor in greatly reducing the number of missed opportunities to vaccinate patients when they visited the clinic. "It's not easy to get a senior to the clinic—transportation is an issue,

and they usually have to depend on someone else to bring them in," said Dr. Al-Hashimi, "so we don't want to miss any opportunity."

"Early in the flu season, our pre-visit care coordinator completed standardized pre-visit encounter forms to outline the required immunizations and input standing orders for upcoming clinic visits," Dr. Perinpanathan explained. Provider staff could then access the EMRs of scheduled patients to determine the status of their immunizations on Health Manager, a built-in reminder system in the FMC's software for immunizations and other preventive care services. "We can also put a note in the EMR for any physician who sees the patient, no matter why the patient is coming in," adds Dr. Al-Hashimi. "Pre-visit planning will let every physician or medical assistant (MA) see the note and know what's missing. That way, the vaccine can be given even if I'm not there. It also pops a red immunization alert into the physician notes," she adds, "and won't allow us to save the note unless the pending flu vaccine has been addressed."

Drs. Perinpanathan and Al-Hashimi confronted the problem of patient awareness head-on. An array of promotional materials, developed in English and Spanish, sought to attract and educate unvaccinated seniors. "Many didn't know there was a vaccine (especially in the case of pneumonia)—didn't know they needed it," confirmed Dr. Al-Hashimi. "The posters piqued patients' curiosity, prompted dialogue with the MA or physician and opened the door for sharing more information about vaccinations."

Posters displayed in the FMC and surrounding areas also promoted three "immunization only" clinics held in September and November 2015 and January 2016. Buzzy and the availability of raffle tickets for \$25 gift cards were offered as "carrots" although ultimately, "the gift cards helped and people were happy for the incentive, but the impact was not as great as we'd hoped," admitted Dr. Perinpanathan. "We

saw our best turnout in September, with participation tapering off from there.”

In an additional (and successful) outreach effort, two MAs made personal phone calls to eligible seniors identified through FMC’s EagleView scheduling and billing database as needing flu and/or pneumonia shots. These contacts provided yet another opportunity to inform patients about the vaccines and encourage them to come in for their vaccinations and/or annual exams. According to Dr. Perinpanathan, “The phone calls were helpful in identifying patients who were resistant to immunizations, and in some cases allowed us to talk them through their aversion.” Calls were reinforced with follow-up letters and informational pamphlets mailed to the patient’s home. FMC staff also reached out to individuals in senior day care centers and nursing homes. “We didn’t have vaccines with us but we did do short presentations, trying to educate and motivate them to come in,” said Dr. Perinpanathan.

By employing multiple strategies and a collaborative process, The Brooklyn Hospital FMC was able to achieve outstanding results in increasing the number of seniors who were immunized against flu and pneumonia. By project’s end, influenza vaccine was given to 62 percent or a total of 568 eligible patients (up from 28 percent the prior year). Pneumococcal vaccine was given to 65 percent or a total of 594 eligible patients (up from 36 percent the prior year). Drs. Perinpanathan and Al-Hashimi both stressed the importance of teamwork in achieving such successful outcomes, citing strong support from Program Director Sherly Abraham and the multi-disciplinary patient care

model employed at The Brooklyn Hospital Center as important factors.

Dr. Perinpanathan singles out a heightened appreciation for the special relationship between doctor and patient as his most important personal take-away, and the realization of just how effective and persuasive providers can be in changing patients’ attitudes towards immunizations. “I now have in the back of my mind, ‘immunizations first’ before other things,” he said. “Giving advice is simply not enough. I need to find out what the barriers are that lead the patient to refuse vaccination. I realize the importance of communicating with my patients about risks and benefits—of really addressing the underlying concerns and barriers. That’s the most important thing.”

Echoing the “vaccination first” philosophy, Dr. Al-Hashimi recalled the heart-breaking experience of seeing elderly patients fall victim to complications from flu and pneumonia, only to wind up very sick and in the hospital. “We know to what extent flu and pneumonia can be a threat, know how debilitating an overlooked vaccine can be. If you follow it all the way to the beginning, the single most important step is a patient missing that pneumonia shot.”

“I feel when I treat older patients, that this could be my father or my mother—they are both elderly, so they have low immunity,” she adds. “If I don’t offer and educate, I would never forgive myself. Now, I will never miss asking any patient I meet, ‘Why don’t you take this vaccine to protect yourself? You might end up in the hospital and become exposed to other terrible illnesses.’ As much as I can, I want to protect them.”