

Increasing immunization rates among seniors in a residency primary care clinic

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Problem: Preventable Mortality

- Seniors (age ≥ 65) fastest growing sub-population
- Influenza & pneumococcus kill 40,000 seniors/year^{1,2}
- Influenza & PPSV23 vaccines cost-effective³
- PCV13 recommended for all seniors in September 2014⁴
- 60-70% of all seniors immunized—but wide disparities⁵

Pneumococcal Vaccines Compared

Vaccine Properties	PPSV23	PCV13
Polysaccharide Antigens	Free	Bound to toxoid
Decreased Colonization?	No	Yes
Herd Immunity?	No	Yes

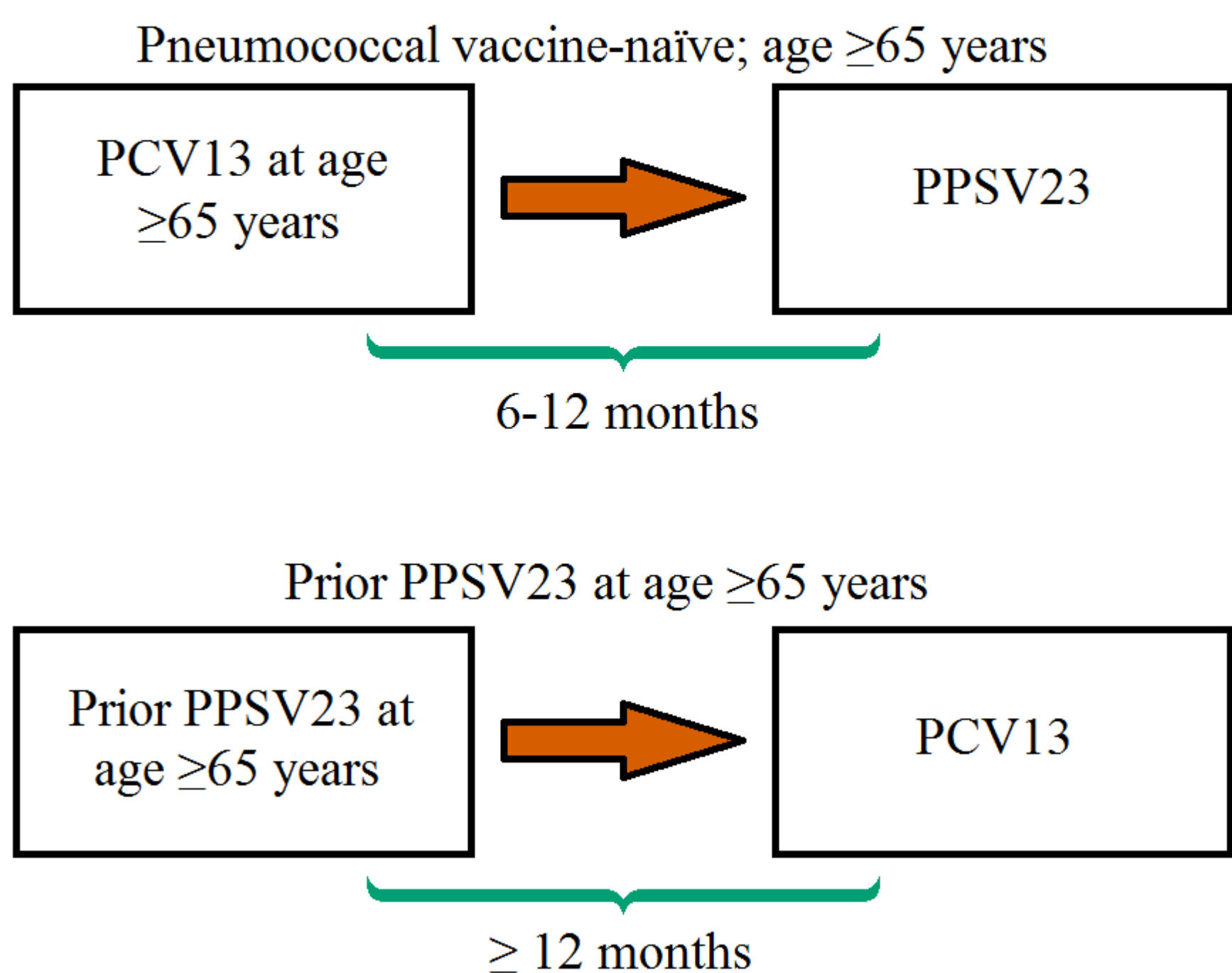
PCV13 = 13-valent pneumococcal conjugate vaccine
PPSV23 = 23-valent pneumococcal polysaccharide vaccine

Context: Rose Family Medicine

- Urban, safety-net, residency clinic (48% Medicaid)
- 547 active patients aged 65 or older
- Little existing infrastructure to promote immunization
- 2013-2014: 46% of seniors received influenza vaccine

ACIP Pneumococcal Vaccine Sequence

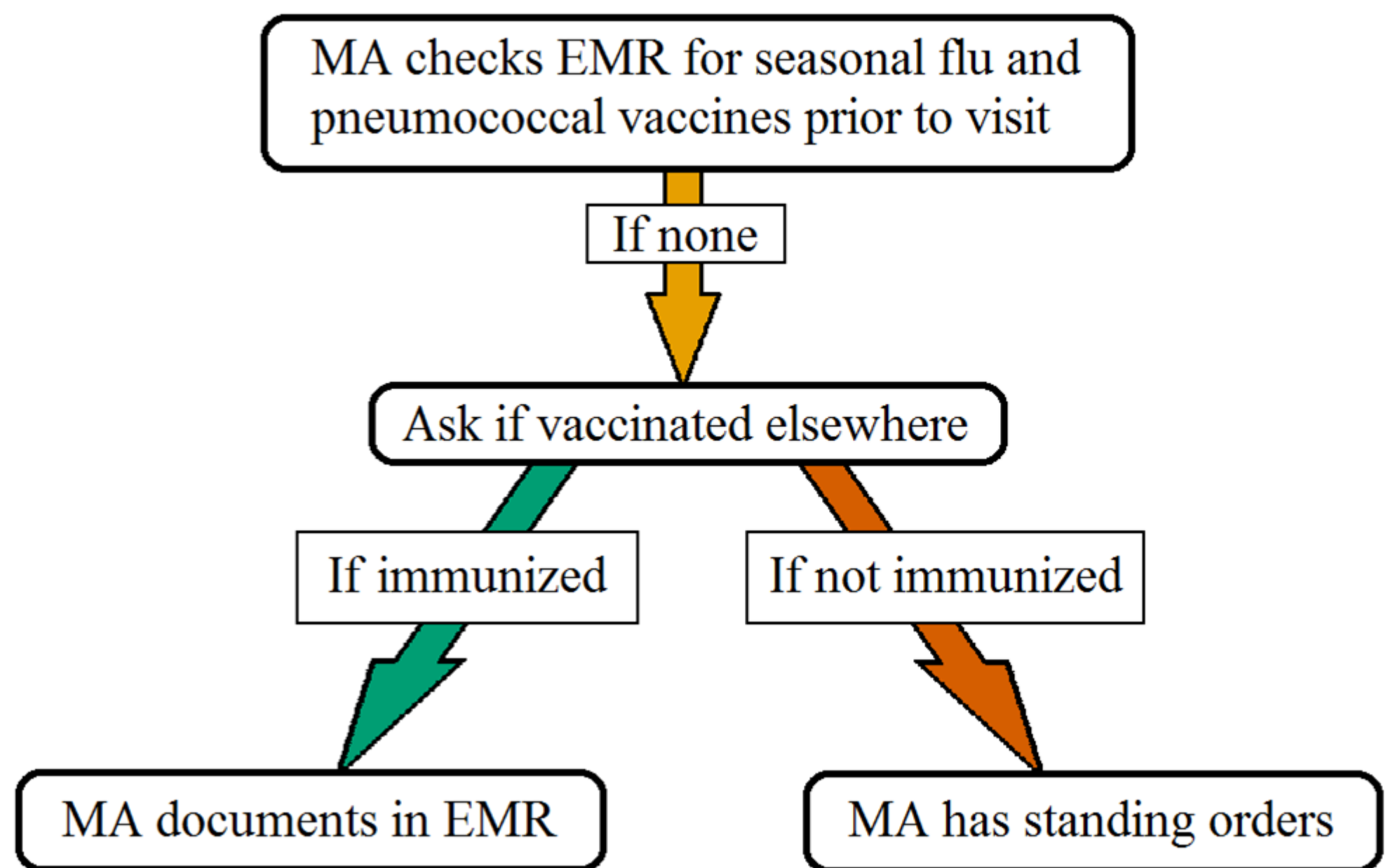
(Advisory Committee on Immunization Practices)



Interventions: SMART Planning

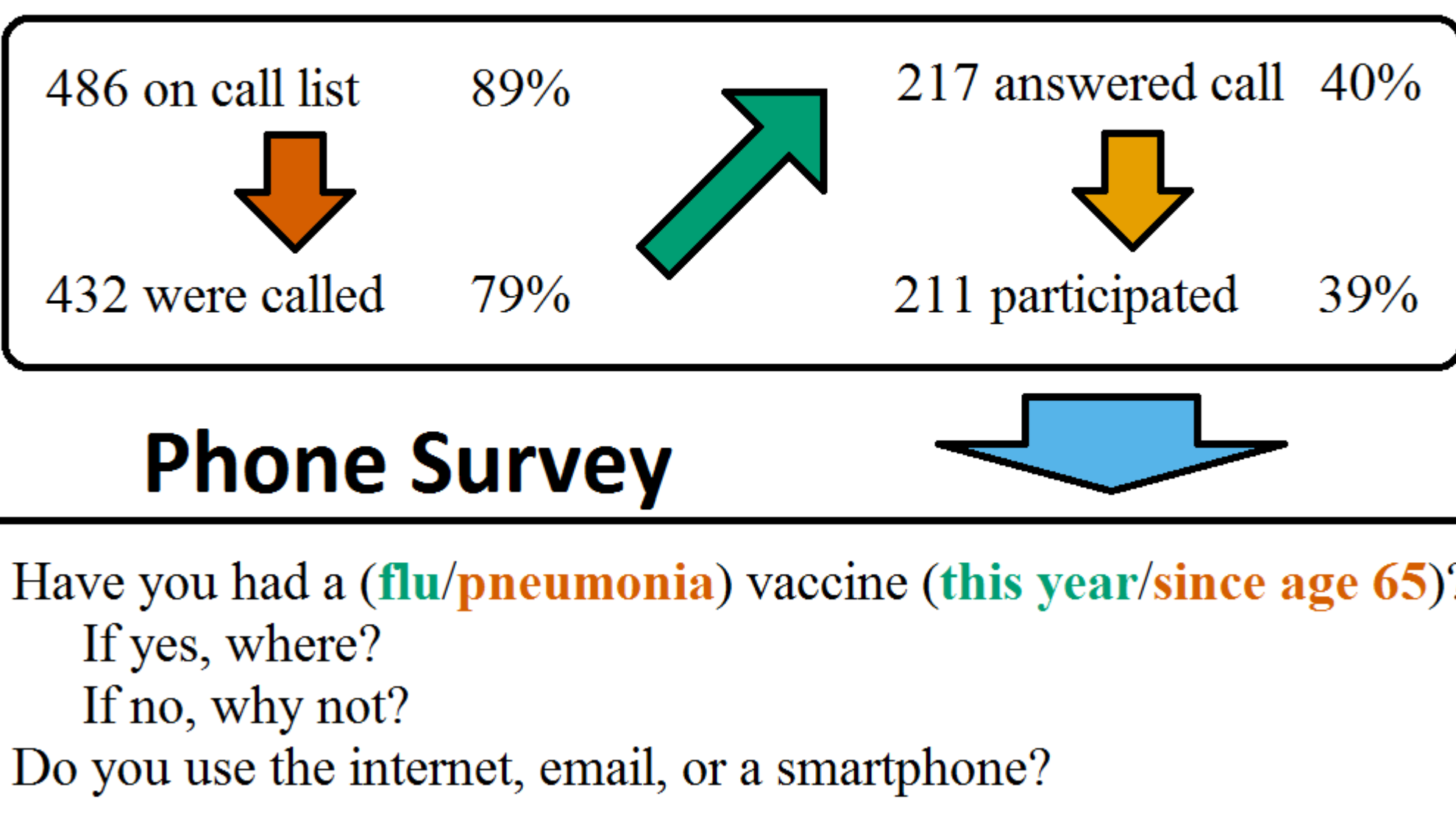
- Specific* • Goal senior influenza immunization rate: 60%
- Measurable* • Structured data from EMR
• Telephone survey
- Attainable* • Phone Reminders (while conducting survey)
• New workflow increases MA responsibility
• Patient & provider education
• Messaging via new Patient Portal
• Provider incentives with weekly updates
- Relevant* • NCQA PCMH level 3 application
- Timeframe* • Flu season: 10/1/2014–3/31/2015

Trial Clinic Workflow

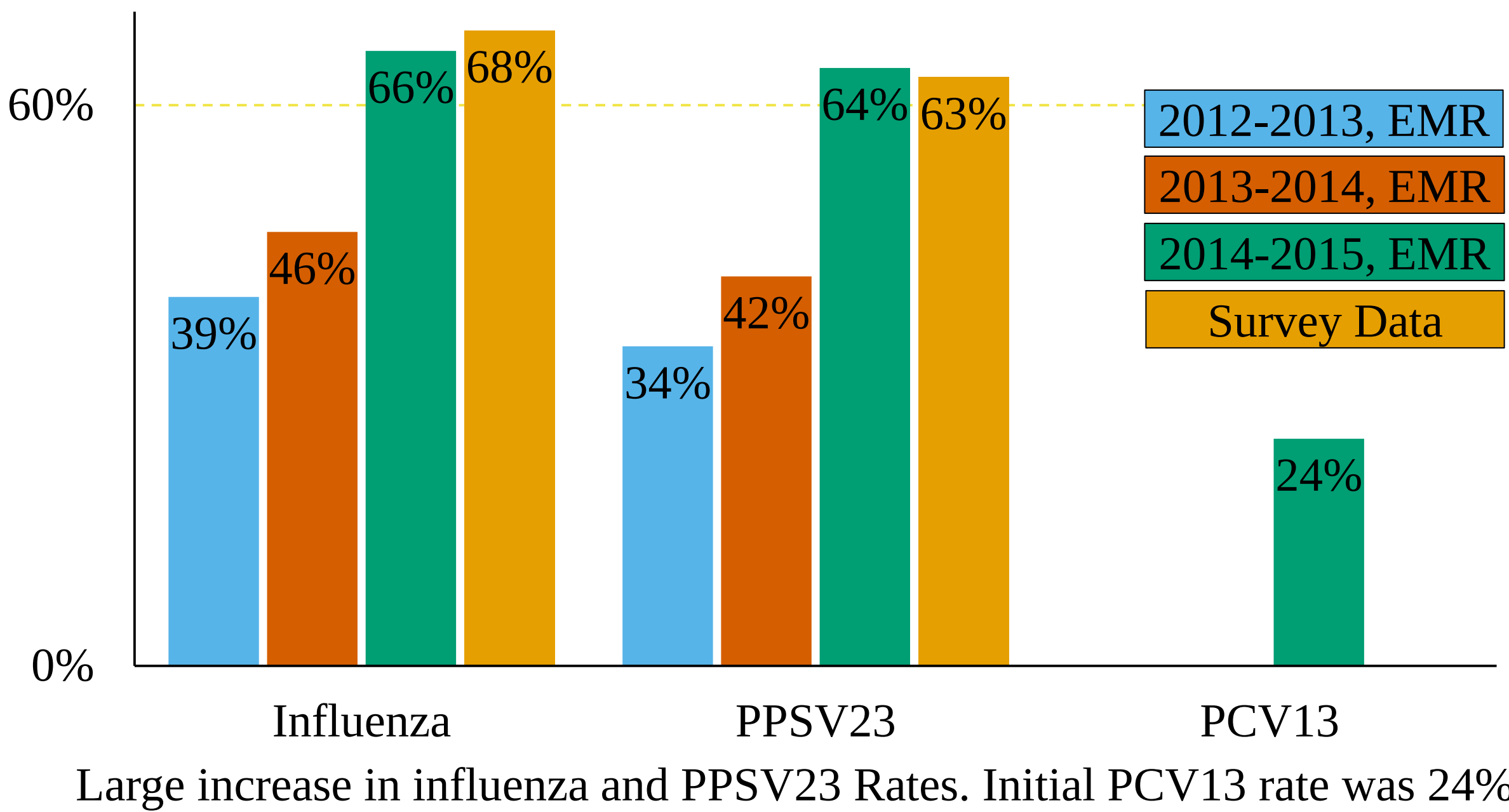


Survey Response Rate

(of 547 Seniors Active in our Clinic)

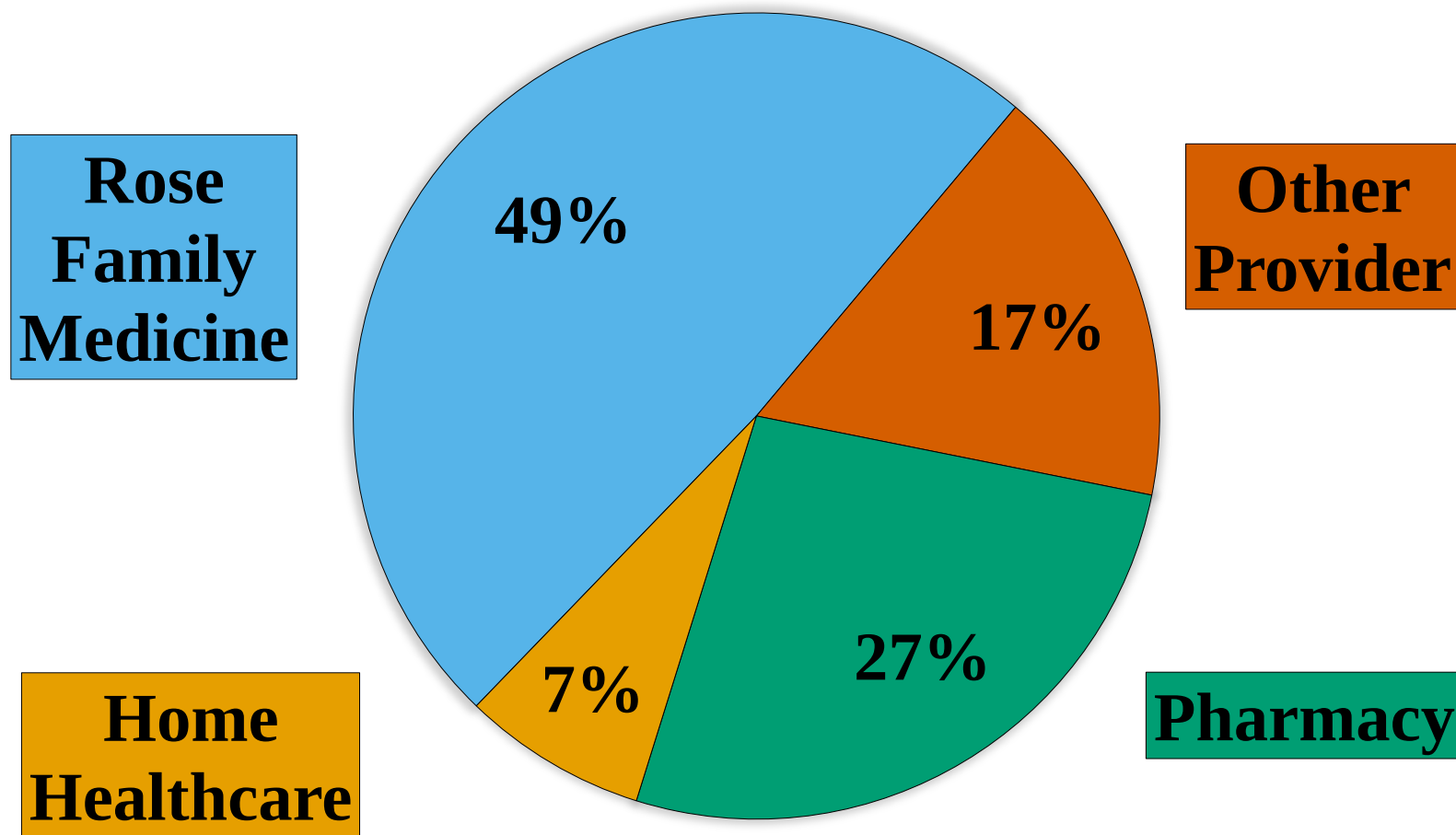


Immunization Rates



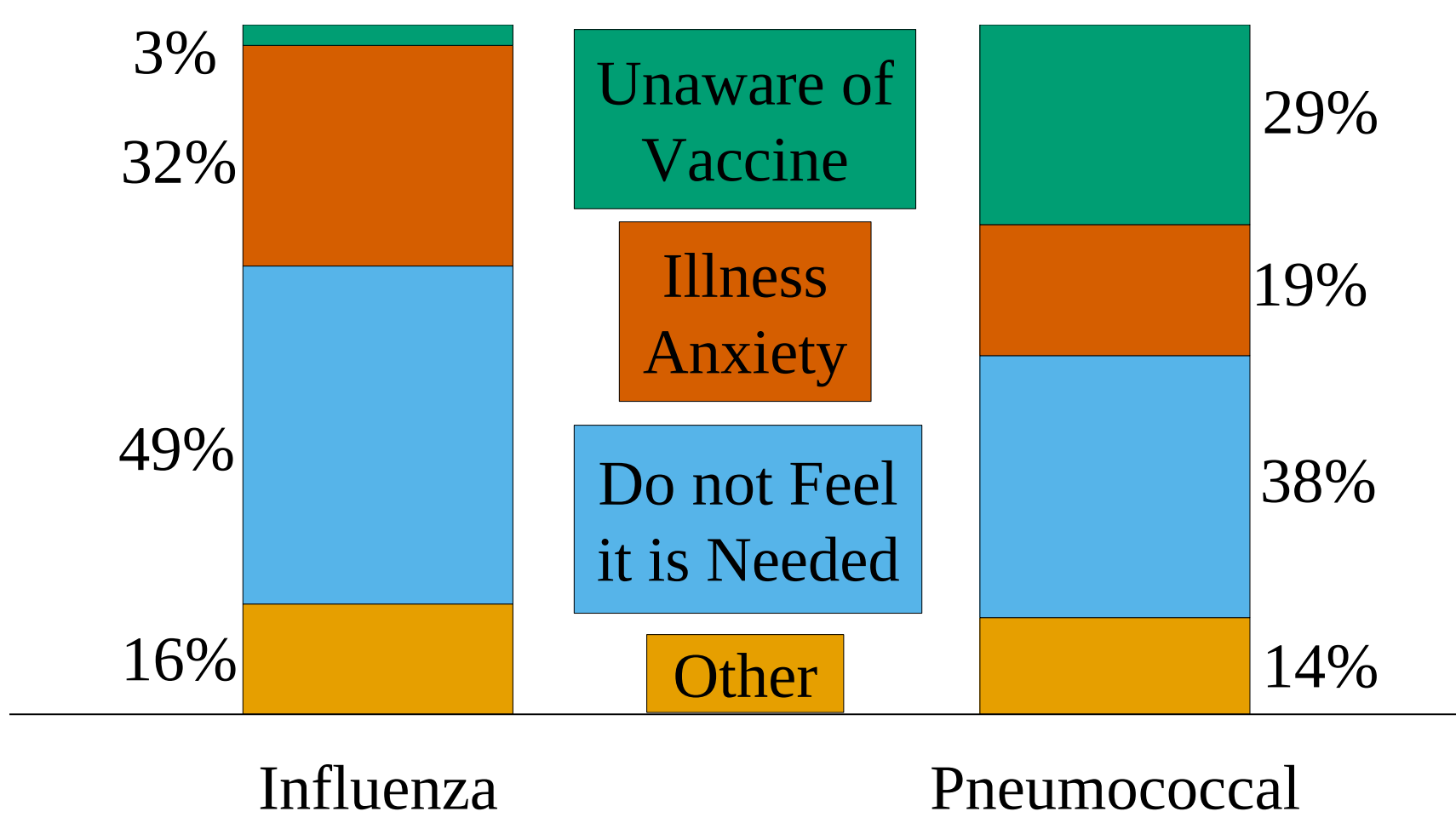
Large increase in influenza and PPSV23 Rates. Initial PCV13 rate was 24%

Immunization Location



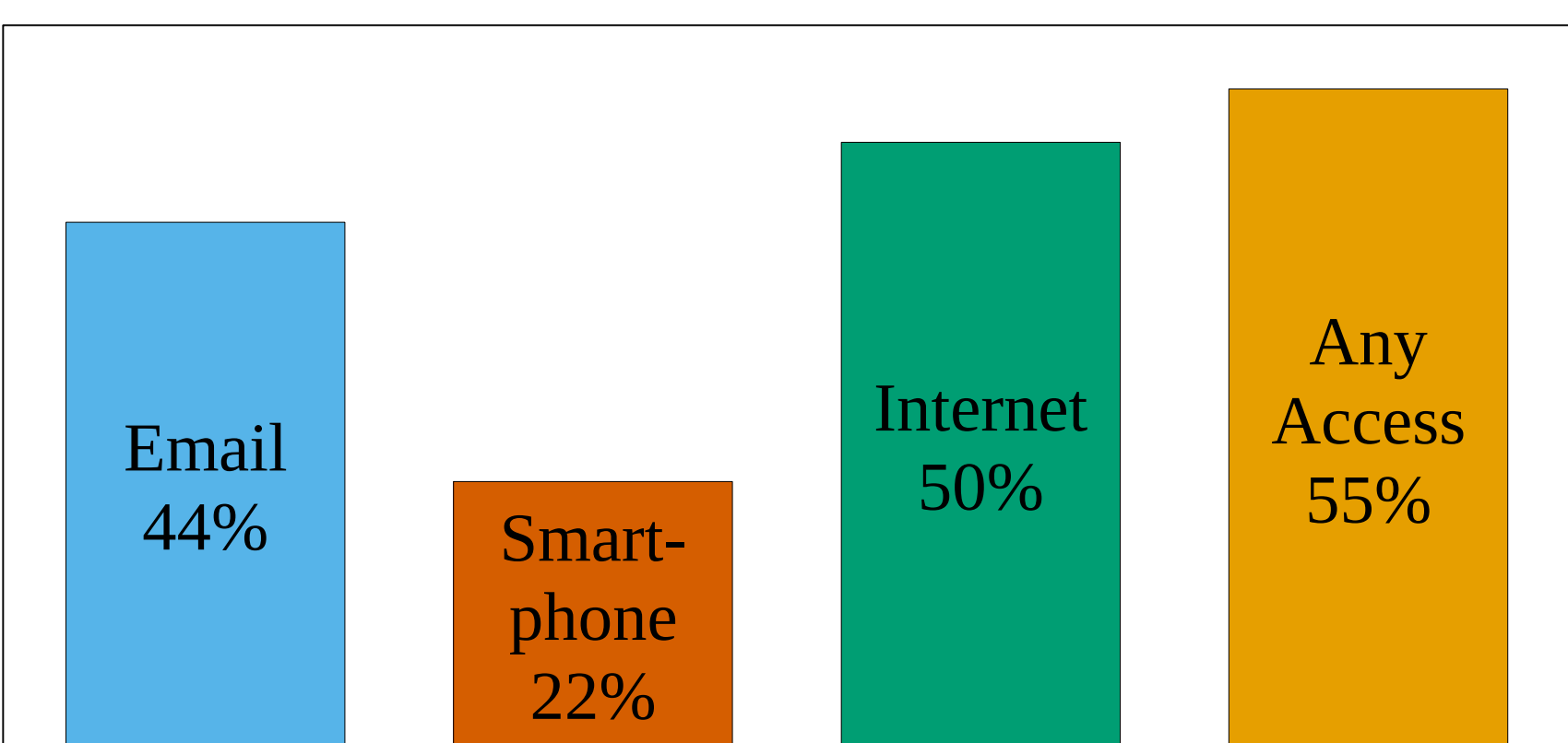
Half of our seniors received their immunizations outside of our clinic

Vaccine Beliefs



One-third of our seniors were unaware of the pneumococcal vaccines

Patient Portal Accessibility



Half of our seniors report internet access

Conclusions:

Outcome

- Influenza vaccination rate >60%
- Vaccination rates measured & published in real-time
- Patient portal launch blocked by administrative barriers

Effective Interventions

- Workflow: more vaccines; better measurement of rates
- Provider & patient education (esp. PCV13)

Ineffective Interventions

- Patient portal campaign
- Phone calls consumed majority of budget; NNT $\approx 100!$

Sustainable Factors

- Team-centered workflow in place for annual QI.
- Resident-lead; Residents invested
- NCQA PCMH Level III Infrastructure

Future Interventions

- Ongoing patient education for PCV13
- Routine assessment of patients' immunization beliefs
- Patient Portal can reach 50% of our seniors

Acknowledgments

We appreciate the role of the AAFP Foundation and the Anthem Foundation whose contributions made possible the grant which funded our project. Vanessa Rollins and Alanna Cain provided crucial support to the success of this project. Much credit is due to all of the faculty, staff, and residents of Rose Family Medicine.

References

- National Vaccine Advisory Committee. "A pathway to leadership for adult immunization: recommendations of the National Vaccine Advisory Committee." Public health reports. 2012. 127(1).
- Huang, Susan S., et al. "Healthcare utilization and cost of pneumococcal disease in the United States." Vaccine. 2011. 29(18): 3398-3412.
- Gilchrist, Shawn, et al. "Benefits and effectiveness of administering pneumococcal polysaccharide vaccine with seasonal influenza vaccine: an approach for policymakers." American journal of public health. 2012. 102(4): 596-605.
- Tomczyk, Sara, et al. "Use of 13-valent pneumococcal conjugate vaccine and 23-valent pneumococcal polysaccharide vaccine among adults aged ≥ 65 years: recommendations of the Advisory Committee on Immunization Practices (ACIP)." MMWR Morb Mortal Wkly Rep. 2014. 63(37): 822-5.
- Koch, Julie A. "Strategies to overcome barriers to pneumococcal vaccination in older adults: an integrative review." Journal of gerontological nursing. 2012. 38(2): 31-39.



2014-15 Senior Immunization Grant Awards FINAL REPORT FORM for RESULTS & FINDINGS

Instructions

- The information requested, including Appendix 1-3, should be included in your Final Report.
 - Your Final Report is due by May 1, 2015.
 - Please include any attachments, graphs, pictures (jpg, if possible) or other items that capture the essence of the outcomes realized by your project.
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ROSE FAMILY MEDICINE RESIDENCY PROGRAM

Contact Information

1. Anibal R. Martinez MD, Assistant
Professor anibal.martinez.borges@gmail.com, anibal.martinez@HealthONEcares.com
2. Same as above
3. Resident presenting Immunization Awards Poster at the 2015 National Conference: Brian Hanson MD

Title of Project

Implementation of a multimodal approach intervention for Influenza and Pneumococcal Vaccination during flu season of 2014-15.

Statement of Goal (s) Include your Primary Metrics

The goal of this proposal was to increase to 25% or more our baseline influenza and pneumococcal vaccination rate among 65 and older by the end of March 2015. This will be done by implementing a new immunization campaign using a multimodality intervention program based primarily on phone calls, patient portal and smartphone application tools; changes in our office workflow systems assigning vaccination responsibilities to Medical Assistant personnel (MA's); and an office campaign for patients, providers and non-physician personnel to increase awareness.

Impact on Target Population

1. PATIENT DATA – See Appendix 1.
2. KEY OUTCOMES (Bullet points)
 - a. Flu vaccine rate increase from baseline: 24.5% (absolute value of 30.5%). Total of 360 vaccines recorded.
 - b. Pneumovac rate increase from baseline: 36% (absolute value of 18.6%). Total vaccines recorded: 350, plus 133 PCV's.
3. KEY PROGRAM COMPONENTS
 - a. Patient phone contact for education, scheduling, recording vaccination status. Plus gathering data among this population for: believes/barriers regarding vaccines and vaccination. Access to smartphones and internet.
 - b. Standing orders for MA's
 - c. Education campaign for providers and staff and for patients with new recommendations for PCV 13 vaccinations.
4. THINGS THAT WORKED BEST (to accomplish your activities)
 - a. Standing orders
 - b. Educating providers, really helped a successful total of 133 PCV's given this season.

- c. Phone contact added only a few extra vaccinations for the total population. But gathered interesting information among this population that will serve for future campaigns once we implemented the portal and SMS system.

5. LESSONS LEARNED

- a. We have not been able to implement a vaccine campaign through our patient portal and other social media capabilities like pushing messages to all our patients. We share the EMR with three other practices, to implement new capabilities within our EMR, this has to be approved by all three practices. The PI for this grant is the EMR champion for the Rose Family Medicine Program. I was not able to get approval from the other two practices. I am hopeful that we will implement this capability for our next flu season. Meaningful Use requirements will help push activation sooner rather than later. As a result of the grant and the PCMH requirements we were able to push patient portal activation among all our patients in clinic, which will benefit our providers, staff and patient populations in the long run.

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.

I was impressed by the residents willingness to take the challenge of implementing talks for the new CDC pneumovacc recommendations. Dr. Brian Hanson was the first to offer to take on the challenge and he has been working on this project in collaboration with other residents since day one. When residents took over this challenge, we saw an increment in the PCV13 given among providers and staff and the initial challenge transformed into a positive effect on all other vaccinations given and on cultural changes in our clinic. For the first time in our program, Residents were now leading significant changes in our clinic workflows.

7. IMPACT OF INTERVENTIONS - Complete information in Appendix 2.

Impact on Residents and Team Members

1. Our team consisted of one front desk, one medical assistant, 2 residents and myself. Also included the PCMH committee members, Our behavioral therapist is the chairman of the PCMH committee, also composed of our social worker, faculty, and two chief residents.
2. Current and future impacts of the project: At this time we have reached the goal of improving vaccination rates among our 65 and older population. We have managed consistent resident reminders for these two vaccines, we have also developed easy to read information for providers and patients regarding the new CDC recommendations for Pneumococcal vaccine. This information and education has created a consistent change in culture regarding the administration of these two vaccines and routine precepting. This grant also facilitated the process of the NCQA application, fulfilling several elements of the PCMH level 3 application. NCQA level 3 was reached this year!
3. Impact of the new ACIP recommendations: The new recommendations in the middle of the implementation was initially an unexpected challenge. This challenge allowed us to work in collaboration with our pharmacist to develop a new one page pamphlet for patients and providers. The new recommendations also helped revamp education and interest in the vaccination protocols and gave the grant a special place in our residency program.

Education and Outreach

1. Summary of accomplishments
2. List of clinical & patient education and outreach materials produced or used in this project.
3. List of presentations with the date(s) and brief description of the audience.
 - a. Audience: Residents and Faculty: Title: New CDC recommendations for pneumovacc. (PGY-2 Dr Andrew Wood) (10/10/14)
 - b. Lunch and Learn for providers and staff: New recommendations for pneumovacc. (PGY-2 Dr. Brian Hanson) (11/1/14)
 - c. Preliminary results given to all providers and staff in clinic (Dr. Martinez) (2/1/15)
 - d. Vaccine Grant presentation of preliminary results, staff and all providers at staff meeting (2/12/15)
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. See attached.

Sustainability

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

The application of our multimodal intervention model using phone contacts, standing orders, staff, provider and patient education will pay off in the coming flu season. This year only 6 of our current third years will graduate. We will add 6 more interns this coming July, they will come in to a clinic with developed workflows and education materials for staff and patients that was develop. We have developed a particular interest among our clinic staff and providers towards the 65 and older population preventive needs that I hope will expand to other areas of prevention. We also have created a cultural change in our clinic towards the importance of the vaccination among this vulnerable population.

We will be presenting a poster at the AAFP meeting this year and also present future posters, publications and educational materials that were developed (likely presentation at the STFM meeting 2016, among others). We will also be more prepared to tackle next flu season with improved education materials and knowledge about the new recommendations.

Part of the implementation this year was to create a friendly competition among providers. We will continue next year with a prize gift card at the end of flu season for the resident and the medical assistant that ordered the most vaccines.

Project Impact Statement for Donors

What would you like the donors who supported this project to know about this project and the benefit you derived from receiving this grant?

- 1) Cultural changes among our clinic providers and residents in particular around the importance of systematic approaches for vaccinations among 65 and older populations.
- 2) Helped advance our PCMH/NCQA application with successful approval certification level 3.
- 3) Residents learned a practical approach of a Quality Improvement project and PCMH concepts. Some residents will be fulfilling the Scholarly activity required for graduation.
- 4) Put Rose Family Medicine Program in the eye of similar programs in the Denver area, helped foster collaboration with other programs. Shared best practices with the other programs.

Budget Update – Complete information in [Appendix 3](#).

Appendix 1: PATIENT DATA for 2014-15 Senior Immunization Grant Award

I. INFLUENZA VACCINE INFORMATION: 2014-15 Flu Season

- 1a. Total # of seniors (adults aged ≥ 65) served by your residency who were **eligible** for an *influenza* vaccine from 9/1/14 -3/31/15: 1181
- 1b. Total # of seniors who **received** an *influenza vaccine* from 9/1/14 - 3/31/15: 360
- 1c. Historical Data – Enter data in the table by clicking on the box and typing in the numbers

Seniors (age 65 and older)	2012-2013 Flu Season (Sep 2012-Mar 2013)	2013-2014 Flu Season (Sep 2013-Mar 2014)	2014-2015 Flu Season (Sep 2014-Mar 2015)
Influenza Vaccine Rate (%)	21%	24.5%	30.5%
Numerator/Denominator (absolute numbers used to calculate rate)	216/1026	254/1037	360/1181

- 1d. Summary of methodology used to obtain the data and information:
We used the same registry reporting system from our EMR, e Clinical works. We searched for encounters with date range 9/1/2012 to 3/2013, for each year Flu season. Within the demographics of Age 65 and older, and within the immunizations given for both flu and PPV23. PCV13 is also searched with the same method.

II. PNEUMOCOCCAL VACCINE INFORMATION: 2014-15 Flu Season

*Note: New ACIP recommendations for PCV13 and PPSV23 use in adults aged ≥ 65 were issued on Sep 19, 2014 during the course of this grant. They were NOT required to be implemented by grant recipients.

- 2a. Total # of seniors who were **eligible** for a PPSV23 vaccine who were served by your residency from 9/1/14 - 3/31/15: 489
- 2b. Total # of seniors who **received** a PPSV23 vaccine from 9/1/14 – 3/31/15:
- 2c. Historical Data – Enter data in the table by clicking on the box and typing in the numbers

Seniors (age 65 and older)	2012-2013 Flu Season (Sep 2012-Mar 2013)	2013-2014 Flu Season (Sep 2013-Mar 2014)	2014-2015 Flu Season (Sep 2014-Mar 2015)
PPSV23 Pneumococcal Vaccine Rate (%)	12%	13.8%	18.6%
PPSV23 Numerator/Denominator (numbers used to calculate rate)	187/1562	228/1662	350/1883
*Number of seniors who received PCV13 during specific time period	N/A	N/A	133

- 2d. Summary of methodology used to obtain the data and information:
We used the same registry reporting system from our EMR, eClinical works. We searched for encounters with date range 9/1/2012 to 3/2013, for each year Flu season. Within the demographics of Age 65 and older, and within the immunizations given for PPV23. PCV13 is searched with the same method.

III. COMMUNITY-BASED PROJECTS ONLY: INFLUENZA & PNEUMOCOCCAL INFORMATION: 2014-15

influenza season [*Note: New ACIP recommendations for PCV13 and PPSV23 use in adults aged ≥ 65 were issued on Sep 19, 2014 during the course of this grant. They were NOT required to be implemented by grant recipients]

- 3a. Total # of seniors served by this project through community outreach from 9/1/14 – 3/31/15: [Click here to enter text.](#)

- 3b. Total # of seniors served through community outreach who **received an influenza** vaccine from 9/1/14–3/31/15: [Click here to enter text.](#) Is this data included in the data presented in question 1b and 1c? [Click here to enter text.](#)
- 3c. Total # of seniors served through community outreach who **received a PPSV23 vaccine** from 9/1/14-3/31/15: [Click here to enter text.](#) Is this data included in the data presented in question 2b and 2c? [Click here to enter text.](#)
- 3d. Total # of seniors who **received a PCV13 vaccine*** from 9/1/14 – 3/31/15: [Click here to enter text.](#) Is this data included in data presented in 2c? [Click here to enter text.](#)
- 3e. Summary of methodology used to obtain the data and information:
[Click here to enter text.](#)

IV. PNEUMONIA-RELATED HOSPITALIZATION RATES FOR AGE ≥ 65, Reported Over 2 Flu Seasons

- 4a. Historical Data – Enter data in the table by clicking on the box and typing in the numbers

PNEUMONIA-RELATED HOSPITALIZATION RATES FOR SENIORS AGE ≥ 65		
Patients 65 and older	2013-2014 Flu Season (Sep 2013-Mar 2014)	2014-2015 Flu Season (Sep 2014-Mar 2015)
Community Acquired Pneumonia	69	49
Pneumococcal Pneumonia	8	3
Influenza-Related Pneumonia	17	25

- 4b. Summary of methodology used to obtain the data and information:

Data is obtained from the Crimson database from Rose Medical Center. Rose Hospital is an acute care and general medical and surgical community hospital located in the urban/suburban areas of the city of Denver, Colorado. This hospital has 422 licensed beds. Our average daily census is 135 and our annual discharges are 12400.

Not sure why my data is different from the initially reported. Could be related to this being just within the Flu season report period. As per initial submission, this data was for the whole year?