Adult Immunization Quality Improvement Project

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Abstract

Objective: The quality metrics regarding prevention & screening are required for documentation for pay for performance. The goal of the study is to perform a quality improvement project to examine the effectiveness post quality measures with adult immunizations at the UICOMP Family Medical Center. We conducted a retrospective chart review. There will be no other patient identifiers. This quality improvement project provides minimal risk to patients.

Research setting: Outpatient /Family medical clinic in Peoria, Illinois
Duration of observation: 4 years 3 months
Sample size: Include
1. Total number patients above 65 years old
2. Patients aged 50 – 64 years who met inclusion criteria listed below.

Inclusion Criteria

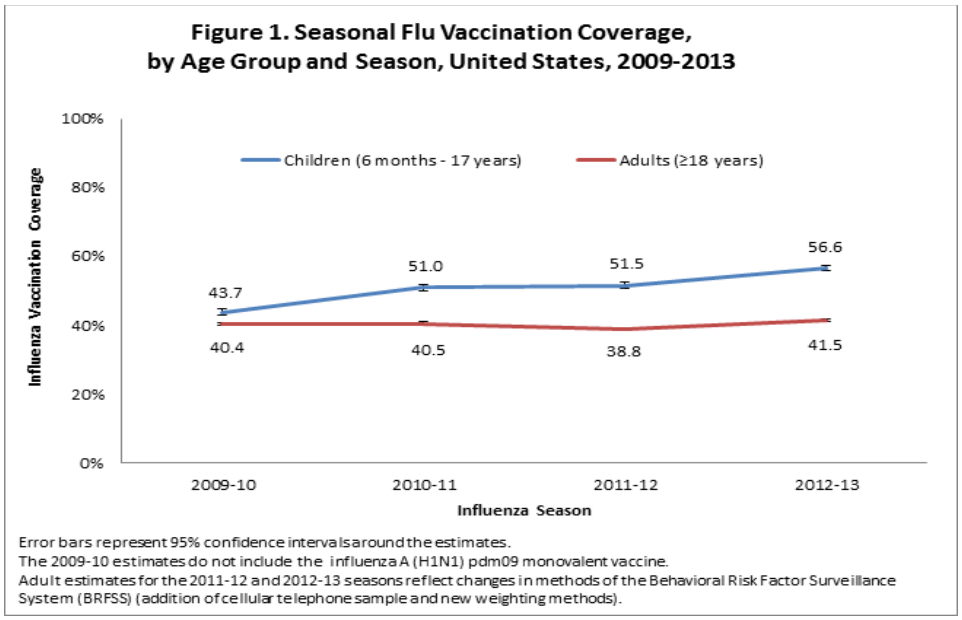
1. 50 – 64 year old
2. Sex (Male or Female)
3. Immunocompromising conditions (CKD, HIV or AIDS; Spleenectomy
4. Long-term health problems (CAD, MI, COPD, Asthma, sickle cell disease, diabetes, Alcohol abuse, Cirrhosis)
5. Tobacco abuse

Conclusion

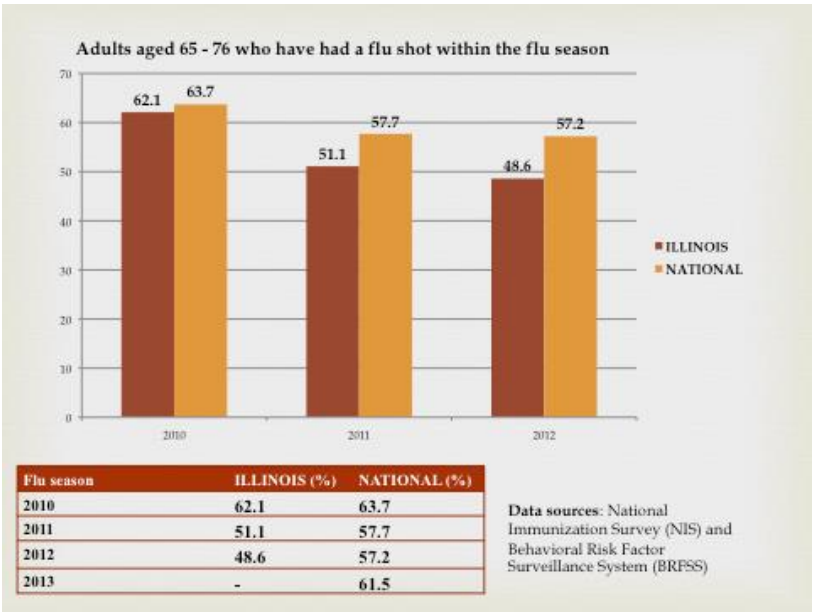
Our vaccination status at FMC is below average for both flu and pneumonia. Pneumonia vaccination rate decreases during non-flu seasons. Vaccination status for both flu and pneumonia was initially decreased after introduction of quality metrics (September 2011) than it started improving. High risk patients eligible for Pneumovax between ages 50-64, are not receiving it or lack of proper documentation.

Background

Influenza or "flu" vaccination is the most effective strategy to prevent people from contracting the flu and potentially serious flu-related complications. Flu seasons are unpredictable and severe. Over a period of 30 years, between 1976 and 2006, estimates of flu-associated deaths in the United States range from a low of about 3,000 to a high of about 49,000 people. Consequently, the Advisory Committee on Immunization Practices (ACIP) recommends flu vaccination for everyone age greater than 6 months.



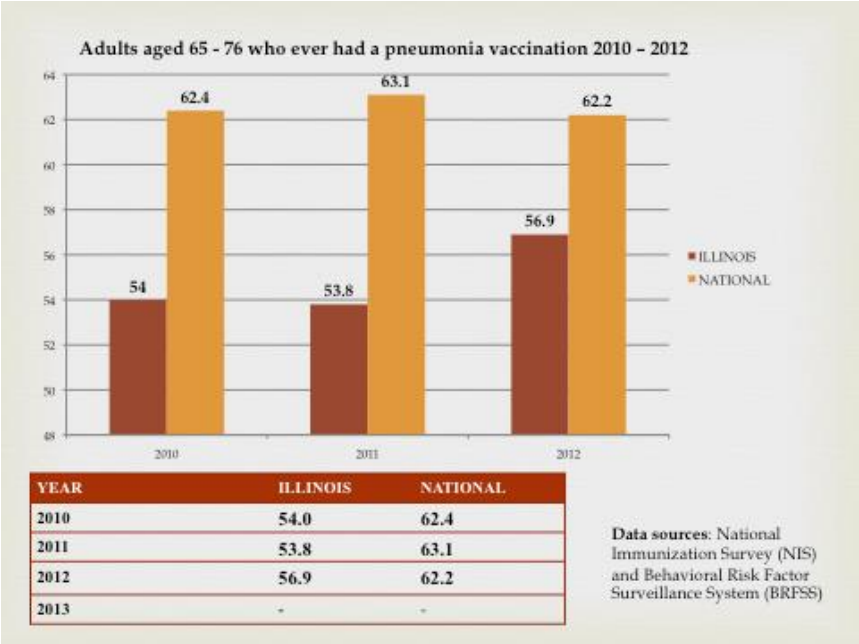
For children, 5.1 percent increase noted for the 2012–13 season compared to the 2011–12 season and 12.9 percent increase from the 2009-10 season. On the other hand in adults, there was only a 2.7 percent increase in 2012-13 , and 1.1 percent increase from the 2009-10 season. As noted in the following table, Illinois is consistently below the national average for influenza vaccination in adults great than age 65.



Pneumococcal pneumonia

Pneumococcal pneumonia is the most common clinical presentation of pneumococcal disease in adults. Each year, 900,000 Americans are infected with pneumococcal-pneumonia. There is a 5 to 7% mortality rate. Infection can lead up to 400,000 hospitalizations per year. 90% of invasive pneumococcal disease cases are in adults. There are greater than 12,000 cases of pneumococcal bacteremia every year and of those cases about 15% will die from the infection. About 3,000

cases of pneumococcal meningitis occur yearly and with a 10 % mortality rate from infection. Most (>95%) pneumococcal deaths in the United States are in adults.
About 70 million adults at highest risk remain unvaccinated, leaving them vulnerable. This also provides a tremendous cost to the health care system when these patients are hospitalized. The absolute contraindication to pneumococcal conjugate (PCV13) and pneumococcal polysaccharide (PPSV23) include severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component, including to any vaccine containing diphtheria toxoid. If a patient has a moderate or severe acute illness with or without fever, precaution should be taken.



YEAR	ILLINOIS	NATIONAL
2010	54.0	62.4
2011	53.8	63.1
2012	56.9	62.2
2013	-	-

Data sources: National Immunization Survey (NIS) and Behavioral Risk Factor Surveillance System (BRFSS)

Traditional flu vaccines made to protect against three different flu viruses (called “trivalent” vaccines) are available. In addition, during this season, flu vaccines made to protect against four different flu viruses (called “quadrivalent” vaccines) also are available. The trivalent flu vaccine protects against two influenza A viruses and an influenza B virus. People who have ever had a severe allergic reaction to eggs have an absolute contraindication to the trivalent flu vaccine. The recombinant form of the vaccine does not contain any egg protein. A severe allergic reaction (e.g., anaphylaxis) after previous dose of RIV or to a vaccine component is also a contraindication. Health care providers should practice caution with patients that have moderate or severe acute illness with or without fever. In addition, caution is advised with if a patient has a history of Guillian-Barré Syndrome within 6 weeks of previous influenza vaccination.

PCV13 is routinely given to infants as a series of 4 doses. The doses are given at age 2, 4, 6, and 12 through 15 months. Children who miss their shots or start the series later should still receive the vaccine. The number of doses recommended and the intervals between doses will depend on the child's age when vaccination begins. PCV13 may be given at the same time as other vaccines, except for PPSV23 and meningococcal conjugate vaccine. For children who are recommended to receive PPSV23 in addition to PCV13, PPSV23 should be administered at least 8 weeks after the child has received the final dose of PCV13.

Adults age 19 and above with the following medical conditions, and who have not previously received PCV13 should receive a dose of PCV13 first and should also continue to receive the recommended doses of PPSV23:

1.Cerebrospinalfluid (CSF) leaks
2.Cochlear implant(s)
3. Sickle cell disease and other hemaglobinopathies
4. Functional or anatomic asplenia
5. Congenital or acquired immunodeficiencies
6. HIV infection
7. Chronic renal failure
8. Nephrotic syndrome
9. LeukemiaHodgkin disease
10. Generalized malignancy
11. Long-term imunosuppressive therapy
12. Solid organ transplant
13. Multiple myeloma

Which children and adults need the PPSV23 vaccine?

The PPSV 23 vaccine indications are listed in the following table. In general, all adults 65 years of age and older, any adult 19 through 64 years of age who is a smoker or has asthma, any residents of nursing homes or long-term care facilities is eligible to receive the vaccine:

Long-term health problem	Disease or condition that lowers the body's resistance	Drug or treatment that lowers the body's resistance
1.Heart disease, 2.lung disease 3. Sickle cell disease 4.Diabetes 5.Alcoholism 6.Cirrhosis 7.Leaks of cerebrospinal fluid 8.Cochlear implant	**1.Hodgkin's disease 2.lymphoma /leukemia 3. Multiple myeloma 4.kidney failure 5.Nephrotic syndrome 6.HIV infection or AIDS 7.Damaged spleen, or no spleen 8.Organ transplant**	**1.Long-term steroids 2.Certain cancer drugs 3.Radiation therapy**

Patients with these medical conditions age 2 through 64; should receive vaccination earlier than age 65.

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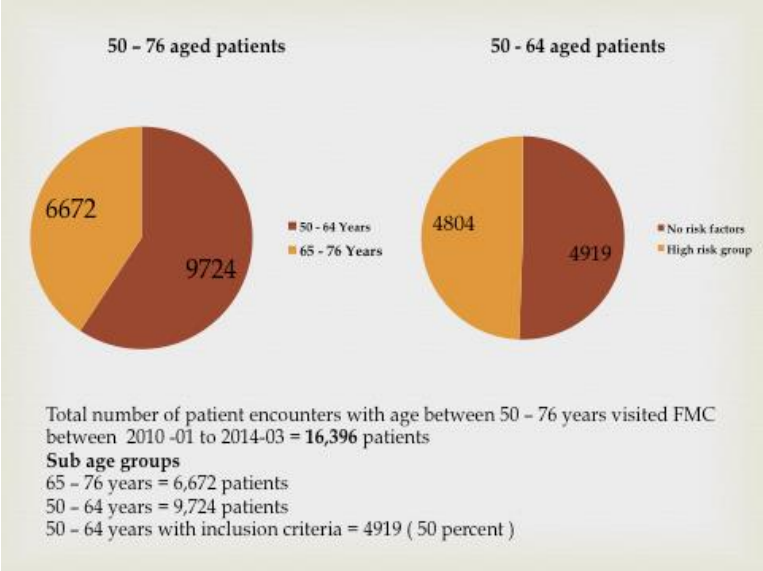
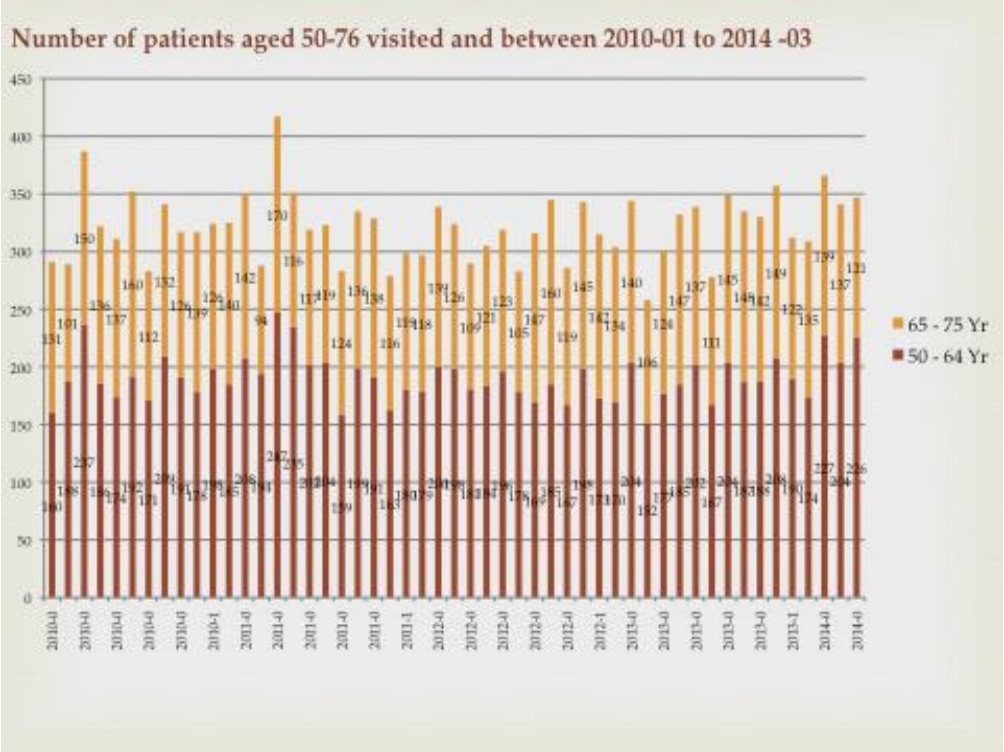
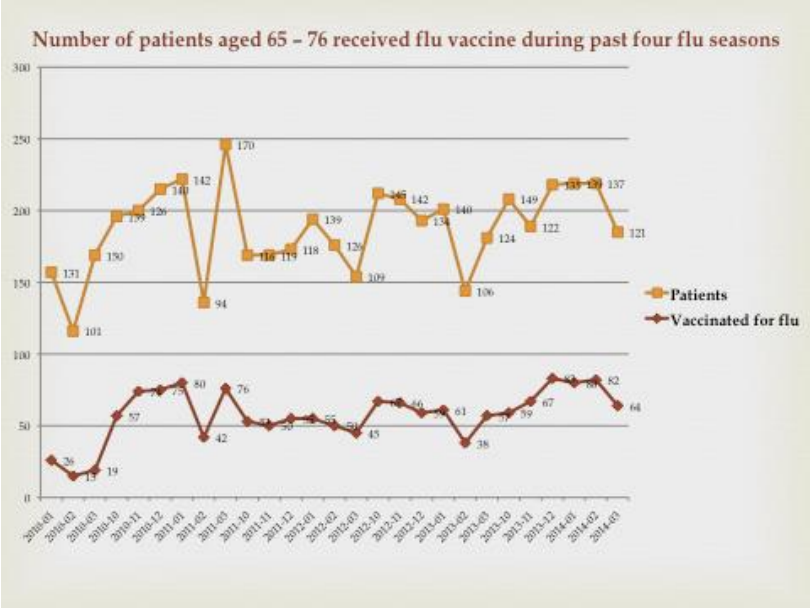


A retrospective chart review was conducted. The follow patient groups were reviewed: 1. Adults aged 65 - 76 who received influenza vaccination during the flu season 2010/11 – 2013/14
2. Adults aged 65 - 76 who ever had a pneumonia vaccination 2010 – 2013
3. Adults aged 50- 64 with inclusion criteria mentioned previously who ever had a pneumonia vaccination 2010– 2013
Quality metric screens for vaccinations were first introduced in September 2011 at the Family Medical center.

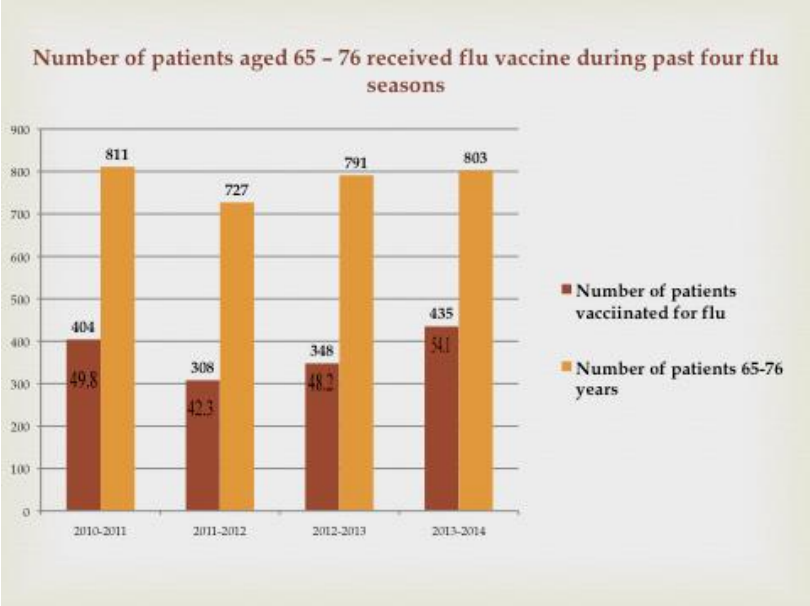
Methods:

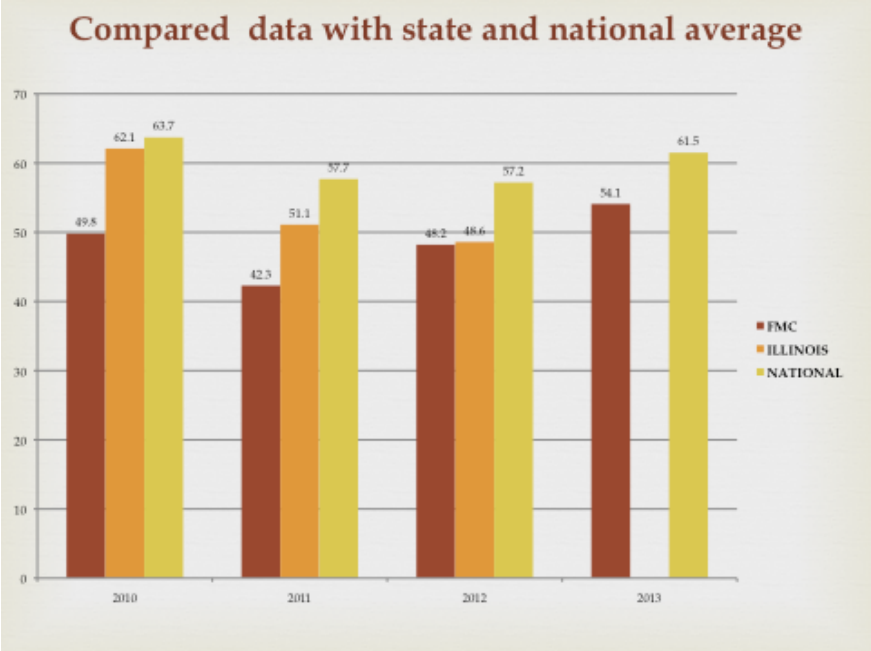
We compared FMC vaccination rates with the national and Illinois average. We also analyzed the percent difference before and after introduction of HAC Quality metric screens for influenza and pneumovax.





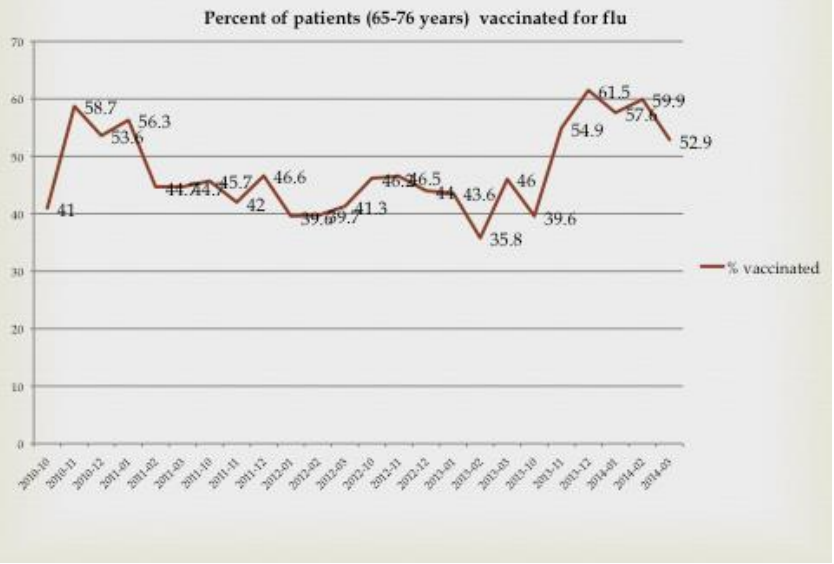
Vaccination rates have improved gradually after introduction of quality metrics.





FMC vaccination rates have improved to near Illinois average, however, remain below the national average.

Difference in percent before and after introduction of HAC Quality metrics



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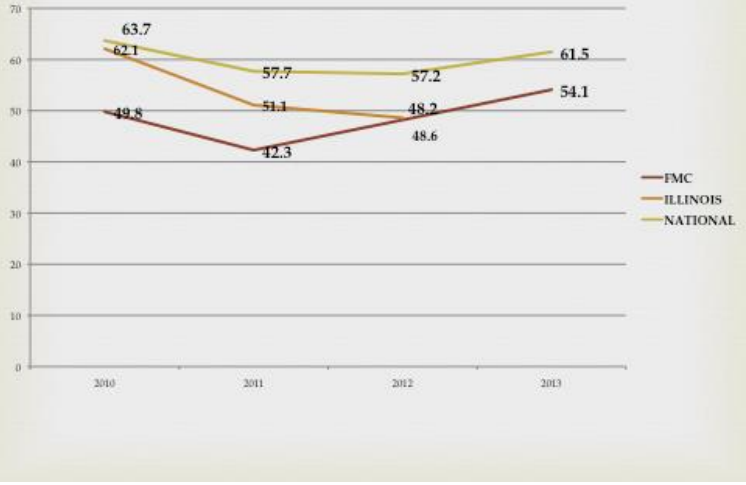
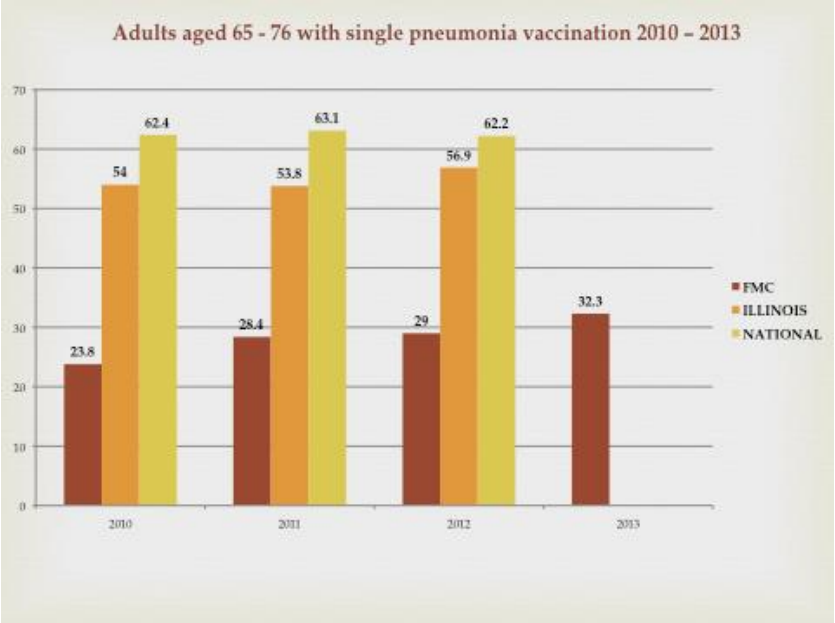
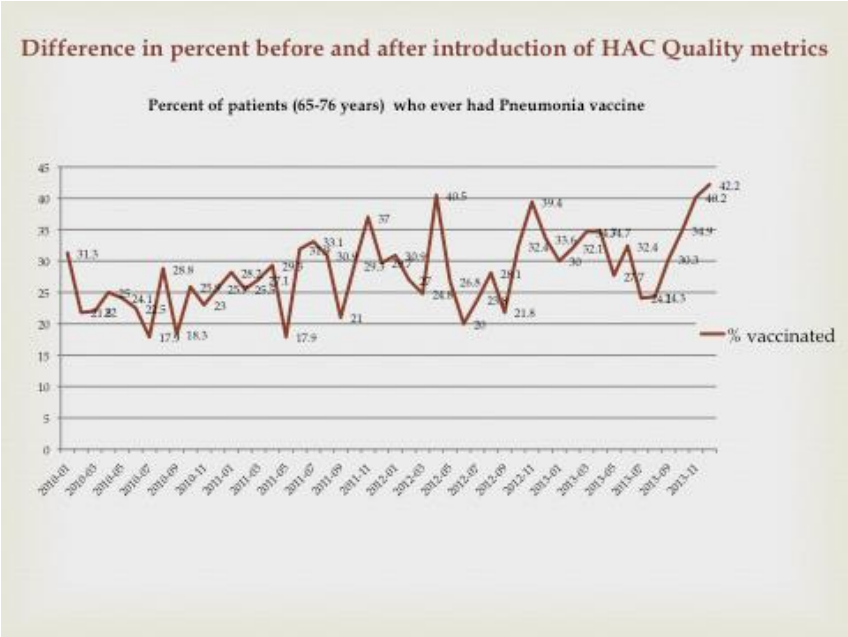
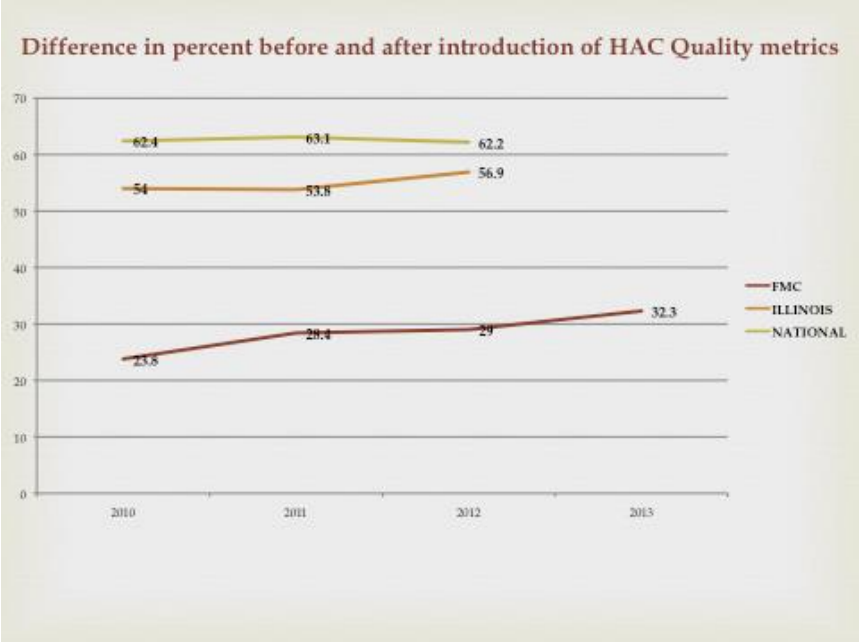


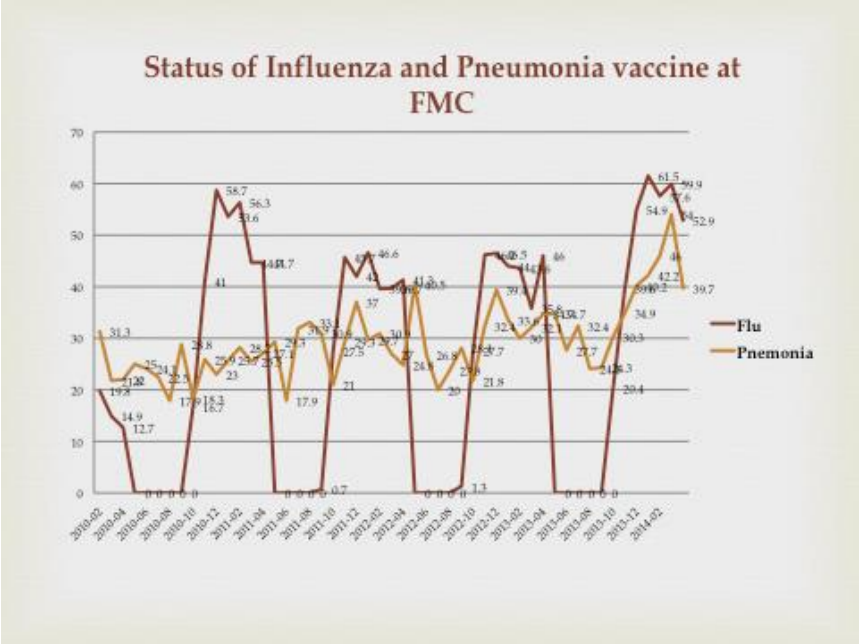


In adults age 65-75, pneumovax rates are far below state and national average.



Pneumonia vaccine rates have gradually improved after introduction of quality metrics screen.





During influenza season, pneumonia vaccination rates are higher than non-flu seasons.

Conclusion

Our vaccination status is below average for both influenza and pneumonia. Both illnesses can have significant morbidity and mortality, especially in the elderly or high risk groups. Pneumonia vaccination rate decreases during non-influenza seasons. Vaccination status for both flu and pneumonia was initially decreased after introduction of quality metrics (September 2011) than it started increasing. Looking at national vaccination rates during that time frame, there was also a slight decrease. During our review, high risk patients eligible for Pneumovax between age 50-64, are not receiving it. This could be in part due to lack of proper documentation in HAC or even asking patients about their vaccination history.

Study limitations

All high risk factor groups were not included. Medication history, such as long term steroids and chemo-radiation treatments, can be difficult to extract from an EMR system. HAC does not have an accurate system to document refusal of vaccination. In addition, there is no system to document if patients received vaccinations at another location than FMC. Our chart review for the pneumovax high risk data group started at age 50 instead of 19. Unable to obtain significant patient numbers from HAC for age 50 – 64 with inclusion criteria. It is possible this high risk group is not receiving it or is not asked about their Pneumovax history. Also, there is not a proper system for documentation of past history or refusal.

Improvement

There are several areas for improvement for vaccination rates at FMC. Creating a system to track specific provider rates and implementing them into dashboards to provide immediate feedback could help rates. The recent introduction of EPIC is the primary EMR system for Unitypoint could offer more accurate data extraction. Clinicians and nursing staff should document refusal and if vaccine received at another institution. Our goal with this project was to create awareness that there is room for significant improvement in the vaccination status of our patients.

References:

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2.Early release of selected estimates based on data from the 2012 National Health Interview Survey,
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