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AMGA Foundation

Adult Immunization Best Practices Learning Collaborative Case Study

Riverside Medical Group

Organizational Profile

With a geographical span of nearly 7,500 square miles, Riverside Health System (Riverside) encompasses five acute care hospitals, a rehabilitation hospital, a long-term acute care hospital, and a behavioral medicine hospital. Approximately 70,000 patients are seen each year at the acute care facilities alone.

Riverside provides medical education, including three medical residencies, a nursing school, and other technical schools.

Riverside is committed to the care of the aging adult, and thus has a large lifelong health division that includes several continuing care retirement communities, assisted living facilities, and skilled nursing facilities.

In addition, Riverside operates five PACE (Program of All-inclusive Care of the Elderly) centers throughout the state; approximately 400 participants are currently enrolled. The Riverside Lifelong Health Division also includes home health, substantial in-home technologies, telemedicine capabilities, and a wellness division with several fitness centers.

Riverside Medical Group (RMG) includes more than 560 providers practicing in the following specialties:

- Family Practice/General Practice: 115
- Internal Medicine: 34
- Specialty Medicine: 249
- Advanced Practice Providers (APPs): 130

RMG reaches across the entire continuum of services, with over 35 physician specialties in outpatient preventative and acute care, inpatient acute care, after-hours care, and post-acute care. RMG practice locations provide approximately 1.5 million patient visits annually.

With the medical group, a major regional medical center, and an array of rural community hospitals, Riverside patients have access to one of the region's most comprehensive systems of care. Riverside is committed to working with its communities to address healthcare issues through strong physician leadership, concern for their workforce, and support for legitimate process improvement.

Executive Summary

RMG recently participated in AMGA's Adult Immunization Best Practice Learning Collaborative (AI Collaborative). Given Riverside's focus on improving health for its communities and commitment to sharing best practices, the medical group was eager to participate. Riverside considered it an honor for RMG to be selected as one of seven medical groups in the country participating in the AI Collaborative.

The AI Collaborative was directed at improving influenza and pneumococcal immunization rates in two main categories of patients. For influenza, the study targeted adults 18 and older. For pneumococcal immunizations, the study targeted adults older than 65 and/or adults 19-64 years of age deemed at a higher risk given certain medical conditions as determined by best practices. Working together with other AI Collaborative participants, RMG was able to improve their immunization rates for these two.

This was a significant and timely collaborative for RMG, given the changes Riverside was making internally. Specifically, Riverside has been shifting focus from inpatient to ambulatory for administering pneumococcal vaccines, in response to the changed CDC guidelines regarding administration of the pneumococcal vaccine based on age and high-risk factors.

Program Goals and Measures of Success

RMG's program goal was, in sum, to meet or exceed national adult Immunization rates as follows:

Pneumococcal Vaccination (65 and older)

Threshold: 7% improvement over pre-intervention period 65.1% (Based on EMR data)

Target: 4% improvement over threshold

Stretch: 2% improvement over target

Pneumococcal Vaccination (high-risk patients)

Threshold: 2.7% improvement over pre-intervention period 23.6% (Based on EMR data)

Target: 5% improvement over threshold

Stretch: 5% improvement over target

Influenza

Threshold: 42.4% at pre-intervention period and 38% at intervention period (Based on EMR data)

Target: 5% improvement over threshold

Stretch: 5% improvement over target

RMG also sought to accomplish the following objectives:

1. Streamline adult Immunization processes (e.g., incorporating vaccinations in Annual Wellness Visits)
2. Select and optimize process to record and report AI compliance
3. Work with the state registry to develop two-way communication.

Collaborative Goals

Before establishing goals, baseline data for each group was reviewed by Optum Analytics and immunization rates were calculated. After reviewing national goals and available national data, and with input from the Collaborative advisors, goals were set for the Adult Immunization Collaborative.

The minimum goal was based on the CDC National Health Interview Survey (NHIS) estimates of national immunization rates for 2012-2014 time periods (the most recent available at the time). Pneumococcal immunization rates in the NHIS were 59.9 percent for adults aged ≥ 65 years. For adults aged 19-64 who were determined to be at high risk for developing invasive pneumococcal disease, NHIS rates were 20.0 percent.[1] For influenza, NHIS immunization rates for adults aged ≥ 19 years were reported to be 43.2 percent.[2]

Healthy People 2020 goals from the federal Office of Disease Prevention and Health Promotion (HP2020)[3] were selected as challenge goals or goals on the high end. HP2020 goals are: aged ≥65 years pneumococcal 90%, high-risk pneumococcal 60%, and influenza 70%.

A "stretch" goal was established between each group's baseline and HP2020. The stretch goal was set at 50% of the gap between baseline and HP2020. Where one stretch goal is reported for all groups, it is based on the median.

Data Documentation and Standardization

At the initiation of the AI collaborative, Optum One analyzed the potential areas of immunization documentation sources in the EMR for the groups in this collaborative and determined that immunizations for RMG were captured in:

- Rx Tables
- Rx Patient Reports
- Immunization Tables
- Health Maintenance Tables
- CPT/G codes
- ICD-9 codes

Significant variation in documentation patterns can be seen across groups, resulting from variations in EMR provider and configuration, immunization documentation protocols, and adherence to documentation protocols. For the groups in the AI Collaborative, pneumococcal and influenza vaccinations were most commonly documented in Immunization Tables, Health Maintenance Tables, and CPT/G codes. The least commonly used sources for documentation among the groups were Rx Tables and Rx Patient Reports.

For the AI Collaborative groups that demonstrated documentation among multiple sources, the Optum team provided this data so that groups could determine a standardized documentation best practice internally.

RMG data sources included Centricity EMR for baseline data, as well as Optum Analytics for cross-reference. As previously noted, the sources for benchmarks included CDC and Healthy People 2020 goals and objectives.

Population Identification

For AMGA's AI Collaborative, RMG's primary target audience was patients attributed to the 30 primary care practices that are located from the Northern Neck in Eastern VA to the Eastern Shore. These practices collectively include approximately 115 providers (MDs/ DOs) in Family Medicine practice, approximately 34 providers in Internal Medicine, and approximately 70 Advanced Practice Providers (NP, PA, etc.). These primary care sites managed approximately 380,000 patient visits in 2015.

There was limited involvement of specialty practices such as nephrology, oncology, and pulmonology, with respect to adult immunization. This was chiefly due to patient attribution and to some extent to the fact that the Collaborative coincided with Riverside's transition to a new EMR.

To identify patients that met the criteria for pneumococcal and flu vaccine, the practices rely on a "homegrown" dashboard (see Figure 3) that identifies any patient(s) 18 and older as eligible for flu vaccine and uses the ACIP/CDC guideline to identify high-risk patients for pneumococcal vaccine. This is further augmented by cross referencing Optum One data and sending reports to the individual practices so that they can reach out to the identified patients for both of the two vaccines.

Intervention

Performance Measurement

A dashboard was created and made available for the RMG clinical team to track their respective compliance scores. Further, the team could drill-down on the dashboard to identify patients that were due for an immunization. The flow diagram (see Figure 4) depicts the multiple interactions between the EMR, care team, patient, etc.

Communication

The action plan consisted of communicating the patient list(s) to individual practices so they could plan for scheduling of necessary appointments to provide vaccines to patients identified. In partnership with Phytel, Interactive Voice Response (IVR) technology was used for automated reminders. Compliance reports also helped the practices with pre-visit planning for Annual Wellness Visits.

Outreach

RMG worked collaboratively with marketing to educate patients about availability of the influenza vaccination and provide the various locations and times for scheduling immunizations.

Workflow

Based on CDC recommendations, RMG worked on creating an algorithm that would help the clinical team identify the right variant of the pneumococcal vaccine based on different criteria like age of the patient, medical condition, previous immunization status, etc. See Figure 5 for a depiction.

Education

For provider and staff education, RMG uses a standardized communication format, SBARQ, to communicate changes or updates in workflow/ clinical documentation. SBARQ was used to educate providers and staff regarding CDC recommendations. These communications were followed by updates based on newer guidelines and learning from the AI Collaborative.

Outcomes and Results

The graphs in the appendix (Figures 1 and 2) highlight RMG's performance through the AI Collaborative as it relates to the three categories measured: pneumococcal vaccine (any PV, 65 and older), pneumococcal vaccine (high risk, 19-64), and influenza vaccine.

Lessons Learned and Ongoing Activities

Challenges

Developing a holistic picture of a patient's immunization history is difficult due to lack of a health information exchange that would enable seamless data transfer between any point of care. Frequently changing immunization guidelines present another challenge. The third major challenge is Medicare reimbursement when Medicare's system to keep up with the newer guidelines for immunization is still evolving.

Lessons Learned

- **Streamline Workflow:** Streamlining the data into workflow is a very important aspect of any project and the high level of integration of the two typically results in higher yield. Although the clinical team was able to cross-reference the dashboard for immunization results, RMG is working on incorporating this into its workflow. Once this is accomplished, it will mean that any time a member of the clinical team is in a patient's chart, they will be able to assess the immunization status of that patient without having to use multiple clicks.

- **Prioritization:** Given the limited resources available, it would definitely help any medical group to prioritize their action planning. For RMG, this could have meant focusing on the high-risk patients and improving integration between primary care and specialty practices.

Next Steps

- Improve the visibility of immunization status in the EMR so care teams are not searching for it.
- Continue to work with the Virginia Health Department on a bi-directional feed that would enable better data sharing, especially for patients who have been immunized outside a Riverside facility.
- Continue to redesign to better align the RMG adult vaccine management program with the aims of the National Quality Strategy (NQS), Healthy People 2020, and the Affordable Care Act.

Acronym Legend

ACIP: Advisory Committee on Immunization Practices
AI Collaborative: AMGA's Adult Immunization Best Practices Learning Collaborative
CDC: Centers for Disease Control and Prevention
DO: Doctor of Osteopathic Medicine
EMR: Electronic Medical Record
HP2020: Healthy People 2020
IVR: Interactive Voice Response
NHIS: National Health Interview Survey
NP: Nurse Practitioner
NQS: National Quality Strategy
PA: Physician Assistant
PACE: Program of All-inclusive Care of the Elderly
RMG: Riverside Medical Group
SBARQ: Situation, Background, Assessment, Recommendation & Questions

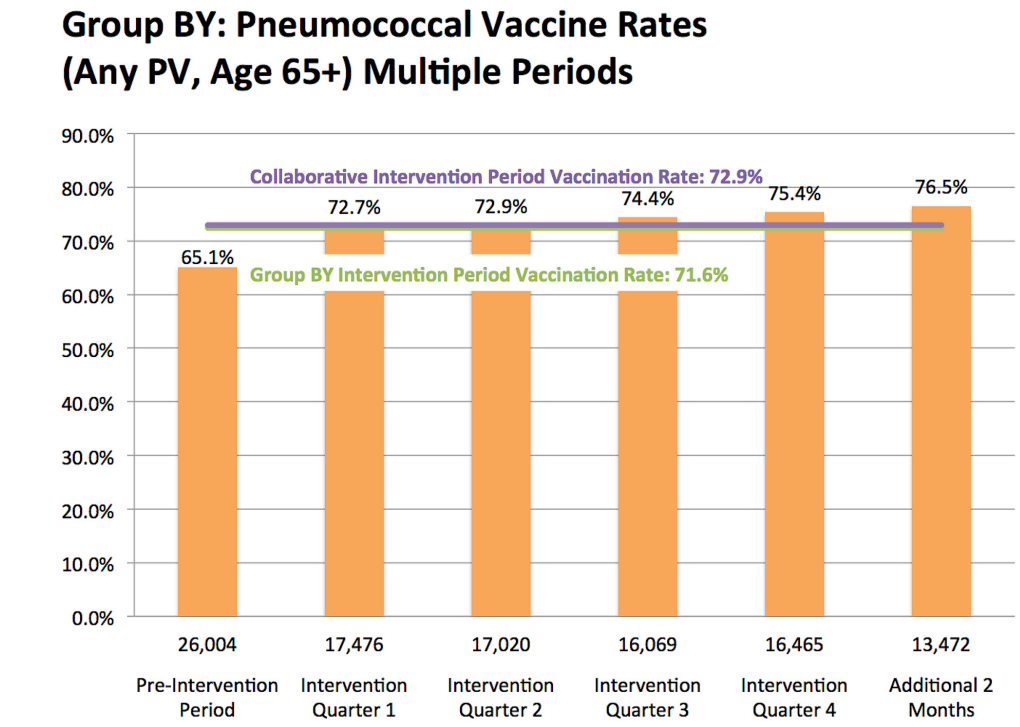
References

1. Williams WW, Lu, PJ, O'Halloran, A, Bridges, CB, Pilishvili, T, Hales, CM, & Markowitz, LE. (2014) Centers for Disease Control and Prevention (CDC). MMWR MorbMortal Wkly Rep. 2014;63(5):95-102 http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6305a4.htm.
2. Williams, WW, Lu, PJ, O'Halloran, A, Kim, DK, Grohskopf, LA, Pilishvili, T, Skoff, TH, Nelson, NP, Harpaz, R, Markowitz, LE, Rodriguez-Lainz, A, & Bridges, CB. (2016) Surveillance of Vaccination Coverage Among Adult Populations — United States, 2014; Surveillance Summaries / February 5, 2016 / 65(1):1–36 http://www.cdc.gov/mmwr/volumes/65/ss/ss6501a1.htm.
3. Office of Disease Prevention and Health Promotion (ODPHP). Healthy People 2020. https://www.healthypeople.gov/.

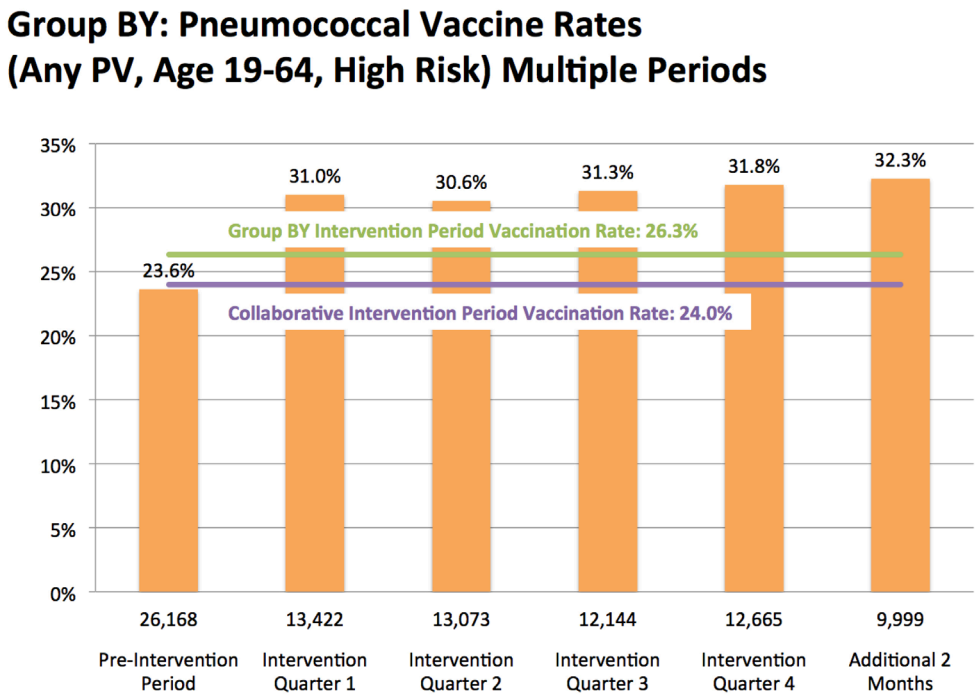
Intervention Period Definitions

- Pre-Intervention: 03/01/2013 - 02/28/2015
- Quarter 1: 03/01/2015 - 05/31/2015
- Quarter 2: 06/01/2015 - 08/31/2015
- Quarter 3: 09/01/2015 - 11/30/2015
- Quarter 4: 12/01/2015 - 02/28/2016
- Additional 2 Months: 03/01/2016 - 04/30/2016
- Intervention Period: 03/01/2015 - 04/30/2016

Figure 1: RMG AI Collaborative Results: Pneumococcal Vaccines



Net Change in % Patient Vaccination Rate (Pre-Intervention to Intervention): **7%**



Net Change in % Patient Vaccination Rate (Pre-Intervention to Intervention): **2.7%**

Figure 2: RMG AI Collaborative Results: Influenza Vaccines

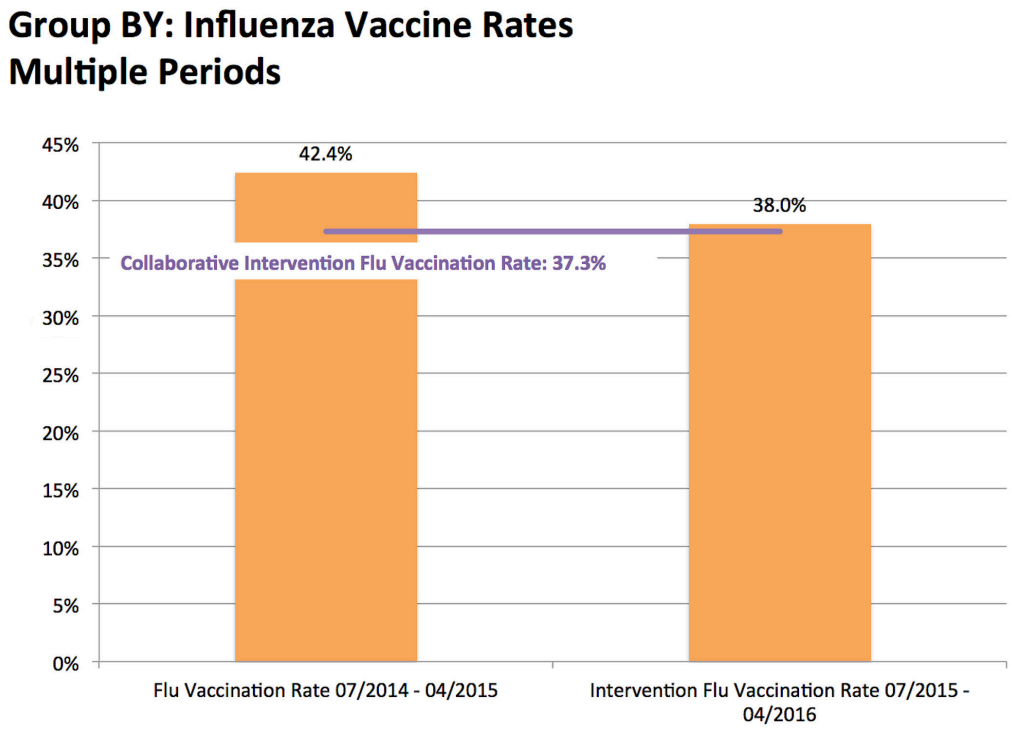


Figure 3: Dashboard

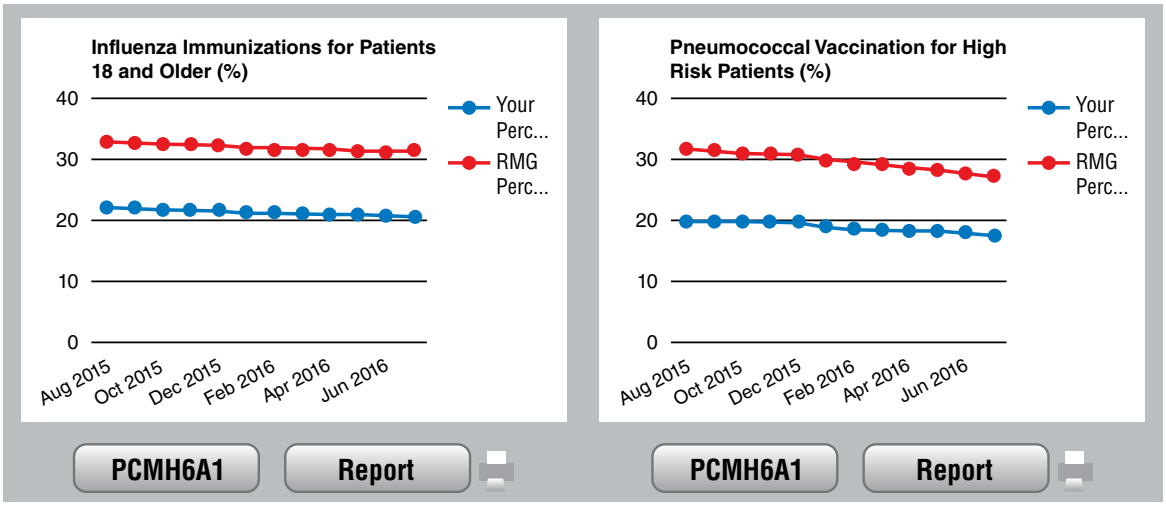
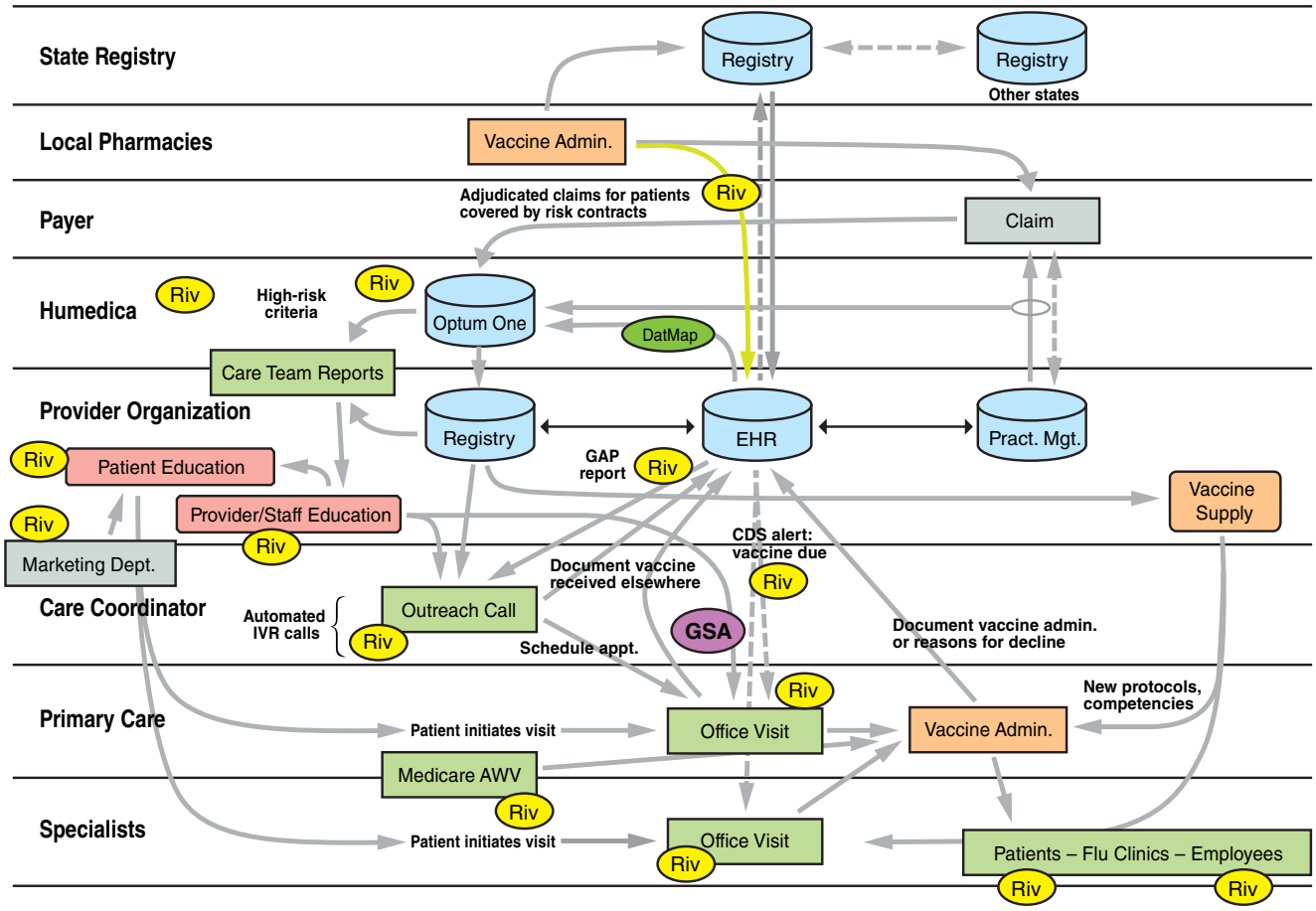
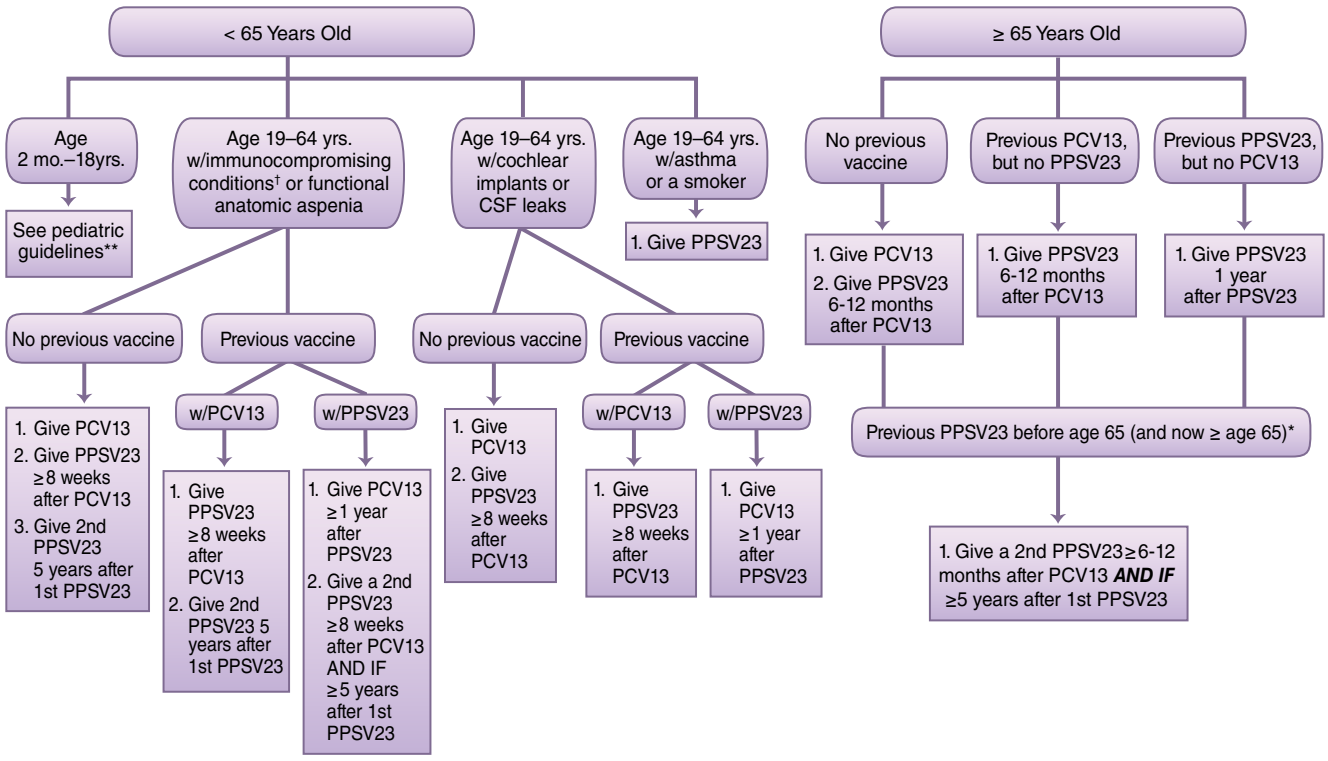


Figure 4: Immunization Data/Process Flow



Appendix

Figure 5: Pneumococcal Vaccination Algorithm



* All adults 65 years of age or older should receive a dose of PPSV23, regardless of previous history of vaccination with pneumococcal vaccine

† Immunocompromising conditions: congenital or acquired immunodeficiency, human immunodeficiency virus, chronic renal failure, nephrotic syndrome, leukemia, lymphona, Hodgkin's Disease, generalized malignancy, latrogenic immunosuppression, solid organ transplant, multiple myeloma

** 2 months to 5 years old: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5911a1.htm
6-18 years old: http://www,cdc.gov/mmwr/preview/mmwrhtml/mm6225a.htm

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