



Advancing High Performance Health

AMGA Foundation

Adult Immunization  
Best Practices  
Learning Collaborative  
Case Study

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*The Iowa Clinic*



## Organizational Profile

The Iowa Clinic, P.C. (TIC) was formed in 1994 and today is the largest physician-owned, multispecialty group in Central Iowa. TIC employs 145 physicians and 60 advanced practice providers (APPs) in 40 specialties. TIC's Primary Care Provider (PCP) division includes Internal Medicine and Family Medicine and consists of 38 physicians and 5 APPs. TIC partners with local medical centers and hospitals in Central Iowa and the capital city of Des Moines to provide leading-edge health care to a population of 1.1 million, averaging 400,000 patient visits each year. Outreach specialty clinics are located in 14 outlying rural areas throughout Iowa, serving the cardiology, pulmonology, urology and podiatry needs of these communities.

## Executive Summary

Adult immunizations are proven to prevent life-threatening disease and costly hospitalizations. As one of seven care provider groups from around the country participating in the AMGA's Adult Immunization Best Practices Collaborative (AI Collaborative), TIC's study targeted pneumococcal and influenza immunizations, with an emphasis on high-risk populations. TIC set out to identify and incorporate best practices to reach a 90 percent immunization rate among adults seen during the study period.

TIC established an Adult Immunization team (AI Team) which included the following TIC staff:

- Chief Quality Officer
- Chief Medical Officer
- Director of Care Management and Quality
- A Care Manager
- Physicians from Internal Medicine, Family Medicine, Cardiology, OB/GYN, and Pulmonology
- Directors from each division

TIC's AI Team reviewed their current practices and identified opportunities for improvement. External resources—from sources including Centers for Disease Control and Prevention (CDC), the Advisory Committee on Immunization Practices (ACIP), and the Immunization Registry Information System (IRIS)—were analyzed to identify best practices and compile educational information for providers and patients. Providers

and nursing staff were provided with training and educational materials on:

- CDC and ACIP's adult pneumonia immunization recommendations
- Accessing immunization data from IRIS
- Documenting immunizations in Allscripts, TIC's electronic medical record (EMR)

Staff workflow was redesigned to address each patient's immunization status at the beginning of every visit and administer vaccines as needed according to the CDC schedule. Additional automated outreach was implemented to reach as many patients as possible.

At the end of the AI Collaborative study period, TIC registered the highest rates in the AI Collaborative for improvement in pneumococcal immunization rates, from baseline to final measurement. TIC demonstrated a 21% increase from the pre-intervention period and achieved a 77% pneumococcal immunization rate for all pneumonia vaccines in adults  $\geq 65$  years. TIC also achieved a 22.3% pneumococcal immunization rate for all pneumonia vaccines in high-risk adults between ages 19-64 years, with a 10.8% increase from the pre-intervention period. Influenza immunization rates increased by 15.2%, with an overall 48.6% influenza immunization rate.

While providers and staff all received education regarding the adult immunization recommendations from the CDC and ACIP, there was considerable variability among TIC providers with regard to acceptance of the CDC and ACIP high-risk patient definition. Because the TIC providers did not all agree with the CDC and ACIP recommendations for identification of high-risk patients for pneumococcal infection, the lack of consensus created challenges in immunization of the high-risk adult population.

## 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 AI 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% for adults aged  $\geq 65$  years. For adults aged 19–64 years who were determined to be at high risk for developing invasive pneumococcal disease, NHIS rates were 20.0%.<sup>1</sup> For influenza, NHIS immunization rates for adults aged  $\geq 19$  years were reported to be 43.2%.<sup>2</sup> Healthy People 2020 goals from the federal Office of Disease Prevention and Health Promotion (HP2020) were selected as challenge goals or goals on the high end. HP2020 goals are: Age  $\geq 65$  Pneumococcal 90%, High-Risk Pneumococcal 60%, and Influenza 70%.<sup>3</sup> 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.

## The Iowa Clinic Goals

TIC’s AI Collaborative Team reviewed current processes and analyzed external resources to identify best practices and opportunities for improvement. The AI Team established additional goals for its AI Collaborative study. Educating the providers and staff on the CDC and ACIP recommendations for adult pneumococcal immunizations was the primary goal. It was determined that all Cardiology, Pulmonology, OB/GYN, and Primary Care providers and staff would be educated by March 1, 2015. The training set the foundation for a successful kick-off to the pneumococcal vaccines administered at the beginning of the AI Collaborative study.

Secondary goals included developing and providing immunization educational materials to patients, making information available to patients in each division’s waiting areas, sending automated email notifications through Phytel to all patients on the pneumonia immunization list (high-risk and adults aged  $\geq 65$  years), and administering vaccines in the cardiology locations.

## Data Documentation and Standardization

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

- Rx Tables
- Rx Patient Reports

- Immunization Tables
- Health Maintenance Tables
- CPT/G codes
- ICD-9 codes/ICD-10 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 immunizations 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 between multiple sources, the Optum team provided this data so that groups could determine a standardized documentation best practice internally.

The Clinical Analytics Director utilized the Optum data to produce individual weekly and monthly reports for the providers, staff, and Care Management team (see Appendix). The weekly reports provided information on the number of patients who had received a visit within the past week and the number of vaccines administered. The providers received a weekly report indicating the number of vaccines missed on eligible patients. This report flagged the high-risk patients aged  $< 65$  years, noting the high-risk condition which provided additional support of the CDC and ACIP recommendations for high-risk identification.

The Care Managers also received a weekly list of upcoming appointments for the AI Collaborative population.

Monthly reports provided year to date and monthly information on the immunization rates for TIC overall as well as by individual providers.

## Population Identification

TIC’s AI Collaborative study involved 10 Primary Care locations, as well as the Pulmonary and Cardiology groups within TIC. The Central Iowa communities of Altoona, Ankeny, Des Moines, Indianola, Johnston, Urbandale, and Waukee are covered by 43 Primary Care providers. TIC’s Cardiology and Pulmonology teams include 11 and 9 providers, respectively, and provide care to Central Iowa, as well as 14 outlying rural communities.

There was considerable variability among the providers at TIC in the acceptance of the CDC and ACIP high-risk patient definition. The providers did not all agree with the CDC and ACIP recommendations for identification of high-risk patients for pneumococcal infection. Optum Analytics/Humedica identified 45,226 primary care patients as vaccine-eligible. The cohort group included any patient 18 years of age and older treated by a TIC PCP at least 3 times within the last 18 months. The cohort was then categorized as either low- or high-risk based on the current diagnosis in Allscripts, with subcategories of adults aged 18-64 or adults aged  $\geq 65$  years for each adult immunization group.

The following diagnoses identified a patient at high-risk for pneumococcal infection:

- Immunosuppression:
  - o Congenital disease
  - o Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS)
  - o Leukemia
  - o Lymphoma
  - o Multiple myeloma
  - o Hodgkin's Disease
  - o General malignancy
- Long-term immune suppressants
- Organ or bone marrow transplant
- Therapy with alkylating agents, antimetabolites, or systemic corticosteroids
- Chronic Renal Failure
- Nephrotic Syndrome
- Asplenia:
  - o Anatomic
  - o Functional
  - o Cochlear implants
  - o Cerebral Spinal Fluid Leaks
- Chronic heart or lung disease:
  - o Chronic Obstructive Pulmonary Disease
  - o Asthma
  - o Cystic Fibrosis
  - o Congenital
  - o Congestive Heart Failure
- Sickle cell disease

Residents of nursing homes or other long-term care facilities, as well as patients with any of the following diagnoses, made up the high-risk population for influenza:

- Pregnancy, including up to two weeks post-partum
- Chronic lung disease:
  - o Chronic Obstructive Pulmonary Disease
  - o Asthma
  - o Cystic Fibrosis
- Heart Disease
  - o Congenital
  - o Congestive Heart Failure
- Blood disorders/sickle cell disease
- Diabetics & other metabolic disorders
- Kidney disorders
- Liver disorders
- Metabolic disorders (inherited & mitochondrial)
- Weakened immune:
  - o HIV/AIDS
  - o Cancer
  - o Chronic steroid use
- Morbid Obesity
- Neurologic/neuromuscular
  - o Cerebral Palsy
  - o Epilepsy
  - o Cerebral Vascular Accident
  - o Mental Retardation and Developmental Delay
  - o Muscular Dystrophy
  - o Spinal Cord Injury

Figure 3 depicts the population numbers for each category and subcategory.

## Intervention

### **Background**

TIC's adult immunization information is stored electronically in Allscripts which is TIC's electronic health record (EHR), and is periodically entered manually into IRIS, the state registry system. Prior to the AI Collaborative study, pneumonia vaccines were administered in the Primary Care and Pulmonology clinics, while influenza vaccines were

administered in the Primary Care, Pulmonology, and OB/GYN offices. The Care Team identified each patient's immunization needs at the point of service by utilizing the Continuous Quality System (CQS) dashboard within Allscripts. The provider would order the vaccine upon identification of the need, the clinical nurse would administer the vaccine then enter the immunization information into the vaccine history section of Allscripts and in IRIS. The baseline compliance rates for adult immunizations were obtained through Optum Analytics/Humedica by the Quality Analytics Director and are listed in Figure 4.

### ***Clinical Standards and Algorithms***

TIC implemented the CDC and ACIP recommendations for adult immunizations (these algorithms can be found in the Appendix). Some of the providers implemented standing orders for patients to receive an influenza and/or pneumonia vaccine according to the CDC and ACIP recommendations. This change improved efficiencies since the patient received the vaccine at the start of the visit and did not have to remain in the office to receive the vaccine after the provider visit.

### ***Modifications to Existing Workflow and Staffing***

Prior to the AI Collaborative study, pneumonia vaccines were administered in the Primary Care and Pulmonology clinics, and flu vaccines were administered in the Primary Care, Pulmonology, and OB/GYN offices. TIC's AI Team initiated adult vaccine administration in the Cardiology Department due to the number of high-risk patients seen by the cardiologists. The Cardiology Department had not historically administered vaccines; therefore, the Care Team received training on vaccine administration, documentation in Allscripts, and vaccine ordering and storage.

The Care Management team, consisting of clinical (RN, CMA) Care Managers, became imperative members of the care team. The Care Managers reviewed the Optum Analytics reports to validate the accuracy of the data, conducted outreach to high-risk patients to provide education on the vaccines, and scheduled patients for preventive care visits to receive the vaccines. The Care Managers conducted outreach to pharmacies and other clinical settings and accessed IRIS to obtain immunization information in order to enter the information into Allscripts. Entering the immunization information into discrete data fields improved reporting accuracy and increased efficiencies at the point of service.

Automated outreach was implemented through the use of Phytel. This outreach consisted of an automated email sent to over 13,000 high-risk patients informing the patients of the need for the pneumonia vaccine based on their clinical diagnosis. Patients responding to the messages were scheduled to receive the vaccine(s). High-risk patients who did not respond received live personal contact by the Care Managers in an attempt to schedule an appointment to receive the vaccine(s).

### ***Information Technology***

At the point of service, the Care Team accessed the CQS dashboard within Allscripts to identify adult patients' immunization needs. IRIS immunization data had already been accessed and entered into discrete data fields, therefore the Care Team could rely on the Allscripts CQS dashboard for up-to-date information.

### ***Measurement***

The Clinical Analytics Director utilized the Optum data to produce individual weekly and monthly reports for the providers, staff, and the Care Management team (see Appendix). The weekly reports provided information on the number of patients who had received a visit within the past week and the number of vaccines administered. This information allowed the providers not only to track their individual immunization rates, but raised awareness on the issue of vaccinating patients at the point of service.

This report also flagged high-risk patients aged <65 years, noting the high-risk condition which placed the patient in the risk category. This provided additional support of the CDC and ACIP recommendation for high-risk identification.

The Care Managers received a weekly list of upcoming appointments for the AI Collaborative population. This allowed the Care Managers to prepare the Care Team for the patient's arrival and assist in vaccinating the patient at the point of service.

The monthly reports provided year-to-date and monthly information on the immunization rates for TIC overall as well as by individual providers. The monthly reports were shared at the individual department meetings and offered transparency on the status of each provider.

## Provider and Staff Education

The TIC AI Team attended the individual department meetings for Primary Care, Cardiology, Pulmonology, and OB/GYN throughout the AI Collaborative study. At the outset, the providers and staff received background information on the AI Collaborative and the new CDC and ACIP recommendations for pneumonia immunizations, as well as clinical education regarding high-risk patients aged <65 years who should receive the pneumococcal vaccine. The measurement reports were reviewed monthly and additional education was provided to the Care Teams as needed.

## Patient Education

The TIC AI Team in collaboration with the TIC Marketing Team developed patient educational materials to be placed in the patient waiting areas and exam rooms. The patient educational materials are provided information on the influenza and pneumococcal vaccines, as well the conditions indicating a high-risk patient. Samples of patient educational materials provided in the Appendix.

## Outcomes and Results

Pre-intervention period data provided by the AI Collaborative indicated 55.5% of TIC's patients aged ≥65 years had received at least one pneumococcal vaccination, while 11.5% of the high-risk patients aged ≥19 years had received at least one pneumococcal vaccination. During the 2014-2015 flu season (July 2014-April 2015), 33.4% of the adult population had received an influenza vaccine.

Final results provided by the AI Collaborative showed TIC had increased the pneumococcal vaccine rate in the ≥65 years group to 77%, a 21% increase. High-risk patients ≥19 years increased by 10.8% to a rate of 22.3% of patients receiving at least one pneumococcal vaccine. During the 2015-2016 flu season, 15.2% more patients in the adult population received an influenza vaccine, with an immunization rate of 48.6%.

As compared to all groups with the AI Collaborative, TIC registered the most improvement from the pre-intervention period for the adults aged ≥65 years, with a 21% increase in patients receiving at least one pneumococcal vaccine.

In the first week of August 2015, TIC sent 13,220 emails to patients aged ≥19 years identified as high-risk for pneumonia. By September 15, 2015, 7% or 1,029 of those patients had received at least one pneumococcal vaccine. Comparing the

pneumococcal vaccination rates between 2014 and 2015, TIC demonstrated a 10.8% increase for all patients, using the updated CDC and ACIP recommendations for the high-risk population. TIC also saw a 4% increase in the same population, using the previous guidelines of a single dose of PPSV23.

The immunization rates for the aged ≥65 years population increased 21% from 2014 to 2015 using the updated recommendations.

## Acronym Legend

**ACIP:** Advisory Committee on Immunization Practices

**AI Collaborative:** AMGA's Adult Immunization Best Practices Collaborative

**AI Team:** The Iowa Clinic's Adult Immunization Best Practices Collaborative Team

**APP:** Advanced Practice Provider

**CDC:** Centers for Disease Control and Prevention

**CMA:** Certified Medical Assistant

**CQS:** Continuous Quality System in Allscripts

**EMR:** Electronic Medical Record

**HP2020:** Healthy People 2020

**IRIS:** Immunization Registry System

**NHIS:** National Health Interview Survey

**PCP:** Primary Care Providers

**TIC:** The Iowa Clinic

## References

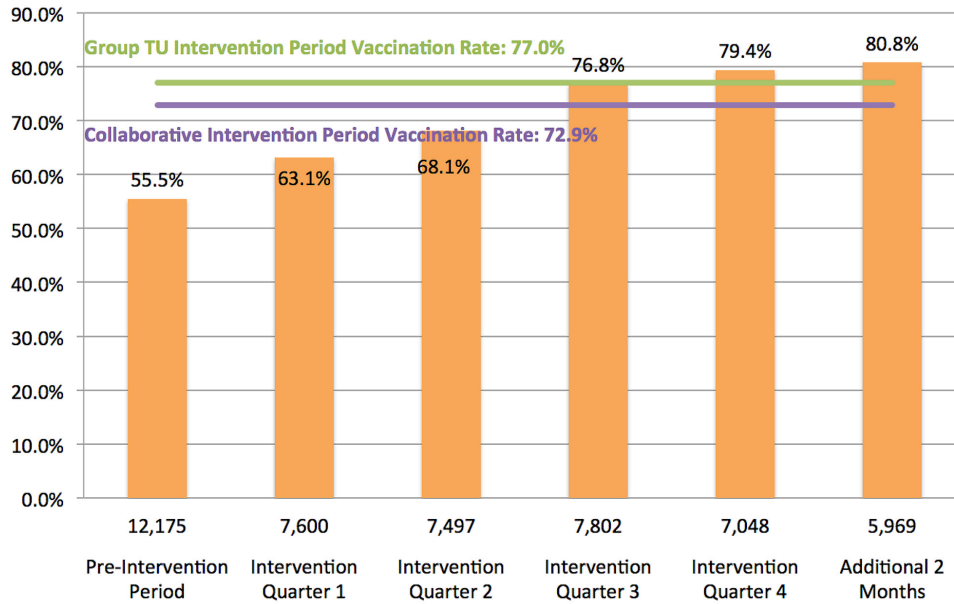
1. Williams WW, Lu, PJ, O'Halloran, A, Bridges, CB, Pilishvili, T, Hales, CM, & Markowitz, LE. (2014) Centers for Disease Control and Prevention (CDC). *MMWR MorbMortal Wkly Rep.* 2014;63(5):95-102 <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6305a4.htm>.
2. Williams, WW, Lu, PJ, O'Halloran, A, Kim, DK, 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

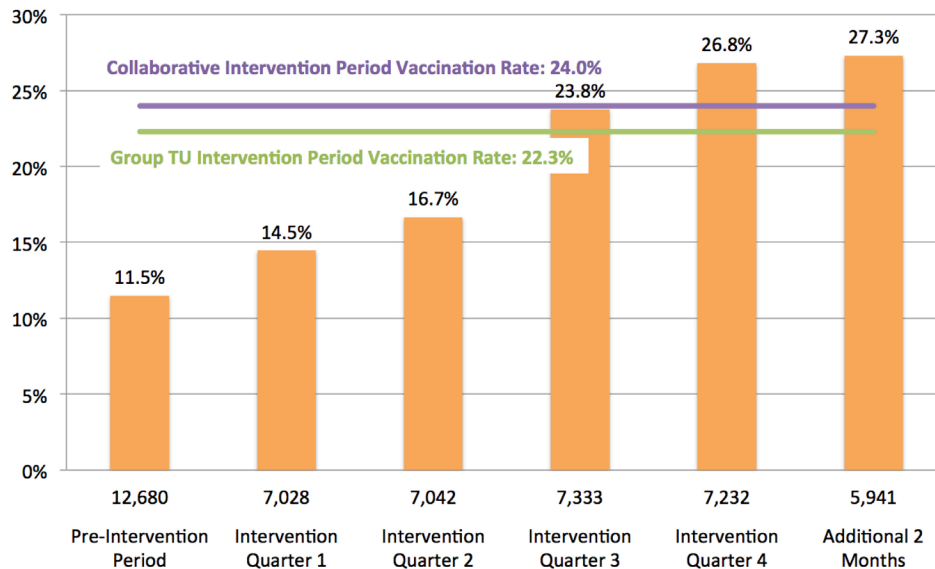
**Figure 1: The Iowa Clinic AI Collaborative Results: Pneumococcal Vaccines**

## Group TU: Pneumococcal Vaccine Rates (Any PV, Age 65+) Multiple Periods



Net Change in % Patient Vaccination Rate (Pre-Intervention to Intervention): 21%

## Group TU: Pneumococcal Vaccine Rates (Any PV, Age 19-64, High Risk) Multiple Periods

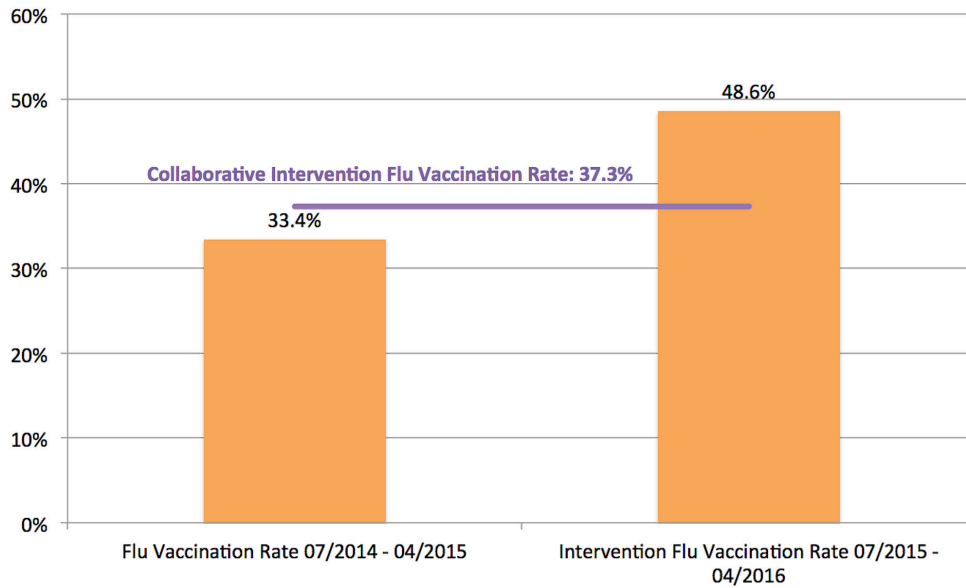


Net Change in % Patient Vaccination Rate (Pre-Intervention to Intervention): 10.8%

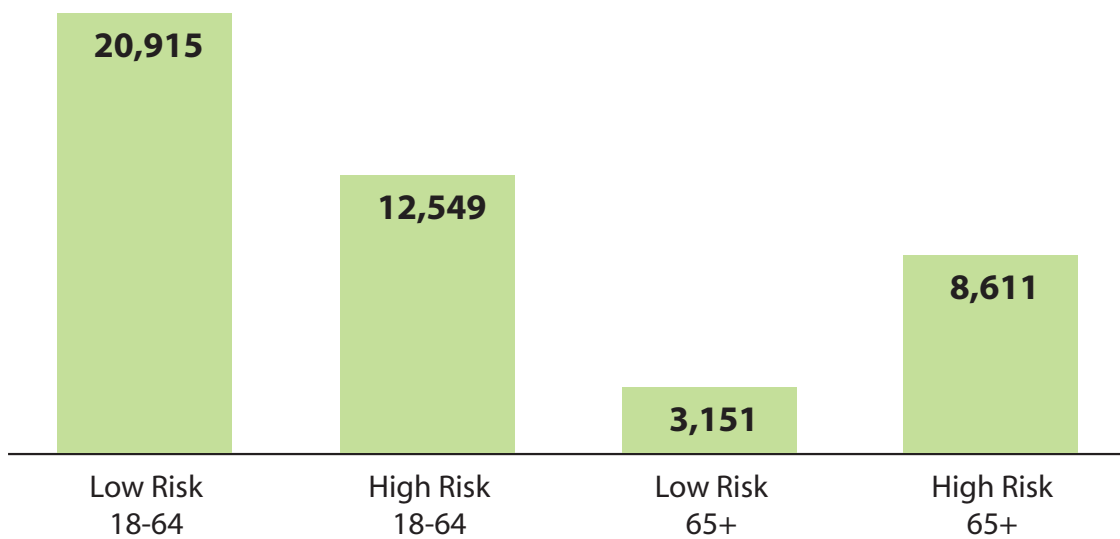


**Figure 2: The Iowa Clinic AI Collaborative Results: Influenza Vaccines**

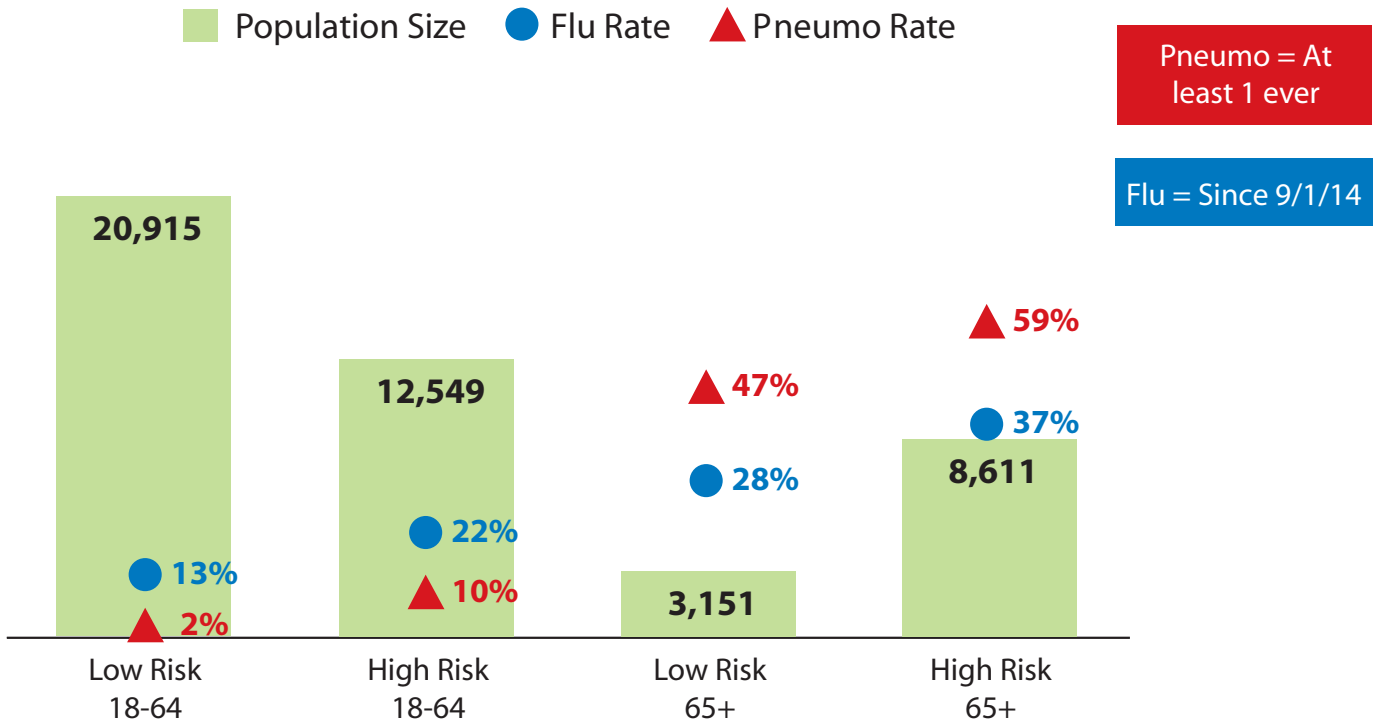
### Group TU: Influenza Vaccine Rates Multiple Periods



**Figure 3: The Iowa Clinic Populations**



## Figure 4: Compliance Rates



## Figure 5: Vaccine Reports

### Adult Immunizations Weekly Report — Score Card

Adult Immunizations - Weekly Report  
Week ending 10/17/2015

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#### Last Week's Performance

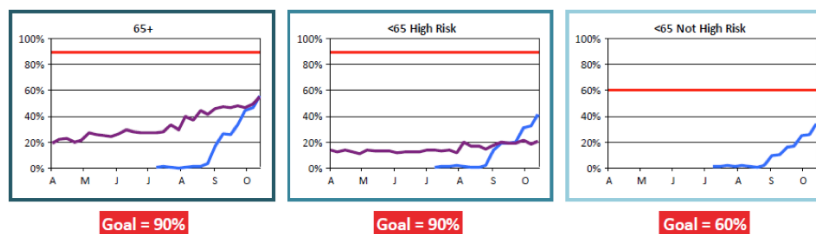
	65+	<65 High Risk	<65 Not High Risk
# Pts Seen Last Week	826	605	926
Flu vaccine since 7/1	460 (56%)	251 (41%)	315 (34%)
Pneumo @ Guidelines	454 (55%)	126 (21%)	-

#### # of Missed Opportunities

Flu	366	354	611
Pneumo	372	479	

#### Weekly Trends

Flu resets @ 0% each July 1



**Figure 5: Vaccine Reports** (continued)

**Current Due Pneumonia This Week  
(Care Management Team Report)**

**Patients Due for Pneumonia Vaccine**

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Data thru 11/1/2015

Atzen, Angelia

CM: Jenni Fisher

MRN	DOB	Name	HRRReasons	LastAppt	NextAppt
	6/10/31		65+ Hrt DM Lung	10/14/15	11/2/15
	8/9/39		65+ Onc Hrt DM	5/28/15	11/2/15
	11/15/65		Hrt DM	10/29/15	11/2/15
	12/19/42		65+	6/15/15	11/2/15
	8/1/61		Immun	8/18/15	11/2/15
	12/8/69		Lung	9/21/15	11/2/15
	1/3/57		Hrt	4/13/15	11/2/15
	9/3/45		65+ Liver DM	10/27/15	11/3/15
	8/2/55		DM	9/17/15	11/3/15
	2/2/72		Immun DM Lung	10/27/15	11/4/15
	12/14/67		Lung	10/15/15	11/5/15
	6/10/57		Hrt	9/29/15	11/5/15
	11/24/55		Neph Onc Hrt DM	9/11/15	11/6/15
	4/25/64		Liver DM Lung	8/13/15	11/6/15
	12/29/56		Hrt Lung	3/17/15	11/6/15
	2/23/35		65+ Hrt DM	7/14/15	11/9/15
	3/3/58		Liver DM	9/29/15	11/10/15
	5/9/47		65+	6/16/15	11/10/15

**Figure 5: Vaccine Reports** (continued)

## Adult Immunizations Monthly Report — Score Card

**Adult Immunization Scorecard**  
October 2015

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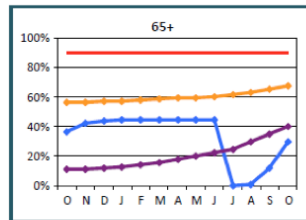
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### Current Performance

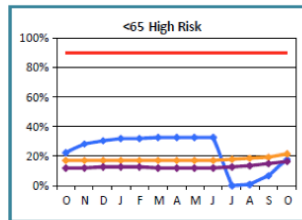
	65+	<65 High Risk	<65 Not High Risk
Population	11,466	8,115	23,796
Flu since 7/1	3,360 (29%)	1,431 (18%)	2,376 (10%)
Pneumo - Any	7,738 (67%)	1,733 (21%)	-
Pneumo - Guidelines	4,573 (40%)	1,305 (16%)	-

### Trends

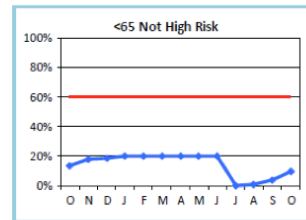
Flu resets @ 0% each July 1



Goal = 90%



Goal = 90%



Goal = 60%

### Compare

65+				<65 High Risk				<65 Not High Risk					
Fully Compliant, Flu and Pneumo		Flu	Pneumo-Any	Pneumo: Guidelines		Fully Compliant, Flu and Pneumo		Flu	Pneumo-Any	Pneumo: Guidelines		Flu	
Ankeny	28%	33%	69%	56%	Ankeny	10%	21%	30%	23%	Urbandale	13%		
Urbandale	27%	34%	74%	53%	Urbandale	8%	23%	22%	16%	Johnston	12%		
Johnston	26%	36%	72%	49%	FM West L	7%	18%	24%	17%	Downtown	11%		
FM West L	25%	27%	66%	50%	Altoona	7%	15%	23%	20%	Ankeny	11%		
Downtown	18%	30%	67%	37%	Indianola	6%	14%	13%	10%	IM West L	11%		
IM West L	18%	28%	77%	42%	Waukee	5%	13%	17%	14%	FM West L	9%		
Indianola	14%	24%	37%	29%	IM West L	5%	17%	19%	14%	Altoona	8%		
Waukee	14%	26%	37%	24%	Downtown	4%	17%	23%	17%	Waukee	6%		
Altoona	12%	18%	36%	17%	Johnston	4%	20%	15%	12%	Center St.	6%		
Center St.	4%	15%	57%	10%	Center St.	1%	4%	20%	16%	Indianola	5%		

**Figure 6: Immunization Data/Process Flow**

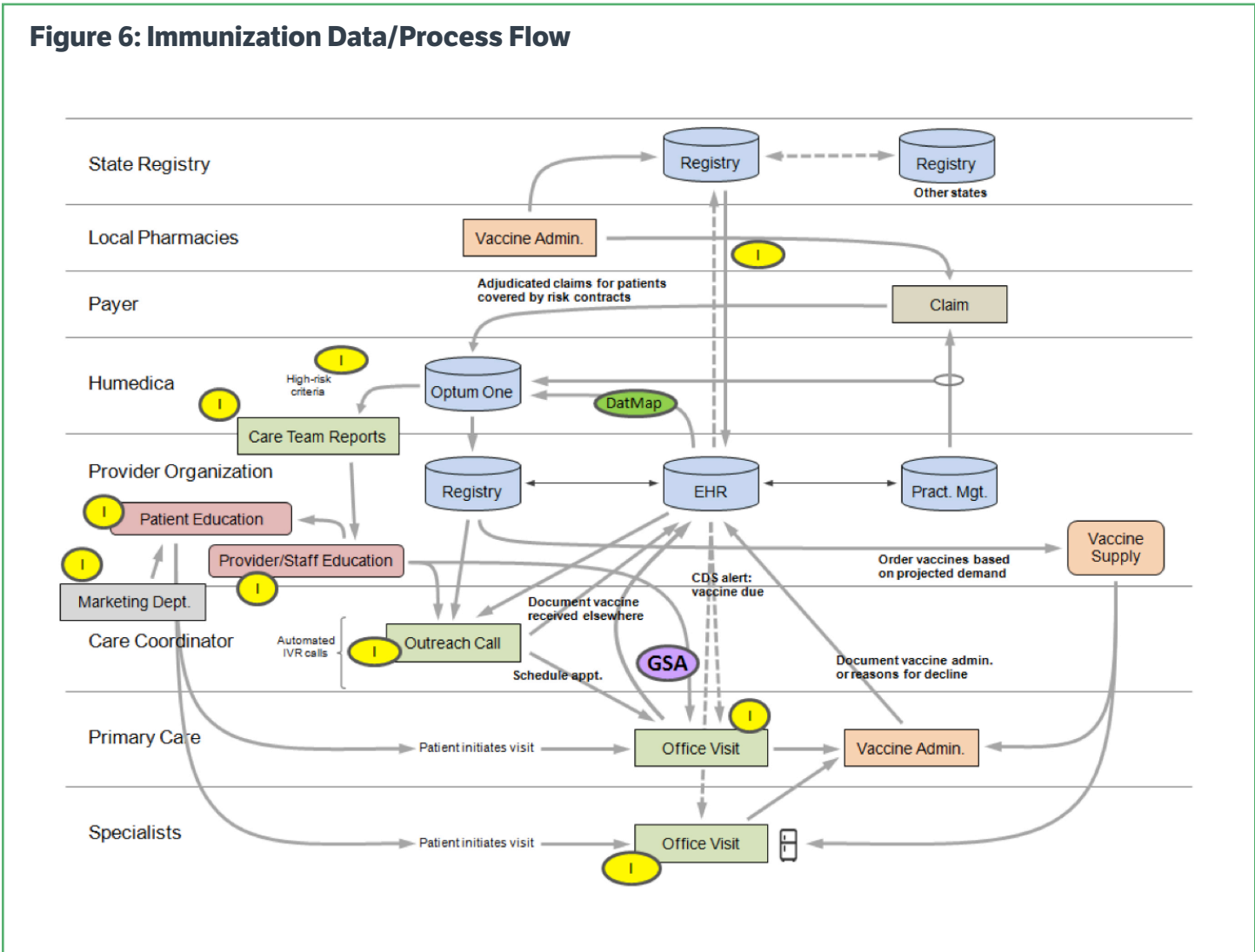


Figure 7: Vaccine Algorithms



### Age 65 Years or Older - Everyone

If PCV13 was given before age 65 years, no additional PCV13 is needed.

No history of pneumococcal vaccine		<b>PCV 13</b> Prevnar 13*	>>> 12 month interval	<b>PPSV 23</b> Pneumovax® 23
Received PPSV23 (Pneumovax® 23) before age 65	>>> 1 year interval	<b>PCV 13</b> Prevnar 13*	>>> 12 month interval (and at least 5 years after prior dose of PPSV23)	<b>PPSV 23</b> Pneumovax® 23
Received PPSV23 (Pneumovax® 23) at age 65 or older	>>> 1 year interval	<b>PCV 13</b> Prevnar 13*		

### Age 19-64 Years - Underlying High-Risk Conditions

// Prior doses count towards doses recommended below and do not need to be repeated.


// If PPSV23 (Pneumovax® 23) was given previously, wait one year before giving PCV13 (Prevnar® 13) and when dose indicated, wait at least five years before giving a second dose of PPSV23 (Pneumovax® 23).


**Current smoker, long-term facility resident or other chronic conditions:**

- // Heart disease (excluding hypertension)    // Liver disease (including cirrhosis)    // Alcoholism
- // Lung disease (including asthma, COPD)    // Diabetes


**PPSV 23**  
Pneumovax® 23

**Figure 7: Vaccine Algorithms** (continued)





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## Pneumococcal Vaccine Timing

### Age 65 Years or Older - Everyone

If PCV13 was given before age 65 years, no additional PCV13 is needed.

No history of pneumococcal vaccine	>>>	<b>PCV 13</b> Prenar 13*	>>> 12 month interval	<b>PPSV 23</b> Pneumovax* 23
Received PPSV23 (Pneumovax* 23) before age 65	>>> 1 year interval	<b>PCV 13</b> Prenar 13*	>>> 12 month interval (and at least 5 years after prior dose of PPSV23)	<b>PPSV 23</b> Pneumovax* 23
Received PPSV23 (Pneumovax* 23) at age 65 or older	>>> 1 year interval	<b>PCV 13</b> Prenar 13*		

### Age 19-64 Years - Underlying High-Risk Conditions

// Prior doses count towards doses recommended below and do not need to be repeated.  
// If PPSV23 (Pneumovax\* 23) was given previously, wait one year before giving PCV13 (Prenar\* 13) and when dose indicated, wait at least five years before giving a second dose of PPSV23 (Pneumovax\* 23).

<p><b>Current smoker, long-term facility resident or other chronic conditions:</b></p> <ul style="list-style-type: none"> <li style="width: 30%;">// Heart disease (excluding hypertension)</li> <li style="width: 30%;">// Liver disease (including cirrhosis)</li> <li style="width: 30%;">// Alcoholism</li> <li style="width: 30%;">// Lung disease (including asthma, COPD)</li> <li style="width: 30%;">// Diabetes</li> </ul>	<p><b>PPSV 23</b> Pneumovax* 23</p>
--	---

Figure 8: Patient Education Materials

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**What's the big deal with vaccines?**



Vaccines don't just apply to children – adults need them too. Up to **50,000** U.S. adults die from vaccine-preventable diseases each year. Talk with your provider about your personal vaccination needs.



**Figure 8: Patient Education Materials** (continued)



What's the big  
deal with vaccines?

Vaccines don't just apply to children –  
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Up to **50,000** U.S. adults die from  
vaccine-preventable diseases each year.  
Talk with your provider about your personal  
vaccination needs.



## Project Team

**Christina Taylor, MD**  
Chief Quality Officer and Internal  
Medicine Physician

**Kevin Cunningham, MD**  
Chief Medical Officer and Internal  
Medicine Physician

**Matthew Trump, DO**  
Pulmonary/Critical Care Physician

**Jenna Kubat, MD, OB/GYN**  
Physician

**Michael Nicholson, DO**  
Family Medicine Physician

**Melissa Linder, MHA, CMA,  
CPHQ, CHC**  
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