



Advancing High Performance Health

AMGA Foundation

Adult Immunization (AI)  
Best Practices Learning  
Collaborative, Group 3:  
Case Study

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***Sentara Medical  
Group***  
*Norfolk, VA*



## Organizational Profile

Sentara Healthcare is a 128-year-old, not-for-profit, integrated healthcare system encompassing 12 acute care hospitals, four medical groups, a health plan, seven long-term care facilities, an air ambulance, home health services, physical therapy and rehabilitation services, and a college of health sciences. Sentara Medical Group (SMG) was established in 1995. The medical group serves Southeastern Virginia, Northern Virginia, and Northeastern North Carolina. The medical group has approximately 900 providers, ~600 physicians and ~300 Advanced Practice Clinicians (APCs). Twenty-five percent of practices are adult primary care and there are over 200 practice locations overall. SMG serves more than 350,000 patients. The mission of SMG is “We improve health every day.”

## Executive Summary

SMG joined the AMGA Adult Immunization Best Practices Collaborative (AI Collaborative) with the intent to learn more about increasing adult influenza and pneumococcal immunization rates. With the goal of having registered nurses (RNs) administer vaccines by protocol, SMG focused on empowering RNs and the clinical staff to improve on vaccine rates by using the many tools available to them. In 2015, SMG submitted a proposal to the Virginia State Board of Nursing to approve administration of adult vaccines by protocol for RNs. The state does not allow the use of standing orders for vaccine administration by RNs and licensed practical nurses (LPNs). SMG was the first medical group in the state to have RN adult vaccine protocols approved. For SMG, this means RNs can have patients come to “nurse visits” for vaccines. RNs can hold “flu clinics” on weekends and after hours. The RN can delegate administration to an LPN for patients appropriately screened, but not a medical assistant. An RN/LPN team can offer vaccine clinic days in a practice to improve access for patients requiring immunizations. These protocols are extremely useful during flu season, especially with the current focus on influenza and pneumonia. A review of Health Maintenance in the electronic medical record (EMR) will alert staff of the need for a pneumonia vaccine when a patient is receiving their flu shot.

The medical group had a focus last year on increasing the number of flu clinics held by RNs in the practices. There was an increase in the number of flu clinics from 2016 to 2017 from ~60 to ~100. There was also a focus on using the EMR (Epic) to streamline the workflow around vaccine administration.

## Acronym Legend

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

**APC:** Advanced Practice Clinicians

**EMR:** Electronic Medical Record

**HP2020:** Healthy People 2020

**LPN:** Licensed Practical Nurse

**RN:** Registered Nurse

**QA:** Quality Assurance

**SMG:** Sentara Medical Group

The development of “Express Lanes” facilitated ease in screening, ordering, and documenting vaccine administration. In addition, pre-visit planning in the EMR prompted the staff to review Health Maintenance and pending vaccine orders prior to an office visit.

## Program Goals and Measures of Success

### **AI Collaborative Goals**

Collaborative goals were set for the Adult Immunization Collaborative (Groups 2 and 3 participants). The collaborative goals were set based on reviewing the Healthy People 2020 goals from the federal office of Disease Prevention and Health Promotion (HP2020),<sup>1</sup> baseline data for each group, and with input from the AI Collaborative advisors (see Appendix)

### **SMF Goals**

With respect to goals set forth by the AI Collaborative, the focus of the SMG team was to empower clinical staff to utilize best practices and workflows related to vaccine administration to improve vaccine rates. It was hoped the increased use of protocols, plus pre-visit planning, would result in improved vaccine administration. SMG identified a goal of a 5% increase in the use of RN vaccine protocols for administering flu and pneumonia vaccines. Clinical staff had a goal of completing pre-visit planning, which includes screening for immunization needs, on 50% of all patients scheduled for appointments.

## Data Documentation and Standardization

The SMG data analytics team used the AI Collaborative measure specifications to develop and test data extraction queries. Immunization data is stored in multiple locations in the EMR and data warehouse (e.g., claims, data from external sources, locally documented immunizations). The quality assurance (QA) process confirmed that the measure calculation included all available data.

## Population Identification

SMG has over 50 sites and 200 providers that offer primary care. Additionally, SMG has five pulmonary care sites that offer flu and pneumonia vaccines.

## Intervention

SMG chose to focus on educating and utilizing the clinical staff to improve immunization rates. Monthly vaccine education was provided, with the first training focusing on the role of the RN. Vaccine protocols allow the RN to administer vaccines to any adult patient that meets criteria after screening. RNs were taught to communicate with the providers their ability to help improve immunization rates using the protocols, as well as how to utilize registries for identification of patients needing vaccines. Additionally, RNs were taught to pre-visit plan and use Health Maintenance to identify patients needing immunizations. In the Epic system, Health Maintenance is able to identify when pneumonia vaccines are due and the correct vaccine due for patients aged 65 and over, high-risk and moderate-risk. While different vaccines were presented monthly, education related to pneumonia and flu vaccines were offered approximately every four months. To reinforce educational measures, practice sessions were offered to assist with promoting flu and pneumonia vaccines during flu season.

Methods of patient engagement included:

- A flyer was developed to send to patients via MyChart advertising the availability of nurse-run flu clinics, as well as the ability to get the flu shot as a walk-in patient.

- Specific availability dates identified by individual practices were sent to patients.
- Signage was posted in offices telling patients “we want to make sure you’re protected,” and which also described multiple options for getting the flu shot.
- Flyers and posters also included the message to “ask your healthcare provider if it is recommended for you to also have a pneumonia vaccine.”

SMG also utilized a robust IT team to help enhance the EMR for efficiency. The Epic EMR has registries to help identify patients in need of immunizations, Express Lanes for efficient documentation, and pre-visit planning to optimize visits by identifying in advance what needs to be addressed. To get the most out of the enhancements, RNs were trained on how to utilize the registry to identify patient’s health maintenance needs. Additionally, the pre-visit planning screen was developed to facilitate planning from one location. Using Health Maintenance simplifies vaccine status, as staff can either “pend” the vaccine orders for the provider or note that they are due. Lastly, Express Lanes were developed to facilitate ordering and document flu and pneumonia vaccine administration during “flu shot” visits so as to be utilized at any visit. Imbedded in Express Lanes are vaccine screening tools and Smartsets for ordering and documenting.

## Outcomes and Results

While SMG showed improvement in all goals, the AI Collaborative goals were not reached (see Appendix for detail):

- Measure 1: SMG remained consistent at 75%
- Measure 2: SMG showed improvement with rates increasing from the baseline of 30.2% to 36%
- Measure 2A: SMG showed improvement with rates increasing from baseline of 28.7% to 32%
- Influenza: SMG showed a slight improvement in their vaccine rate from 40.39% to 41.28% for the calendar year of July 2017-June 2018

Measure	Baseline	5th Quarter
Measure 1 (65+) any pneumococcal	75.3%	75.7%
Measure 2 (19-64) pneumococcal high risk	30.2%	36.0%
Measure 2a (19-64) pneumococcal at risk	28.7%	32.00%
Influenza age > 18	40.38% (2016-2017)	41.26% (2017-2018)

## Lessons Learned and Ongoing Activities

While RNs are empowered to utilize vaccine protocols to increase immunization rates in primary care sites, it was recognized that they were not utilized to their full advantage. The medical group has been inconsistent in the utilization of RNs in the office setting. In hindsight, it may have been more realistic to have had physician executives communicate with the primary care providers the need to facilitate the use of the vaccine protocols by RNs in their practices. There also needs to be improved and standardized acceptance and utilization of RNs in the practices.

The biggest challenge found involved identifying patients and having an order in the EMR for administration of the vaccine. The plan for 2019-2020 is to investigate the use of “bulk ordering” of flu vaccines.

Next steps in continuing the work on improving immunization rates for flu and pneumonia include:

- Providing instructions for our employees to contact their primary care providers when they receive their flu shots via MyChart so as to update their vaccine records

- Monitoring a newly created SMG Vaccine Q&A mailbox for questions from the practices
- Continuing work on Epic to interface with the Virginia Immunization Registry
- Investigating utilizing provider dashboards to compare practices and foster competition
- Continuing to collaborate with Pharma on strategies to improve on immunization rates

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## References

1. Office of Disease Prevention and Health Promotion (ODPHP). Healthy People 2020. [healthypeople.gov](http://healthypeople.gov).

## Collaborative Goals

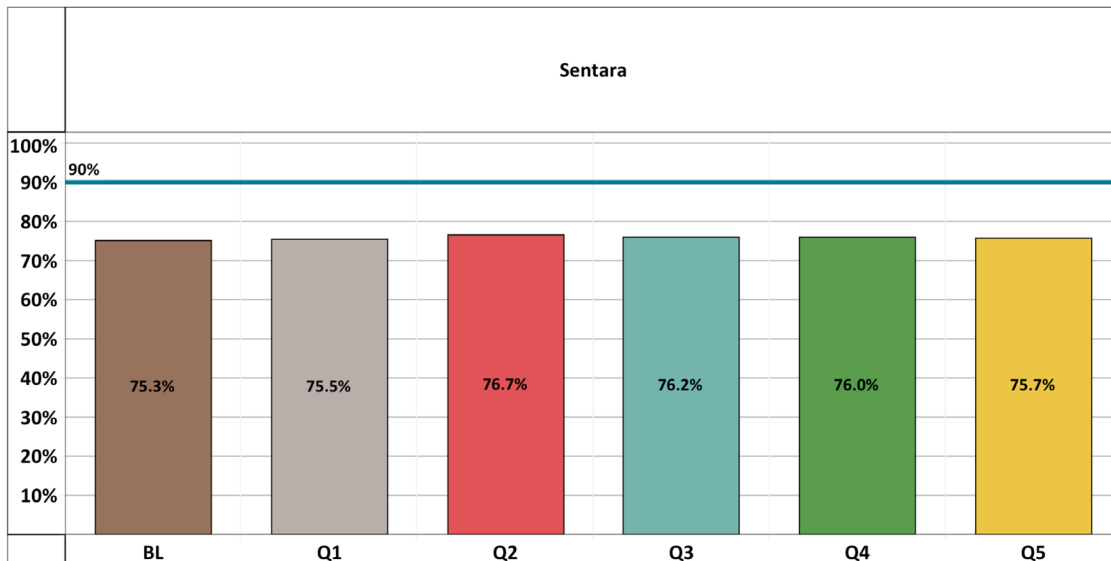
Measure	Healthy People 2020	Collaborative Goal
Measure 1 (65+) Any	90%	90%
Measure 1 (65+) Both PPSV and PCV*	90%	60%
Measure 2 (High-Risk)	60%	45%
Optional Measure 2a (At-Risk)**		
Measure 3 (Flu)	70%/90%***	45%

\* Increasing “Both” is a good goal for Groups which are already doing well on “Any”

\*\* According to CDC guidelines, it is not currently recommended that the at-risk population receive PCV. Therefore, “PPSV” or “Unknown pneumococcal vaccination” are numerator options for Measure 2a.

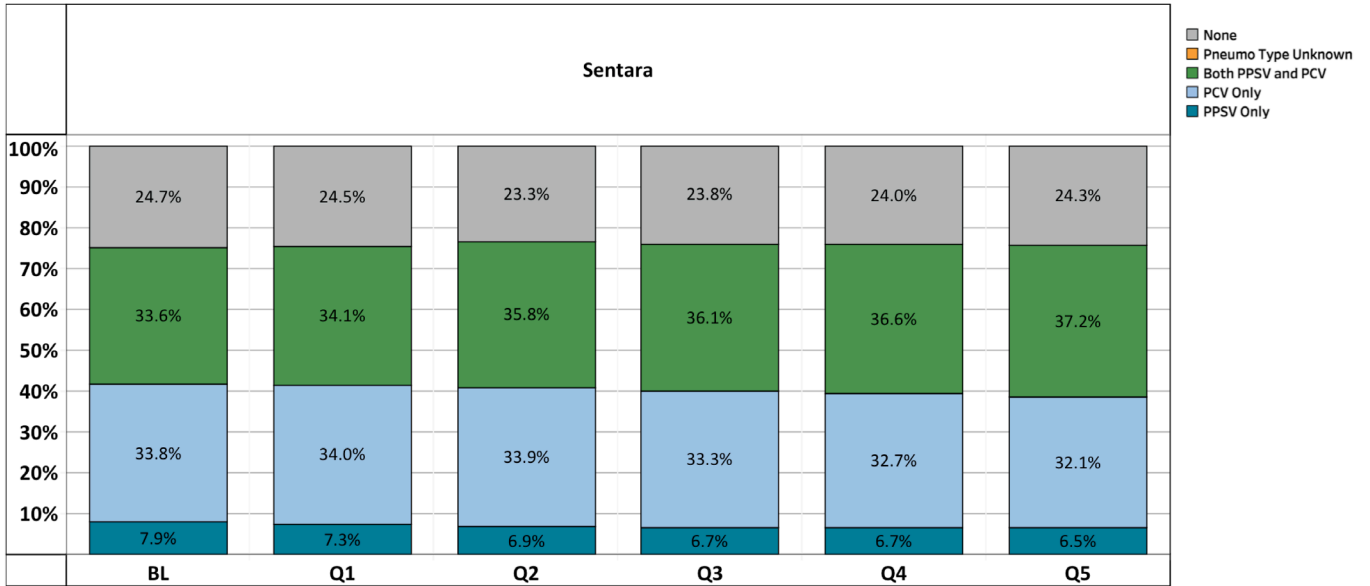
\*\*\* 70% for all patients, 90% for Medicare patients

### Measure 1 – Pneumococcal (Any) Immunization for Adults Ages ≥ 65

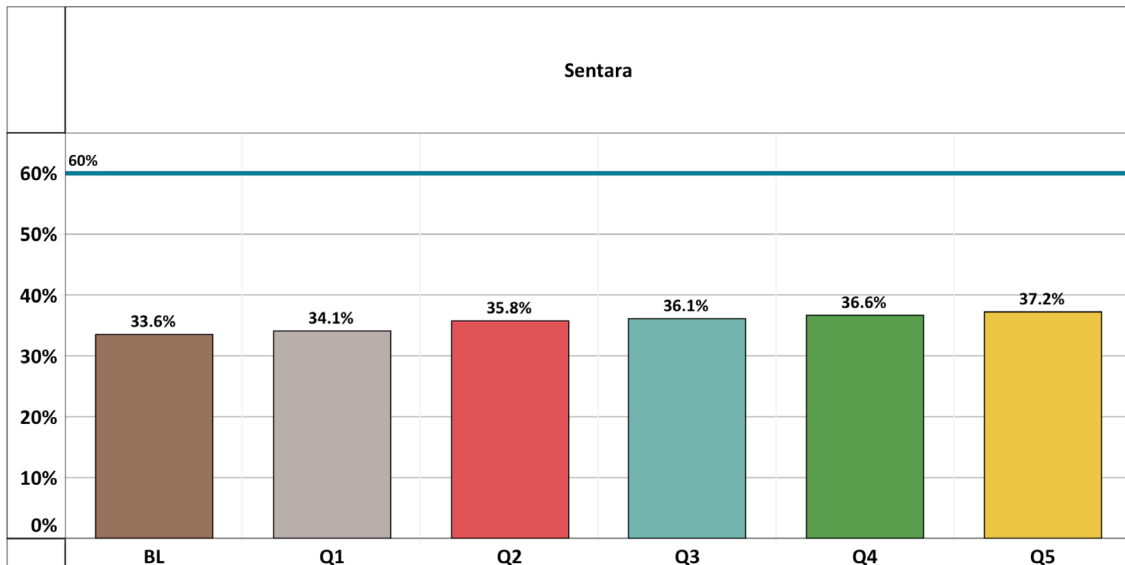


— Collaborative goal

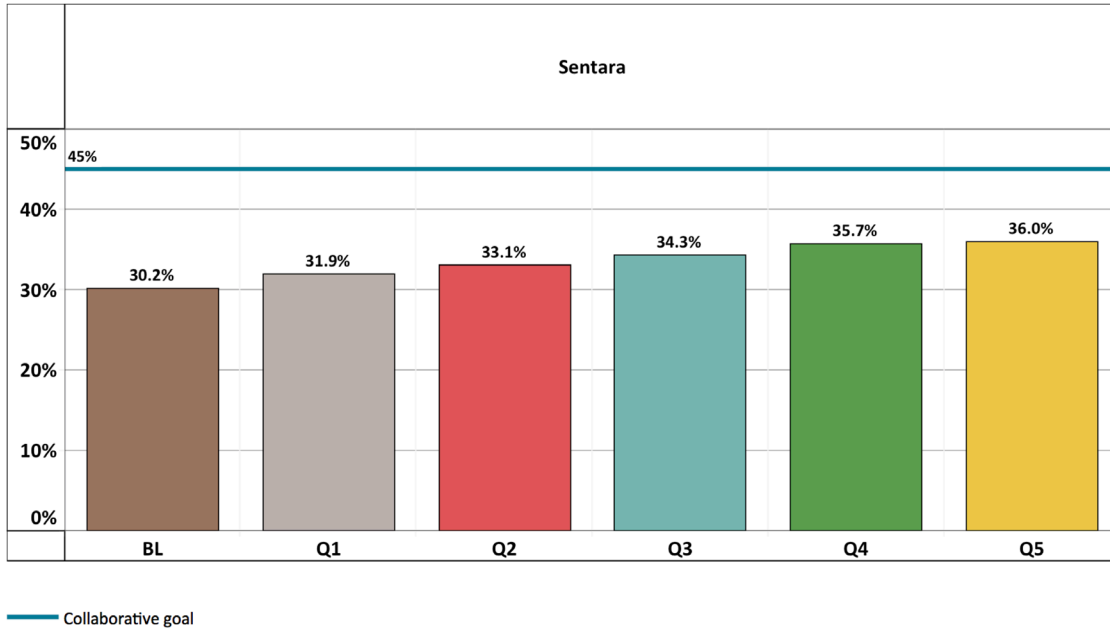
## Measure 1 – Pneumococcal (Any) Immunization for Adults Ages ≥ 65



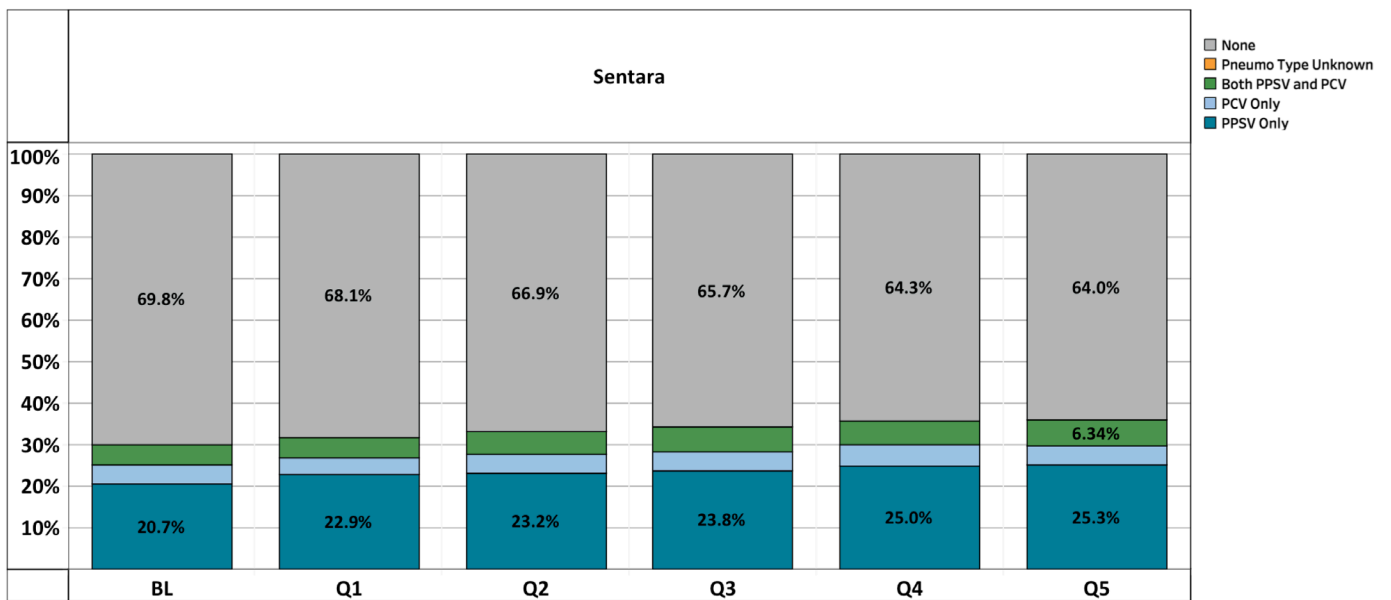
## Measure 1 – Both PPSV and PCV Immunization for Adults Ages ≥ 65



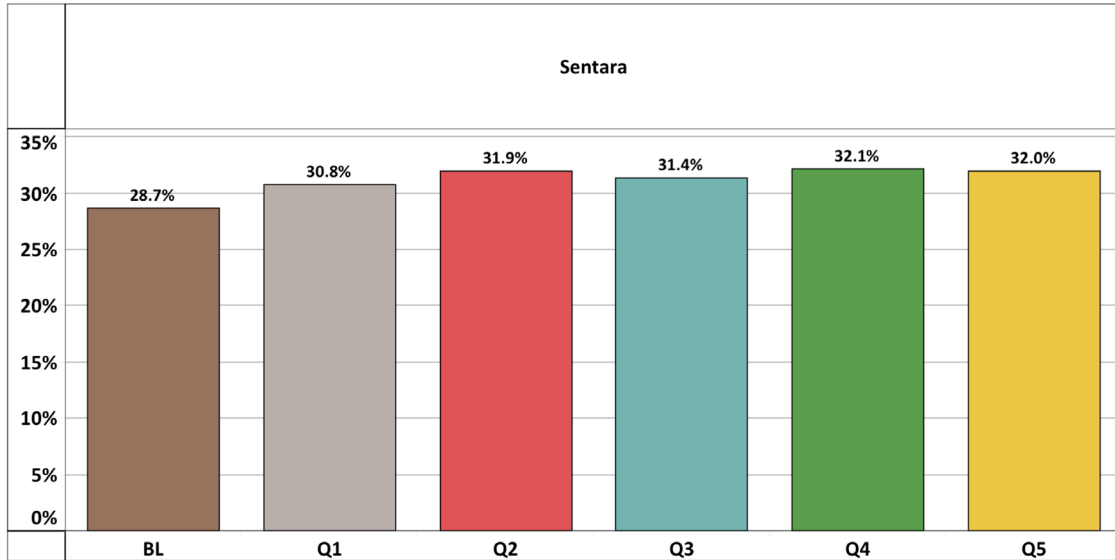
## Measure 2 – Pneumococcal (Any) Immunization for Adults Ages 19–64 with High-Risk Conditions



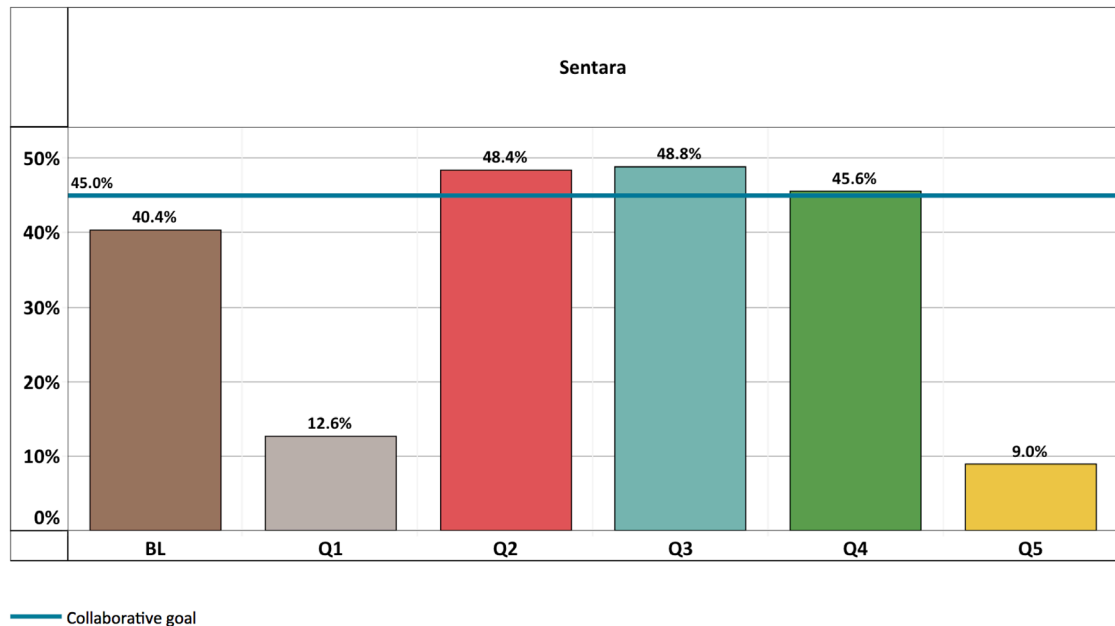
## Measure 2 – Pneumococcal (Any) Immunization for Adults Ages 19–64 with High-Risk Conditions



## Measure 2A – Pneumococcal (Any) Immunization for Adults Ages 19–64 with At-Risk Conditions



## Measure 3 – Influenza Immunization, Age ≥ 18





# Appendix

## Measure 1 – Pneumococcal Immunization Age ≥ 65

Please enter the requested data in the cells shaded blue.	
Organization Name	Sentara Medical Group

Measurement Period		Measure 1: Pneumococcal Immunization age ≥ 65						
Phase	Report Period	Denominator <sup>1</sup>	Numerator <sup>2</sup>				Total Numerator	Percentage
			PPSV only	PCV only	Pneumo-Unknown Only	Both PPSV & PCV		
PV Baseline Year	7/1/16 - 6/30/17	65280	5168	22043	0	21944	49155	0.75298713
PV Qtr 1	7/1/17 - 9/30/17	44513	3266	15150	0	15193	33609	0.75503785
PV Qtr 2	10/1/17–12/31/17	45206	3129	15326	0	16196	34651	0.76651329
PV Qtr 3	1/1/18–3/31/18	44789	3011	14932	0	16168	34111	0.76159325
PV Qtr 4	4/1/18–6/30/18	45315	3033	14805	0	16601	34439	0.75999117
PV Qtr 5	7/1/18–9/30/18	44258	2860	14193	0	16447	33500	0.7569253

## Measure 2 – Pneumococcal Immunization for Adults Ages 19–64 with High-Risk Conditions

Please enter the requested data in the cells shaded blue.	
Organization Name	Sentara Medical Group

Measurement Period		Measure 2: Pneumococcal Immunization for adults age 19–64 with High-Risk Conditions <sup>1</sup>										
Phase	Report Period	High-risk Conditions <sup>2</sup>				Denominator <sup>3</sup>	Numerator <sup>4,5</sup>					Percentage
		Immunology (Y or N)	Nephrology Renal Conditions (Y or N)	Oncology (Y or N)	Surgical Transplant (Y or N)		PPSV only	PCV only	Pneumo-Unknown	Both PPSV & PCV	Total Numerator	
PV Baseline Year	7/1/16 - 6/30/17	Y	Y	Y	Y	2422	501	108	0	122	731	0.30181668
PV Qtr 1	7/1/17 - 9/30/17	Y	Y	Y	Y	1210	277	47	0	62	386	0.31900826
PV Qtr 2	10/1/17–12/31/17	Y	Y	Y	Y	1210	281	54	0	66	401	0.33140496
PV Qtr 3	1/1/18–3/31/18	Y	Y	Y	Y	1196	285	54	0	71	410	0.34280936
PV Qtr 4	4/1/18–6/30/18	Y	Y	Y	Y	1240	310	62	0	71	443	0.35725806
PV Qtr 5	7/1/18–9/30/18	Y	Y	Y	Y	1246	315	55	0	79	449	0.36035313

## Measure 2a – (Optional) Pneumococcal Immunization for Adults Ages 19–64 with At-Risk Conditions

Please enter the requested data in the cells shaded blue.	
Organization Name	Sentara Medical Group

Measurement Period		Measure 2a: Pneumococcal Immunization for adults age 19–64 with At-Risk Conditions <sup>1</sup>									
Phase	Report Period	At-risk Conditions <sup>2,3</sup>					Denominator <sup>4</sup>	Numerator <sup>5</sup>			Percentage
		Chronic Heart Conditions (Y or N)	Diabetes (Y or N)	Lung Disease (Y or N)	Chronic Liver Disease (Y or N)	Lifestyle (Y or N)		PPSV	Pneumo-Unknown	Total Numerator	
PV Baseline Year	7/1/16 - 6/30/17	Y	Y	Y	Y	Y	13656	3915	0	3915	0.28668717
PV Qtr 1	7/1/17 - 9/30/17	Y	Y	Y	Y	Y	6883	2121	0	2121	0.30815052
PV Qtr 2	10/1/17–12/31/17	Y	Y	Y	Y	Y	6977	2227	0	2227	0.31919163
PV Qtr 3	1/1/18–3/31/18	Y	Y	Y	Y	Y	6918	2170	0	2170	0.31367447
PV Qtr 4	4/1/18–6/30/18	Y	Y	Y	Y	Y	6771	2176	0	2176	0.32137055
PV Qtr 5	7/1/18–9/30/18	Y	Y	Y	Y	Y	6508	2083	0	2083	0.32006761

### Measure 3 – Influenza Immunization Age ≥ 18

Please enter the requested data in the cells shaded blue.

Organization Name	Sentara Medical Group
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Measurement Period		Measure 3: Influenza Immunization for adults age ≥ 18 <sup>1, 2</sup>		
Phase	Report Period	Denominator <sup>5</sup>	Numerator	Percentage
IV Baseline Flu Season	7/1/16 - 6/30/17	213398	86190	0.403893
IV Qtr 1	7/1/17 - 9/30/17	119359	15040	0.126006
IV Qtr 2	10/1/17–12/31/17	118703	57400	0.48356
IV Qtr 3	1/1/18–3/31/18	116799	56988	0.487915
IV Qtr 4	4/1/18–6/30/18	115646	52747	0.456107
IV Qtr 5	7/1/18–9/30/18	112060	10047	0.089657

## Project Team

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