



Advancing High Performance Health

AMGA Foundation

Adult Immunization (AI)  
Best Practices Learning  
Collaborative, Group 2:  
Case Study

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*Western  
Montana Clinic  
Missoula, MT*



## Organizational Profile

Western Montana Clinic (WMC), established in 1922, remains one of the largest multi-specialty fully integrated medical groups independent of hospital ownership in Montana. WMC currently has a professional staff of 43 physicians in 12 specialties and 20 midlevel providers including nurse practitioners (NPs), physician assistants (PAs), physical therapists, and audiologists. The proportion of primary care services at WMC is 22%. The Clinic provides service over four different sites, serving over 250,000 patients from local and rural areas across the entire state of Montana for primary and specialty care. WMC joined AMGA's Adult Immunization Best Practices Learning Collaborative (AI Collaborative) with the aim to increase immunization rates and positively affect population health in the community.

## Executive Summary

Western Montana Clinic approached the AI Collaborative with goals directly related to patient care. As WMC moved through the process, it identified areas of infrastructure and care delivery that inspired new care processes, staff education, and population health goals. Initial goals included identification and contact of patients lacking appropriate immunization documentation or administration and proactive outreach to ensure delivery. The goals throughout the AI Collaborative were adapted to include continuing education and supplemental competency training for staff to determine the need for and administration of immunizations appropriately. WMC also focused on education and workflow systems for specialties for best practice administration and documentation workflow compliance.

Measurements of success were evaluated using the WMC's electronic health record (EHR), Epic, which includes the Health Maintenance tracking tools available in patients' charts and the reporting capabilities to track documentation and workflow compliance.

As a result, WMC has created and established new workflows for specialty practices to administer immunizations, increasing competency among the nursing staff by 66%. Pneumococcal vaccination rates have increased steadily from 78% to 83.8%. Influenza vaccination rates have increased steadily from 25% to 52%. WMC has transitioned from 95% of influenza and pneumococcal vaccinations administered in primary care and pediatrics to 42.7% administered or documented in primary care; 41.6% administered or documented in pediatrics; and

## Acronym Legend

**AI Collaborative:** AMGA's Adult Immunization Best Practices Collaborative  
**BPA:** Best Practice Advisory  
**CDC:** Centers for Disease Control and Prevention  
**CMA:** Certified medical assistant  
**EHR:** Electronic Medical Record  
**HP2020:** Healthy People 2020  
**NP:** Nurse practitioner  
**PA:** Physician assistant  
**WMC:** Western Montana Clinic

15.7% administered or documented in specialty practices. Pneumococcal vaccinations continue to primarily be administered in family medicine due to complex administration regulations, but influenza administration has shifted as described above.

Measure 1 vaccination rates increased over five quarters from 78% to 84% of patients aged 65 or older. Measure 2 vaccination rates also steadily increased in adults aged 19-64 from 29% to 35%. Measure 2a saw increases from 28% to 33%. Finally, influenza vaccinations over the five quarters saw an increase from 13% to 52% over the peak of influenza season.

Through a dedicated shift in workflow, education, and patient communication, WMC has seen a consistent and steady increase in immunization rates, encouraging the continuation of specialty involvement in maintaining population health.

## Program Goals and Measures of Success

The AI Collaborative goals were set by AMGA Foundation 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 Collaborative advisors (see Appendix).

Western Montana Clinic piloted the AI Collaborative at two primary care practices, which included 11 family medicine providers and one advanced practice provider. The initial goals for this project included:

- Using reporting capabilities within the EHR, identify patients seen at least once in the office since August 10, 2015, determining population scope of need

- At the provider level, identify patients who are overdue or missing documentation for influenza and/or pneumococcal vaccinations
- Proactively send reminders to patients without an appointment scheduled within the next six months
- Scheduled appointments to incorporate an increased focus on documentation and administration where appropriate to ensure highest possible population health

After the initial introduction of the AI Collaborative, goals for this project were adapted:

- Focus on provider and clinical staff education to increase understanding of vaccine efficacy and importance
- Increase vaccination documentation in EHR
- Decrease misinformation or lack of appropriate information regarding vaccine safety while increasing the knowledge of vaccine-preventable diseases for patients and community

## Data Documentation and Standardization

At the start of the AI Collaborative, WMC evaluated the areas in EPIC where documentation of immunizations occurred. The sources for the documentation used in this study were determined to be the only reportable sources for immunization documentation. Sources included:

- Immunization tables
- Health maintenance tables
- CPT/G codes

In regards to adherence to immunization protocols and documentation protocols, documentation patterns varied across the groups within WMC. For those participating in the AI Collaborative, pneumococcal and influenza vaccinations were most consistently documented in health maintenance and immunization tables. CPT/G codes are a secondary method of verification for health maintenance.

WMC's EHR system has alerts for overdue health maintenance measures, including immunizations, which are visible while documenting in a patient's chart. Reports through EPIC provide health maintenance gap information and documentation compliance to determine population percentage of success.

## Population Identification

WMC provides immunizations across four practice sites in total to a panel of 250,000 patients. For pneumococcal vaccinations, provision is available at two sites, while immunizations for influenza are available at all four. Due to the nature of Montana's geography, WMC serves urban and rural populations and the entire Western Montana population with specialties unavailable elsewhere, such as dermatology (which provides Mohs procedures), gastroenterology, and rheumatology. WMC's EHR identifies target populations using health maintenance measure documentation and reporting provided in EPIC.

The measures used for defining target population are outlined below:

- Measure 1: Pneumococcal immunization for adults aged 65 years or older
- Measure 2: Pneumococcal immunization for adults aged 19-64 who also have a high-risk condition
- Measure 3: Influenza immunization for adults aged 18 and older each flu season (September to April)

## Intervention

During this case study, the action plan and goals adapted were based on conclusions from the first goal set. Originally consisting of four goals, detailed below, WMC redirected the initiative to address compliance, education, and workflow barriers that arose as a result of the information gathered during the first phases of the plan.

The four-part original plan included a focus on provider and staff education, presenting the campaign to the providers and staff (including a pre-assessment survey), and an introduction to the AI Collaborative. To increase immunization documentation in the EHR, outreach was conducted to local pharmacies to determine workflow for consistent communication of administration outside of the WMC site. Included in this goal was an examination of documentation workflow consistency in the EHR across the various sections of the clinic related to outside administration. Thirdly, patient education with the purpose of enhancing understanding regarding immunization efficacy, importance, and safety was planned via a marketing campaign on social media and the WMC website. Finally, the goal of increasing vaccination rates via specialty involvement, pre-visit planning workflows, and standing orders was established.

Redirected plan goals integrated elements of the original goal set, but also addressed barriers discovered during initial implementation. These goals included implementing a standing order policy, clinical staff education, and refinement of process for education about new vaccinations under the goal of increased education for clinical staff. Secondly, an evolution of our initial documentation goal was enacted to increase vaccination documentation in the EHR. This included protocols on proper documentation, determining processes from local pharmacies and store chains for reporting immunizations that they administered, and finalizing a protocol for accessing state registry data and the Missoula County Health Department immunization records. Finally, the last adapted goal in the action care plan attempted to decrease misinformation or lack of appropriate information regarding vaccine safety and increase the knowledge of vaccine preventable diseases for patients and community. This included enhancement of current efforts to educate patients regarding vaccine efficacy and importance, providing a community flu clinic to increase immunization rates, and leveraging both the use of MyChart and social media for patient outreach.

WMC completed an initial presentation and received provider input on standing orders and the AI Collaborative in March of 2017. WMC hired a clinical services manager and created a standing orders formal document, which was completed July 31, 2017. In March 2017, a meeting that introduced the AI Collaborative was completed with family practice staff. Additionally, the purpose was to discuss the use of standing orders and to gain an understanding of any gaps in knowledge among staff for vaccination administration. A blinded knowledge survey regarding influenza and pneumonia was sent to staff and the results of that survey were tallied. Continued education was provided for all clinical users and supplemental support was provided for newly hired certified medical assistants (CMAs). WMC also began requiring that all departments administer flu vaccine to patients that wished to be vaccinated. Finally, for new vaccinations, the clinical services manager obtained members for a vaccine committee. A meeting for the committee was scheduled prior to influenza season with the goals of error reduction, improving new vaccination education, and staging vaccine reviews. Formal yearly reviews are planned to follow.

To enhance patient education, WMC launched six posts on its Facebook page, which reached over 1,400 views. Dr. Mae Bixby contributed an article about influenza to the WMC Fall newsletter that was sent to 1,000 subscribers and posted on

the WMC website, which accrues an average of 10,000 views monthly. Other measures included displaying posters and flyers describing vaccine efficacy and importance in exam rooms, as well as publishing an article advertising clinic-run influenza administration days in the *Missoulian* newspaper. A total of seven influenza vaccination administration clinic days amongst family practice and pediatric departments were scheduled, resulting in 262 influenza shots administered in three days along with an additional 17 patients vaccinated at the clinic's Now Care facility. Further means of enhancing patient education included enabling the MyChart patient portal of the WMC's EHR to allow a patient to self-report an influenza vaccination, and mailing letters to MyChart-enabled patients of all specialties to minimize documentation loss.

Epic provides functionality through Healthy Planet Health Maintenance Topics and Best Practice Advisories (BPAs) for Adults to identify and track immunization administration and need. These are displayed in each patient chart and can be updated via face-to-face encounters or documentation/telephone encounters when documentation is presented after outside immunization. BPAs for Adults displays the Centers for Disease Control and Preventions' (CDC's) recommended immunizations. The item is displayed in red "OVERDUE" text, with the date that the recommended immunization was due. The Health Maintenance activity topics display the due date, frequency, and date completed. The pneumococcal immunization indicates the type of vaccine needed and the sequencing status (e.g., one of three). At-risk patients receive a prompt for the vaccine. BPA functionality was enabled for specialty practices as a result of the AI Collaborative. WMC also established functionality with a newly enabled HL7 interface engine to allow outside pharmacies to transmit documentation of immunizations into the electronic record.

To capture the correct data, the following workflows must be utilized to ensure accuracy of reporting. Reports based on the following data workflow sets were then run within the EHR and compiled for transmission to AMGA.

### **Measure 1**

#### **Numerator A – PPSV**

Workflow 1: When entering a vaccination from an outside administrator, a specific ID number must be captured in EPIC as a single historical documentation when the vaccine is administered externally, as none of the current AI value sets will capture the historical immunization data.



Workflow 2: Clinical staff orders and administers the vaccination, using the CPT code 90732. When PPSV is ordered and administered properly, this CPT code drops into the charges for that visit.

### **Numerator B – PCV only**

Workflow 1: When entering external immunization, the ID number 78 must be used.

Workflow 2: When ordering and administering an immunization in the clinic, CPT code 90670 must be used.

### **Numerator C – Unknown type**

Workflow 1: Historical immunization option ID 106, “Pneumococcal, Unspecified Formulation” must be used to designate an outside administration of unknown type.

Workflow 2: It is not possible to administer an unspecified formulation for pneumococcal vaccine within the clinic.

### **Numerator D – Both PPSV and PCV**

A combination of both Workflow 1 and 2 for Numerator A and Numerator B

### **Measure 2**

**Numerator A-D:** same as above.

### **Measure 2a**

**Numerator A-D:** same as above.

### **Measure 3**

**Denominator** – Patient is 18 years or older and seen in the clinic in a face-to-face encounter.

**Numerator** – Evidence of influenza immunization anytime on or between the first and last date of the influenza season, during which the reporting period falls.

Workflow 1: Historical immunization entered into Epic using options listed in the appendix.

Workflow 2: Immunization ordered and administered in Epic using options listed in the appendix.

WMC hired a clinical services educator/trainer to facilitate influenza clinics, initiate patient surveys for improvement suggestions on how to increase accessibility for patients, and to ensure that clinical staff receives adequate continuing education and remains compliant in administration and documentation. Workflow modifications are described as above relating to EHR accuracy and consistent reporting.

New workflows include ensuring that each patient visiting specialty practices and primary care receives an offer of an influenza shot on-site. Current staff volunteered to work during scheduled immunization clinic days to ensure that patients received care efficiently. Clinic staff was also educated on appropriate documentation for external immunizations. WMC does not electronically interface automatically with the State Immunization Registry, to which many external immunizations are uploaded, requiring adjustments to the process of acquisition.

Standing orders documents outline appropriate administration guidelines. See appendix for document and administration care processes. Clinical standards adhere to CDC guidelines for immunization administration and schedule.

AMGA Foundation awarded WMC with honoraria to support its program efforts in the amount of \$10,000. \$5,000 was received in the first quarter of 2017, with an additional \$5,000 to be provided no later than December 2018. \$3,500 of honoraria was allocated to the creation of reporting processes and workflow. The remainder has been and will be allocated to provision for staff and clinical support for training, education, and vaccination clinics.

## **Outcomes and Results**

(See Appendix)

## **Lessons Learned and Ongoing Activities**

WMC attempted the AI Collaborative with the goal of improving population health via increased immunization availability. The adapted goals required inclusion of education for staff, evaluation of clinical workflow and documentation, and implementation of immunization administration workflows for specialty practices. Barriers to immediate success included time management for specialty practices who generally do not incorporate immunization into their workflow, and previously accepted clinical mores indicating the importance of family medicine as the primary administrator of these vaccinations. Overcoming these barriers through clinical staff education and the presentation of measurable improvement when specialties were involved allowed WMC to experience steady increase overall in vaccination rates. As a result of the alignment of the AI Collaborative with other wellness programs, all practices within WMC saw an increase in administration, and

patients who would normally not have convenient access to immunizations were afforded an opportunity for continuity of care. Other barriers include increased staff turnover, requiring more frequent education, and difficulty accessing the State Immunization Registry.

Going forward, education and continued learning opportunities for all clinical staff remain a priority. Providing availability and access through the entire system, including specialties, allow consistent care for the patients of WMC.

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## References

Office of Disease Prevention and Health Promotion (ODPHP). Healthy People 2020. <https://www.healthypeople.gov>.

## Collaborative Goals

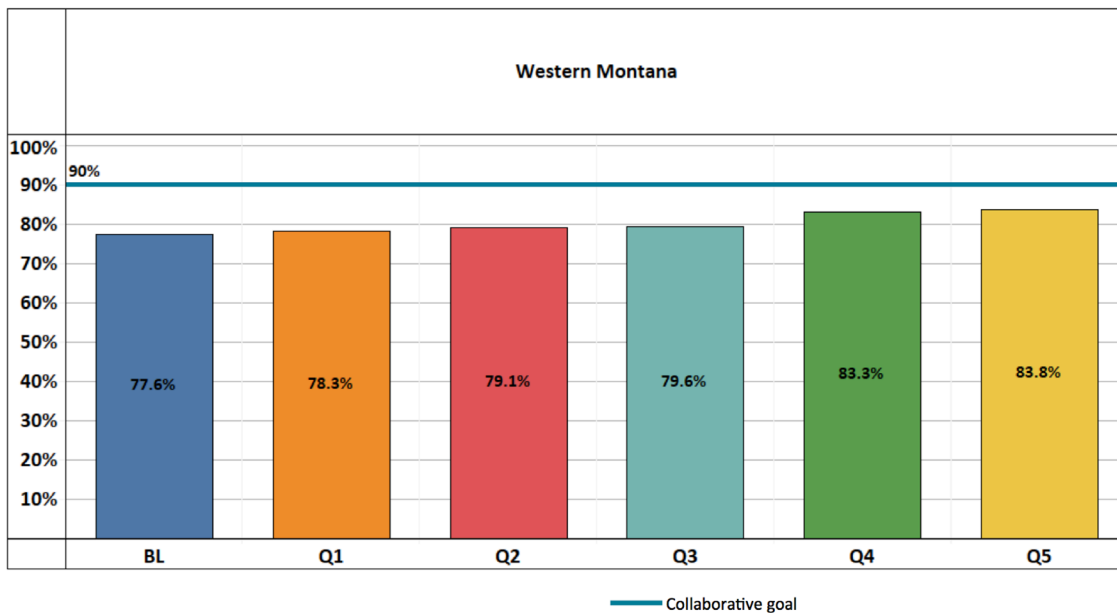
Measure	Healthy People 2020	Collaborative Goal
Measure 1 (65+) Any	90%	90%
Measure 1 (65+) Both PPSV and PCV*	90%	60%
Measure 2 (High-Risk)	60%	45%
Optional Measure 2a (At-Risk)**		
Measure 3 (Flu)	70%/90%***	45%

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

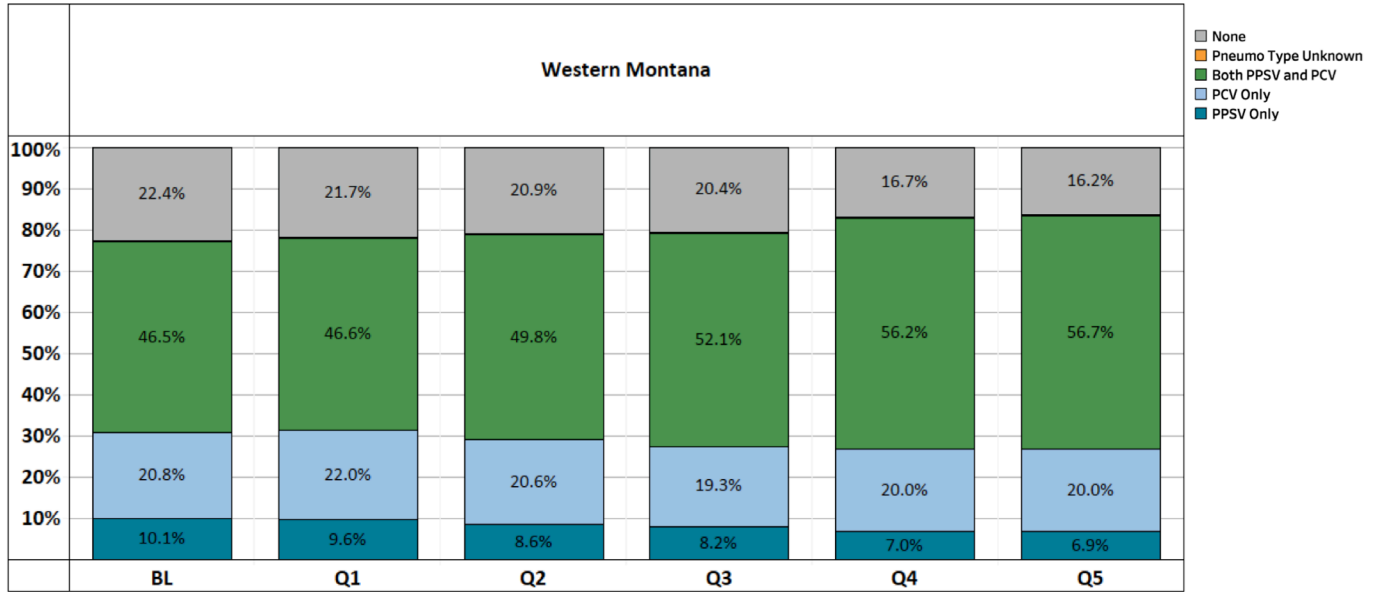
\*\* According to CDC guidelines, it is not currently recommended that the at-risk population receive PCV. Therefore, “PPSV” or “Unknown pneumococcal vaccination” are numerator options for Measure 2a.

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

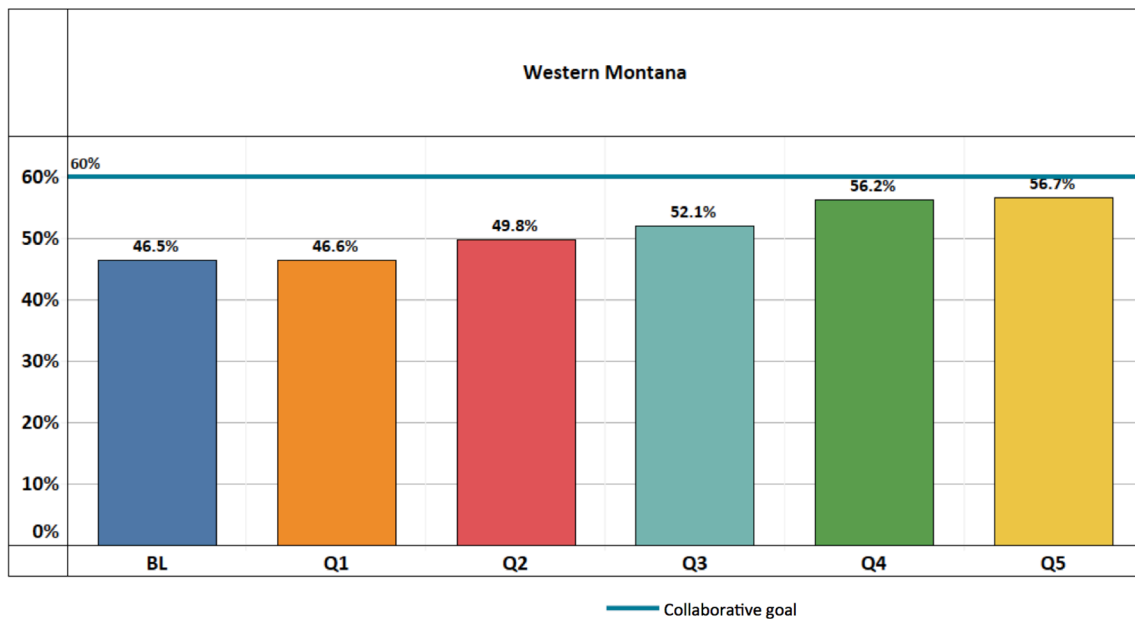
### Measure 1 – Pneumococcal (Any) Immunization for Adults Ages ≥ 65



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

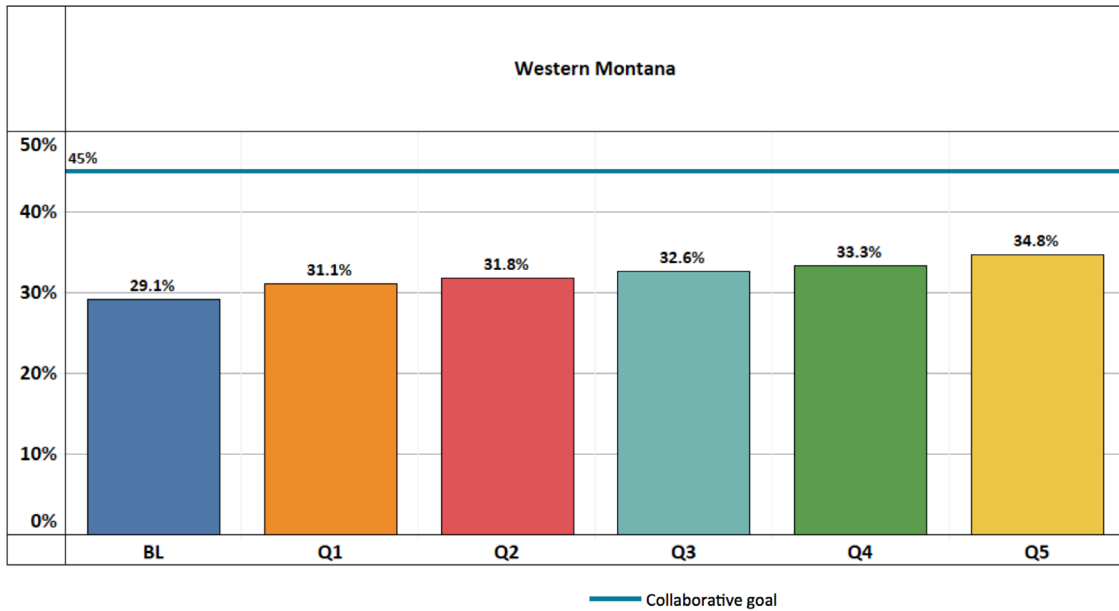


## Measure 1 – Both PPSV and PCV Immunization for Adults Ages ≥ 65

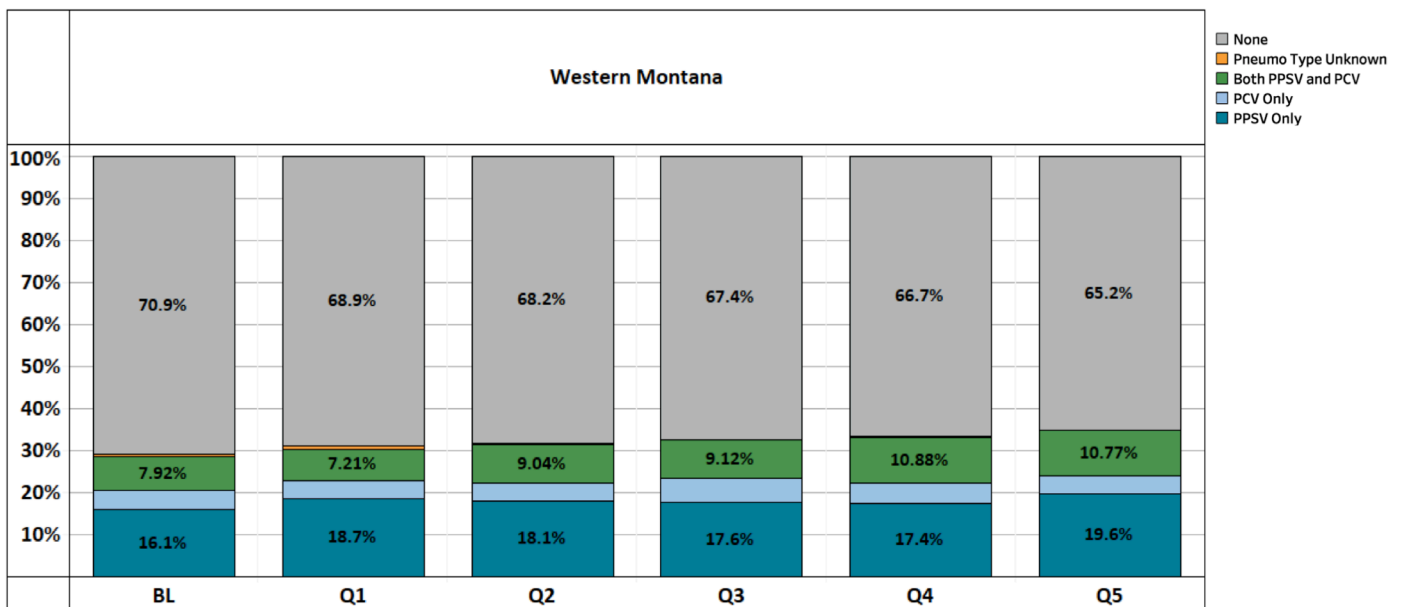




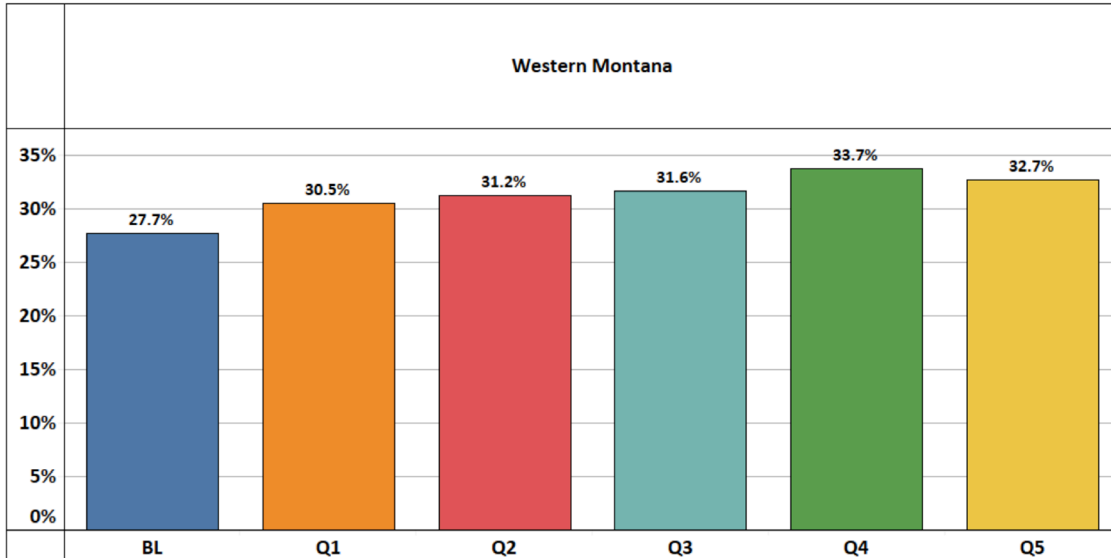
## Measure 2 – Pneumococcal (Any) Immunization for Adults Ages 19–64 with High-Risk Conditions



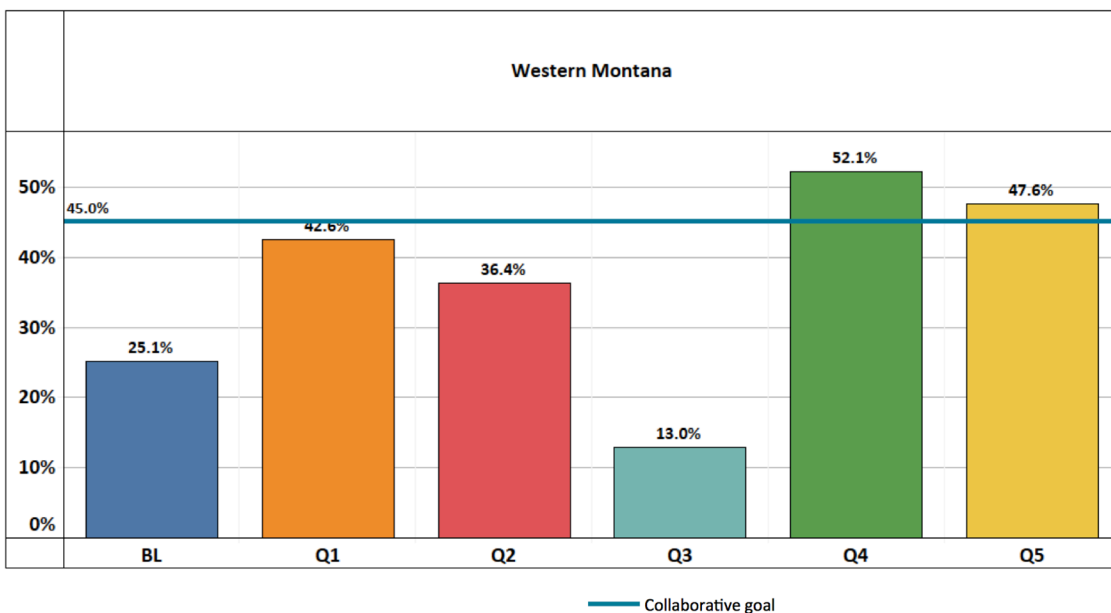
## Measure 2 – Pneumococcal (Any) Immunization for Adults Ages 19–64 with High-Risk Conditions



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



**Measure 3 – Influenza Immunization, Age ≥ 18**



# Appendix

## AMGA Foundation Adult Immunization Collaborative Group 2 Reporting Template Measure 1 – Pneumococcal Immunization age ≥ 65

Please enter the requested data in the cells shaded blue.

Organization Name		Western Montana Clinic						
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	1/1/16 - 12/31/16	2789	281	579	7	1298	2165	78%
PV Qtr 1	1/1/17 - 3/31/17	1772	170	389	3	825	1387	78%
PV Qtr 2	4/1/17 - 6/30/17	1827	157	377	2	910	1446	79%
PV Qtr 3	7/1/17 - 9/30/17	1742	142	336	2	907	1387	80%
PV Qtr 4	10/1/17 - 12/31/17	1874	131	374	2	1054	1561	83%
PV Qtr 5	1/1/18 - 3/31/18	1787	124	358	3	1013	1498	84%

PV = Pneumococcal Vaccine

<sup>1</sup> There are no exclusions or exceptions for the immunization measures in this collaborative. Please include unique count of patients in the denominator who meet the criteria in the reporting period.

<sup>2</sup> These numerator categories should be mutually exclusive. If you have 2 data points, and one is more specific and one is less specific, keep the more specific data and omit the less specific data.

## AMGA Foundation Adult Immunization Collaborative Group 2 Reporting Template 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		Western Montana Clinic										
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	1/1/16 - 12/31/16	Y	N	N	N	1187	191	55	6	94	346	29%
PV Qtr 1	1/1/17 - 3/31/17	Y	N	N	N	721	135	31	6	52	224	31%
PV Qtr 2	4/1/17 - 6/30/17	Y	N	N	N	708	128	31	2	64	225	32%
PV Qtr 3	7/1/17 - 9/30/17	Y	Y	Y	Y	680	120	40	0	62	222	33%
PV Qtr 4	10/1/17 - 12/31/17	Y	Y	Y	Y	708	123	35	1	77	236	33%
PV Qtr 5	1/1/18 - 3/31/18	Y	Y	Y	Y	724	142	32	0	78	252	35%

PV = Pneumococcal Vaccine

<sup>1</sup> If a HCO is reporting on both Measure 2 and 2a (2a being optional), and a patient falls into both measures (both high-risk and at-risk categories), report them in both measures (in order to simplify reporting).

<sup>2</sup> Refer to collaborative measure value sets for diagnosis codes corresponding to each high-risk condition. Please address at least one condition per reporting period, with a goal of addressing all 4 conditions by the end of the collaborative. A value of Yes or No is required for each condition cell.

<sup>3</sup> There are no exclusions or exceptions for the immunization measures in this collaborative. Please include unique count of patients in the denominator who meet the criteria in the reporting period.

<sup>4</sup> These numerator categories should be mutually exclusive. If you have 2 data points, and one is more specific and one is less specific, keep the more specific data and drop the less specific data.

# Appendix

## AMGA Foundation Adult Immunization Collaborative Group 2 Reporting Template Measure 1 – Pneumococcal Immunization age ≥ 65

Please enter the requested data in the cells shaded blue.

Organization Name Western Montana Clinic

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	1/1/16 - 12/31/16	N	N	N	N	Y	1847	502	9	511	28%
PV Qtr 1	1/1/17 - 3/31/17	N	N	N	N	Y	1093	327	6	333	30%
PV Qtr 2	4/1/17 - 6/30/17	N	N	N	N	Y	1068	332	1	333	31%
PV Qtr 3	7/1/17 - 9/30/17	Y	Y	Y	Y	Y	996	315	0	315	32%
PV Qtr 4	10/1/17 - 12/31/17	Y	Y	Y	Y	Y	1036	347	2	349	34%
PV Qtr 5	1/1/18 - 3/31/18	Y	Y	Y	Y	Y	1086	355	0	355	33%

PV = Pneumococcal Vaccine

<sup>1</sup> If a HCO is reporting on both Measure 2 and 2a (2a being optional), and a patient falls into both measures (both high-risk and at-risk categories), report them in both measures (in order to simplify reporting).

<sup>2</sup> Refer to collaborative measure value sets for diagnosis codes corresponding to each at-risk Condition. The at-risk population is not currently recommended to receive PCV. Therefore, 'Only PCV' and 'BOTH PPSV and PCV' are not numerator options for Measure 2a like they are for Measure 2.

<sup>3</sup> If reporting on this optional measure, please indicate which condition(s) are being addressed for each reporting period. A value of Yes or No is required for each condition cell.

<sup>4</sup> There are no exclusions or exceptions for the immunization measures in this collaborative. Please include unique count of patients in the denominator who meet the criteria in the reporting period.

<sup>5</sup> These numerator categories should be mutually exclusive. If you have 2 data points, and one is more specific and one is less specific, keep the more specific data and drop the less specific data.

## AMGA Foundation Adult Immunization Collaborative Group 2 Reporting Template Measure 3 – Influenza Immunization age ≥ 18

Please enter the requested data in the cells shaded blue.

Organization Name Western Montana Clinic

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	7/1/15 - 6/30/16	11853	2980	25%
IV pre-Qtrs <sup>3</sup>	7/1/16 - 12/31/16	9412	3644	39%
IV Qtr 1	1/1/17 - 3/31/17	6841	2911	43%
IV Qtr 2	4/1/17 - 6/30/17	6758	2457	36%
IV Qtr 3	7/1/17 - 9/30/17	6314	819	13%
IV Qtr 4	10/1/17 - 12/31/17	6758	3524	52%
IV Qtr 5	1/1/18 - 3/31/18	6865	3270	48%
IV Qtr 6 (optional) <sup>4</sup>	4/1/18 - 6/30/18			#DIV/0!

IV = Influenza Vaccine

<sup>1</sup> Flu seasons starts July 1 and end June 30th each year for the purposes of this collaborative.

<sup>2</sup> Patient status starts over as unvaccinated each July 1st.

<sup>3</sup> Influenza vaccine "Pre-quarters" are included between the baseline period and when interventions can feasibly start.

<sup>4</sup> Influenza Vaccine Qtr 6 falls after the formal end of the collaborative. Reporting this additional quarter is encouraged but not mandated. It would enable data capture of 3 complete flu seasons.

<sup>5</sup> There are no exclusions or exceptions for the immunization measures in this collaborative. Please include unique count of patients in the denominator who meet the criteria in the reporting period.

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AMGA's Distinguished Data and  
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