**Partnership Health Center**
**Pfizer Final Report**

(Format: SQUIRE 2.0)

Title and Abstract

**1. Title**

*"Disparities in pneumococcal immunizations among people with high-risk co-morbid conditions in a patient-centered medical home."*

**2. Abstract**


**BACKGROUND:** Immunization adherence is challenging in many ways but especially problematic when guidelines change. The aim of our study was to ensure up to date information is conveyed to providers, support staff and patients in a sustainable way and to improve rates of pneumococcal immunization to our highest risk groups. The immunization disparity that existed at baseline among our patient population between some high risk groups for pneumococcal pneumonia and our proposed target population: tobacco users. **59.6%** of our 18 to 64 year olds with **diabetes** had received a pneumococcal vaccine, and **95.3%** of patients with **HIV/AIDS** were up to date on their pneumococcal vaccines. However among 3,790 current tobacco users only 31 **(0.8%)** had documented pneumococcal vaccine, and among 337 current and former tobacco users with COPD only 5 **(1.4%)** had pneumococcal vaccinations in their record and ***all five of those patients*** also had HIV/AIDS.

**METHOD:** The Plan-Do-Study-Act method of quality improvement was used. Additionally, we used patient-centered medical home recognition (PCMH) strategies to focus on the reduction of care fragmentation arising from numerous referrals and a complex, overburdened system. Our overall goal was to use the PCMH concepts of pre-appointment planning, care coordination, and data population management to address the immunization disparity among this high risk population.

**INTERVENTION:** Our evaluation process will include 1) selecting a family practice residency/primary care clinical team who will serve as a control group, 2) work with the Health Information Technology (HIT) department on data collection methods and data reports to track results to changes in care delivery, and 3) document improved rates of pneumococcal immunization for tobacco users, and expand successes to other high-risk groups including those with chronic lung disease.

**RESULTS:** While disparity still exists to some degree among younger smokers, the high risk COPD/Asthma Group is consistent with our other care managed populations.

| Risk Group | Baseline | Final | Comments |
|---|---|---|---|
| Younger Tobacco Users | **0.8%** | **27%** | |
| COPD/Asthma | **1.4%** | **94%*** | If seen by clinical pharmacy, otherwise 65% |
| Diabetics | 59% | 63% | |
| HIV/AIDS | 95% | 94% | |

**CONCLUSIONS:** Under the patient-centered medical home, which allows for population management, pre-appointment planning, and team based meetings to share education and changes to preventive guidelines, and the team based model of care allowing for follow-up and

<table>
<tr><td></td><td>patient education, healthcare disparities can be mitigated.</td></tr>
<tr><td><u>Introduction</u></td><td>We were aware of new guidelines and were concerned about how to best disseminate the information and bring at risk people to an acceptable level of care.</td></tr>
<tr><td><u>3. Problem Description</u></td><td>Under the PCMH model, looking at population health, disparity in health outcomes existed between some care managed groups at our health center but not in others high risk groups where care managers were not available, which told us delivery of care was a system wide problem.</td></tr>
<tr><td><u>4. Available Knowledge</u></td><td>According to the Centers for Disease Control and Prevention regarding pneumococcal vaccine, as of 2014: Vaccines are available that can help prevent pneumococcal disease, which is any type of infection caused by Streptococcus pneumoniae bacteria. There are two kinds of pneumococcal vaccines available in the United States:<ul><li>Pneumococcal conjugate vaccine</li><li>Pneumococcal polysaccharide vaccine</li></ul>Pneumococcal conjugate vaccine is recommended for all babies and children younger than 2 years old, all adults 65 years or older, and people 2 through 64 years old with certain medical conditions. Pneumococcal polysaccharide vaccine is recommended for all adults 65 years or older, people 2 through 64 years old who are at increased risk for disease due to certain medical conditions, and adults 19 through 64 years old who smoke cigarettes.<br><br>At Partnership Health Center, we serve over 15,000 patients annually and among our high risk patients there was a significant disparity noted between those with diabetes or HIV/AIDS and those with COPD/Asthma or smokers under the age of 64.</td></tr>
<tr><td><u>5. Rationale</u></td><td>The team identified two main reasons for the disparity: the need for education about the new guidelines among patients, and the lack of care managers for certain populations.</td></tr>
<tr><td><u>6. Specific Aims</u></td><td>Goal:<br>Develop an innovative process based on patient-centered medical home concepts that includes agency-wide involvement resulting in the elimination of disparities in adult pneumococcal immunization among tobacco users. The following table provides a crosswalk between our project goals and the goal of the RFP; key objectives follow the table.
<table>
<tr><th>Project Focus</th><th>Key Action Steps</th></tr>
<tr><td>Increasing immunization against pneumococcal disease in at-risk adult populations</td><td>Increasing rates of pneumococcal immunization among tobacco users age 19 to 64</td></tr>
<tr><td>Focus on disparities of care resulting from the geographic distribution of healthcare services</td><td><ul><li>Reach rural patients whose tobacco use is high</li><li>Engage family medicine residents in our rural-based program.</li></ul></td></tr>
<tr><td>Multi-disciplinary collaborations</td><td><ul><li>Work with the family medicine residency program and the Montana primary care association to share successes and lessons learned.</li><li>Consistent with PCMH principles engage all team members across disciplines in</li></ul></td></tr>
</table></td></tr>
</table>

| | | |
|---|---|---|
| | | reaching project goal. |
| | Interventions will be evidence-based (education and/or quality improvement | Project is based on PCMH and evidence-based concepts including care coordination and data population management. |
| | Proposed research/evaluation will follow generally accepted scientific principles | • Initial project will be studied in one of four primary care teams who will serve as a control group.<br>• Plan-Do-Study-Act (PDSA) QI principle is used to document all changes and outcomes. |
| | Directly impact patient care | Improve rates of immunization among smokers aged 19 to 64 from 0.8% to 40% in Year One. |
| | Programs that utilize system-based changes | • Recent system based changes that resulted in PCMH 2011 Level 3 recognition will be applied to mitigate the disparity in immunization rates among our target population.<br>• Develop a process to eliminate the cost barrier by linking patients to resources through our medication assistance program. |
| **Methods** | *#1:* We studied population health data to identify disparities in immunization among high risk groups.<br>*#2:* We identified family practice residents and primary care clinical teams to address unique disparities – involving the entire team allowed for in-put and buy-in from all levels of the care team consistent with PCMH principles. Involving the family practice residency in the design and implementation of the project ensures best practices regarding immunization and follows them to their practices in Montana's rural/frontier communities.<br>*#3:* We worked with the IT department on data collection methods in eClinicalWorks (eCW), our electronic medical record (EMR), to insure quality reporting for the QI project – data population management is a key PCMH concept that guides system change across a targeted group as opposed to just improving and individual's care. Additionally, tracking success through care coordination improvements will be done through structured data reporting.<br>*#4:* We adopted the PCMH change concepts that were successfully used in creating an environment for cross-department improvement ideas in the realms of HIV and diabetes care and apply them to the immunization project – at PHC, our rates of immunization among patients with diabetes and patients with HIV/AIDS are significantly higher than among our general population who use tobacco or the at-risk COPD/Asthma group. As high risk patients who currently receive care management, applying those same principles of pre-appointment planning and care coordination that we use in working with our diabetics and patients with HIV, we expected the same outcomes among tobacco users and patients with chronic lung disease.<br>*#5:* Involved team members in providing education to one another, developed materials for ease of retrieval in clinic such as posting guidelines in shared space, in each patient exam room, as a pocket hand out and on patient health station televisions. We are attempting to get them on the small monitors for health education that we use in the patient rooms, but this is a new strategy and is not yet implemented. | |

| | |
|---|---|
| | #6: We provided a baseline "quiz" for key patient groups over survey monkey to test baseline knowledge and presented all strategies to our patient council, consistent with PCMH principles. |
| **7. Context** | At Partnership Health Center, a NCQA recognized Level 3 medical home since 2013, patient-centered medical home principles have provided a number of system changes that more readily adapt to processes designed for improvements in the care delivery system: team-based efforts, population management, team meetings ideal for education and process review, population management, access to data to track change and identify gaps in care, and the expectation of patient engagement. |
| **8. Intervention(s)** | a. See "Methods" section this form.<br>b. The following duties related to our activities in the "Methods" section were as follows:<br>***Staff Education***: Family Practice Medicine Resident physicians with supervision.<br>***Patient Education***: Team based nursing staff and primary care provider. HIT department assisted with materials on health TVs.<br>***Materials design, review and approval***: Patient materials and survey "quiz" by the Patient Advisory Council with support from PCMH staff, provider education and reference materials by the resident physicians on the team and the director of innovation (project lead).<br>***Data collection and project tracking***: HIT staff and the project lead.<br>***Reporting***: Project lead.<br>***Budget and time on project tracking***: key staff and CFO. |
| **9. Study of the Intervention(s)** | Project lead worked with HIT staff to identify the most reliable way to pull population data from the system. This took significant time as we discovered differences in provider and nurse documentation and standardized the process throughout the organization. |
| **10. Measures** | Impact on the processes in clinical care around immunization recommendations to target populations. Measures included real-time reports from the electronic health record broken out by target populations.<br>Tracking of mitigation of disparity through quarterly tracking of immunizations completed among target groups. |
| **11. Analysis** | a. We used patient surveys to determine baseline knowledge and acceptance of the pneumococcal vaccine and the understanding of who should receive it prior to designing education and outreach interventions.<br>b. We used the electronic health record's statistical data linking age, risk factor, and adherence to pneumococcal recommendations. We saw significant improvement, well beyond goal among those with at-risk health conditions but failed to meet goal among younger age smokers with no co-morbid chronic conditions. While we did improve significantly, we think the number of young people access urgent appointments or dental and are less likely to accept immunizations as part of a visit, but this part of the analysis is anecdotal. |
| **12. Ethical** | We identified no conflicts of interest. Pfizer funding the education did not impact the |

| | |
|---|---|
| **Considerations** | brand of pneumococcal vaccine offered to patients. We did not purchase vaccine itself nor violate any tenant of the Sunshine Act. We acknowledge all members of the healthcare teams who participated. |
| **Results** | *What did you find?* |
| **13. Results** | a. Initial steps of the intervention(s) and their evolution over time (e.g., time-line diagram, flow chart, or table), including modifications made to the intervention during the project. *See attached algorithm*<br><br>b. Unintended consequences such as unexpected benefits, problems, failures, or costs associated with the intervention(s).: Initially the plan was to use one team as a control group but as a clinic that has integrated so many team members, proximity of knowledge made it hard to separate out the activities. Nurses often cross cover, residents may work with one team but see patients from another team for urgent or same day appointments and ultimately the educational and data collection initiatives meant that the clinical changes happened regardless of team location.<br><br>f. Details about missing data: At PHC our goal is to record immunizations given by us as well as those provided by another medical provider or pharmacist. However, we have no way to quantify whether or not IZ information from outside the facility is missing other than through patient history. |
| **Discussion** | *What does it mean?* |
| **14. Summary** | Particular strengths of the project: The structure of the patient-centered medical home and team-based care offers a healthy structure for implementing new preventive guidelines and introducing a new clinic wide process change. As an organization our commitment to team meetings allows time for education, planning and implementation of a new process. Our patient council, also part of the PCMH model, helped us to design the patient "quiz" sent through the Survey monkey. We had more success with people with immune compromised conditions than younger aged smokers but we also improved significantly in treating them. When the organization stays true to the spirit of a PCMH mode: team-based care, pre-appointment planning, population management, care coordination, patient self-management, patient education, and continuity of care all set the stage for improved health outcomes. |
| **15. Interpretation** | a. Nature of the association between the intervention(s) and the outcomes: After the QI process that included patient and staff education, we saw an improvement over time for COPD/asthma patients at risk from 1.4% adherence to treatment to 94% over two years. Among diabetic patients IZ rates went from 59% to 63%. The previously immunized group of HIV/AIDS patients stayed steady between 90 and 95%, but the healthy underage smokers only improved from 0.8% to 27%. Frequent data tracking shows this number at a plateau between 25 and 27%, which is where the next intervention needs to occur.<br><br>b. According to healthy people 2020, among the older population under the previous guidelines adults 64 and older were 65% likely to have received any pneumococcal vaccine. Current goal is 90% coverage of eligible populations.<br><br>c. Impact of the project on people and systems: Under the PCMH model, care managers offer a way to track and respond to gaps in care. As we see from our closely care managed populations, i.e. HIV/AIDS, COPD/asthma, this goal is obtainable. Among the general population, those who are still relatively healthy but at risk from tobacco use, |

| | |
|---|---|
| | adherence to vaccine recommendations is still at 27%, although it was significantly improved from 0.8% during this project. Due to the cost of care management, payer sources and funding would most likely need to be an investment systems were ready/able to make to reach the goal of 90%.<br><br>d. Reasons for any differences between observed and anticipated outcomes, including the influence of context: staff turnover, especially the expected turnover to new residency classes, made the dissemination of standards harder. Later in the academic year adherence among smokers would rise to 39 or 40% as providers or new staff became more familiar with the processes but dip down when there were new rotations in clinic.<br><br>e. Costs and strategic trade-offs, including opportunity costs: As noted above, care management presence made a great deal of difference in our ability to meet the goal. Presently, our health center does not have the ability to provide care management for a group of smokers nearing three thousand, without targeted funding to do so from payers or other sources. Among those patients most at risk, this project was very successful. |
| **16. Limitations** | a. Limits to the generalizability of the work: we did not study rates of immunizations specific to individual nurse-provider care teams due to varying clinic schedules, varying panel size, time restraints (other than anecdotal).<br><br>b. Factors that might have limited internal validity such as confounding, bias, or imprecision in the design, methods, measurement, or analysis: we are fairly confident in the data extraction although the process relies on accurate documentation or all vaccinations, including those offsite, which are less likely to be known to us.<br><br>c. Efforts made to minimize and adjust for limitations: removing the cost barrier through various assistance programs, using pre-appointment planning as a venue for early identification of need were both critical parts of the successes. |
| **17. Conclusions** | a. Usefulness of the work: Under PCMH this project tested our process for any change: baseline evaluation, education of staff and patients, involvement of patients in outreach material, refinement in clinic management committee, reporting in our QI committee, and education in clinic team meetings as well as provider/nurse meetings.<br><br>b. Sustainability: there are no ongoing costs except in care management, which, as noted above, may not be sustainable.<br><br>c. Potential for spread to other contexts: The process for imp[lamenting new guidelines is adaptable for many new treatment/preventive recommendations.<br><br>d. Implications for practice and for further study in the field: We will track at least annually, most likely quarterly.<br><br>e. Suggested next steps: more targeted outreach to smokers who are younger and otherwise healthy. |
| **Other Information** | |
| **18. Funding** | Sources of funding that supported this work. Role, if any, of the funding organization in the design, implementation, interpretation, and reporting: Pfizer grant matched by in-kind staff time. |