

A. Cover Page

Title:

A Collaborative Program to Increase Adult Vaccination Rates for a High-Risk (19-64) Patient Population Who Receives Services at Urgent Care Clinics

Abstract:

The goal of this grant is to implement a multi-organization, inter-professional collaboration to implement and evaluate an intervention aimed at improving pneumococcal vaccination rates in an at-risk population in urgent care clinics. A secondary goal is to better capture vaccinations given at other medically related places.

Jointly, UnityPoint Health-Des Moines (UPH-DM) and Drake University's College of Pharmacy and Health Sciences (Drake) will implement a real-time, on-site vaccination reconciliation and patient education program in two UPH-DM urgent care clinics and will gather comparison data in two matched clinics. Second and Third year Drake pharmacy students will be placed in the intervention clinics and will review scheduled and/or walk-in patients' eligibility for the pneumococcal vaccine. If eligible they will discuss the importance of the vaccination, answer questions, and offer to have clinic staff administer the vaccine during the visit. These students will record administered vaccinations, declined vaccinations and reason for refusal. Assessment of student experience learning will also be made.

We estimate a minimum 20% increase in vaccination rates due to the intervention. This figure was estimated from the 18.7% increase found in the TDAP study performed previously by this work-group. If successful, the project's model could be replicated in UPH-DM three other urgent care clinics as well as the UPH statewide system of 22 urgent care clinics. UPH-DM is the largest affiliate of the regional UnityPoint Health System which is comprised of 25 hospitals and 280 clinics across Iowa and Illinois and Wisconsin. Collectively, UPH serves nearly one of every three patients in Iowa.

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Main Proposal

Goal

UnityPoint Health-Des Moines (UPH-DM) and Drake University's College of Pharmacy and Health Sciences (Drake) will collaborate to implement and evaluate an intervention to improve pneumococcal vaccination rates for an at-risk population who receive care at urgent care clinics. A secondary project goal will be to better capture and document vaccine histories for vaccinations received at other medically related places. This is a critical step for future programs and studies as the ability to have an accurate baseline understanding of patient vaccination records is a medical necessity. This project can lend itself to sustained initiatives on decreasing associated disease rates and related hospital admissions.

Objectives

1. Implement a multi-organization, inter-professional collaboration designed to improve pneumococcal vaccination rates in two urgent care clinics and compare these data to two non-intervention clinics matched by patient demographics.
2. Assess the effectiveness of a pharmacy student staffed, real-time vaccination reconciliation strategy for improving vaccination rates.
3. Improve baseline data for future study by better capturing data for patients vaccinated at sites other than urgent care clinics.
4. Disseminate findings within the regional UnityPoint Health System and Drake University. Submit manuscripts and/or posters for publication/presentation in pharmacy and primary care journals/conferences.

Technical Approach

A work group was assembled to examine this grant opportunity. Members of the group included the organization's Vice President for Medical Education and Research, Residency Program Directors (internal medicine and family medicine), Director of Research, the Health Science Librarian, an Infectious Disease (ID) Physician, and a Nurse Epidemiologist and Pharmacy Faculty. The group met several times to discuss the literature, opportunity to improve outcomes and potential models. A literature review was conducted and two studies emerged as guiding models: *Strategies to Overcome Barriers to Pneumococcal Vaccination in Older Adults: An Integrative Review*, *Pneumococcal Vaccination Process Improvement in an Acute Care Setting* and *An Introductory Pharmacy Practice Experience to Improve Pertussis Immunization Rates in Mothers of Newborns*.

The workgroup also reviewed organizational resources, statewide data and references provided by the Librarian and Pharmacists. The ID physician and Family Practice Program Director's expert opinion is that adult urgent care patients, without a medical home, are generally not up to date on vaccinations. It was noted that increased vaccinations are among the organization's key quality indicators for 2014 going forward.

Urgent Care clinics were selected for several reasons including the likelihood for higher levels of diversity in the patient population. The workgroup felt this setting presented a unique opportunity to immunize high risk patients who could be lacking a medical home.

Baseline

UPH-DM urgent care clinics provided 93,429 visits (contacts) in 2013, with a unique patient population totaling 63,371.

When looking specifically at vaccination rates for the total urgent care population (63,371) it was striking to find only 165 patients had documentation for receiving the pneumococcal vaccine at the urgent care clinic, for a potential rate of .003%. Since the national rate for pneumococcal vaccination is 45% we are presuming our rate is incomplete due to various factors including under-reporting by patients who have obtained the vaccine elsewhere. This project's invention will pilot a strategy for better capturing vaccination status by administering a standard questionnaire.

Primary Audiences

The primary audiences for this program will be the patients and staff (both medical and administrative) of the two clinics selected for interventions (Southglen and Lakeview). In addition, Drake faculty and students will gain experience and insight. The primary beneficiaries will be the vaccinated patients. If successful, this model could be replicated in UPH-DM's three other urgent care clinics as well as the UPH statewide system of 22 urgent care clinics. By expanding the number and locations of intervention clinics in future studies, we will reach a wider sample of patients, including more rural and perhaps more diverse patient population.

Project Design and Methods

UPH-DM and Drake will implement a real-time, on-site vaccination reconciliation and patient education program in two urgent care clinics and will gather comparison data in two matched clinics.

UPH-DM will oversee the project with a physician assistant located at Southglen, one of the intervention clinics and a combination of Drake pharmacy faculty located at Lakeview clinic.

Drake will staff the intervention clinics with second and third year pharmacy students who are working on their Introductory Pharmacy Practice Experiences (IPPE). The students will be in the clinics during peak hours, which may include evenings and Saturdays. On the whole, clinics will have students on average 10-15 hours weekly. Students will work from a laptop at a small workstation in, or near, the waiting room.

The students will review scheduled patients and/or walk-in patients for eligibility for the pneumococcal vaccine, checking both the clinic's electronic medical record and the Iowa Immunization Registry Information System (IRIS) for records of current vaccinations. If eligible

they will discuss the importance of the vaccination, answer questions, and offer to have clinic staff administer it during the current visit. They will utilize educational material derived from the CDC's pneumococcal vaccination fact sheet.

The students will record administered vaccinations, declined vaccinations and reason for refusal. The instrument measuring refusal will be a simple electronic questionnaire. The student will match the patient response with the best fit among the options below. If the patient offers more than one reason the student will ask for a "main" reason.

1. I've been vaccinated against pneumococcal disease in the past
 - a. Where and when were you vaccinated: _____
2. The pneumococcal vaccination doesn't prevent pneumococcal disease
3. I don't like the toxins in vaccines
4. There can be serious side effects from receiving the pneumococcal vaccination
5. I have an allergy that prevents me from getting the pneumococcal vaccination
6. I don't need the pneumococcal vaccination, if I do get a pneumococcal disease I will just take medication
7. I'm not in a high risk group
8. I'm healthy and have never had a pneumococcal disease
9. I have already had a pneumococcal disease
10. My doctor didn't recommend it
11. Pneumonia isn't all that bad, it's just a really bad cold
12. Cost: Cannot afford it/Do not have health insurance
13. I am afraid of needles/shots
14. Other (to be used infrequently for unique and unusual reasons)

This tool is a hybrid of those listed in Anderson, B (2014, Jan. 17). Why I refused to get a flu shot. MindBodyGreen. Retrieved from <http://www.mindbodygreen.com/0-12304/why-i-refused-to-get-a-flu-shot.html/> and Why people don't get vaccinated (2014). Retrieved from [http://www.massmed.org/patient-care/health-topics/colds-and-flu/why-people-don-t-get-vaccinated-\(pdf\)/](http://www.massmed.org/patient-care/health-topics/colds-and-flu/why-people-don-t-get-vaccinated-(pdf)/)

In addition to patient data, the project will also assess the student experience. This will be measured by the following self-assessment questionnaire, using a pre-test/post-test method. All questions will have five answer options: Poor, Below Average, Average, Above Average, Outstanding. The last question will use an agree/disagree scheme detailed below.

Pre-Intervention Assessment Questions

I consider my current verbal communication skills with patients as:

I consider my current medical record documentation skills as:

I consider my current writing skills as:

Post-Intervention Assessment Questions

I consider my current verbal communication skills with patients as:

I consider my current medical record documentation skills as:

I consider my current writing skills as:

I believe this experience will help me be a better pharmacist

Strongly Disagree Disagree Uncertain Agree Strongly Agree

Evaluation Design

A 95% confidence interval (CI) will be constructed around the 2013 pneumococcal vaccination coverage for the target groups as well as among the racial/ethnic groups. Interval will be calculated using the following formula: $95\% \text{ CI} = r \pm 1.96 \sqrt{r(1-r)/n}$; where r = the prevalence rate stated as a decimal fraction and n = total appropriate population for the group.

Vaccination rates achieved within the two intervention and two control clinics will be compared prior to and after program implementation. Comparisons will entail all pairwise constructed odds ratios with confidence intervals corrected for multiple comparisons (via Bonferroni Method: $\alpha=0.05/6$) generated from multiple logistic regression controlling for clinic, intervention status, and subgroups of interest (e.g., race, gender, age, known risk factor status, insurance status, etc.).

Data Source/Collection

Pharmacy students will collect patient data via a waiting room questionnaire and cross-check the patient's electronic medical record and IRIS via a laptop/tablet with wifi access.

During the patient's visit the student will approach the patients needing pneumococcal vaccination, provide counseling and education concerning the vaccine and will seek the patient's consent in receiving the vaccine. For patients who agree to receive the vaccine, the pneumococcal vaccination will be provided on site and at that visit. This will be documented in the electronic health record as well as IRIS (state immunization registry). Data will be gathered on reasons for refusal as well.

Controls

Two urgent care clinics, Lakeview and Southglen, have been selected for intervention. Clinics in Urbandale and Ankeny will serve as matched controls. This matching strategy will allow for comparisons both between and within groups to minimize potential confounding factors.

Expected Change/Program Engagement

We estimate a minimum of a 20% increase in vaccination rates. This figure was estimated from the 18.7% increase found in the TDAP study. Patients, clinic staff and Drake students will be surveyed regarding their attitudes toward the program. This will include questions exploring clinic workflow, satisfaction of the program for both clinic staff and Drake students, and perceived benefits and problems of the program. A cohort of patients will also be asked to complete a brief survey to assess attitudes toward Drake students and their education efforts.

Dissemination

UPH-DM and Drake University will jointly develop manuscripts and seek publication in journals such as Infection Control and Hospital Epidemiology or the American Journal of Infection Control. Presentation will be made at the annual Research Day conference and poster presentation opportunities will be sought nationally at infection control and pharmacy-based organization meetings.

Perhaps most importantly, findings will be shared through UPH facilities statewide, including a network of 22 urgent care clinics.

Detailed Workplan and Deliverables Schedule

Project Year	2014				2015				2016			
Quarter	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Activity												
Select/train pharmacy students			X	X	X	X	X	X	X	X	X	X
Orient clinics			X	X								
Conduct intervention				X	X	X	X	X	X	X		
Data collection and entry				X	X	X	X	X	X	X	X	X
Conduct annual analysis				X				X				X
Apply modifications (if necessary)				X	X			X	X			
Conduct final data analysis											X	X
Disseminate findings											X	X

Organizational Detail

Leadership and Organizational Capacity

UnityPoint Health – Des Moines (UPH-DM)

UPH-DM, formerly known as Iowa Health-Des Moines, is a group of four hospitals: Iowa Methodist Medical Center, Iowa Lutheran Hospital, Blank Children's Hospital and Methodist

West Hospital that collectively have 759 licensed beds to serve patients in central Iowa. These four institutions average 34,723 inpatient admissions, and 168,679 patient days.

UPH-DM is the largest affiliate of the regional Unity Point Health System which is comprised of 25 hospitals and Unity Point Clinics which has over 24,000 employees, 1100 physicians and advanced practice clinicians and 280 clinics across Iowa, Illinois and Wisconsin. Collectively, UPH serves nearly one of every three patients in Iowa.

UPH-DM hosts five graduate medical education programs accredited by the Accreditation Council for Graduate Medical Education (ACGME). These residency programs include family medicine, general surgery, internal medicine, pediatrics and transitional year.

UPH-DM is also accredited by the Iowa Medical Society to provide continuing medical education to physicians.

UPH-DM has a proven track record using a team approach to improve patient outcomes and healthcare resources including decreasing infections and improved use of therapeutics.

Drake University College of Pharmacy and Health Sciences

The Drake University College of Pharmacy and Health Sciences is located in Des Moines, Iowa, just a few miles from UPH-DM hospitals and clinics. The school, part of Drake University, offers a four-year Doctor of Pharmacy (Pharm.D) degree, and is nationally-accredited by the ACPE. In 2012, Drake University College of Pharmacy and Health Sciences was ranked 43rd by U.S. News & World Report and third among private schools.

UPH-DM clinics and hospitals have served as training sites for Drake students for over 30 years. Currently 8 Drake faculty members have part or full time practices in UPH-DM facilities. Drake faculty and students have worked with staff pharmacists, physicians and administration to design and implement numerous unique projects and services aimed at improving the goals of both institutions.

Previous Collaborations

UPH-DM and Drake have a long history of collaboration. One of the most pertinent examples of this collaboration is a previous project to increase the rates of postpartum pertussis immunization. Student pharmacists from Drake were deployed at a UPH-DM hospital to discuss and educate parents and caregivers of newborns on the importance of vaccination against pertussis, according to national guidelines. The results of this project included a significant increase in vaccination rates. In addition, it was an experiential program that met the needs of student pharmacists and encouraged interprofessional education. The results of the program were published in the American Journal of Pharmaceutical Education.