Final Report Incentive Grant

Introduction

The role of pharmacists as healthcare providers is changing rapidly, with most pharmacists able to provide many diverse clinical services for their patients. One clinical service that is a staple in almost every community pharmacy nationwide is the administration of vaccinations. [3] Pharmacists who practice in the community setting are administering millions of vaccinations every year to prevent illness and hospitalizations. [3] Vaccines are considered to be one of the most cost-effective preventive measures against certain diseases, and the Centers for Disease Control and Prevention (CDC) have declared vaccinations to be one of the top public health achievements of the 20th century. [3] Patients no longer have to go to an office, pay a co pay for a visit, and wait to be seen by a physician to receive routine vaccinations. Today, receiving the vaccinations can be as easy as going to your local supermarket.

With more and more clinical and residency trained community pharmacists, jobs are expanding to encompass more clinical duties. Community pharmacists' reputations are now rightfully shifting from product dispensers to the most accessible healthcare professionals in the community. [5] These pharmacists are now utilizing the patient care process to conduct many beneficial medication reviews, which, in turn, have been shown to improve the quality and appropriateness of patients' drug therapies. Pharmacist interventions that occur due to these systematic medication reviews also improve cost savings for patients and the healthcare system. [4] These types of medication reviews not only improve patient therapy but improve rapport with other healthcare providers, as well. [1] Team-based patient care additionally increases the overall quality of healthcare, with most patients reporting increased adherence, self-management, and overall satisfaction. [2]

Vaccinations and medication reviews are often offered independently of each other and even on separate patient visits, increasing the time required by the pharmacist and patient for these important and necessary standard services. [1] As pharmacy continues to move in a more clinical, outcomes-based, holistic patient care direction, and patient time continues to be an even more precious commodity, it is advantageous for pharmacists and pharmacies to reorganize workflow to close gaps in patient care. Incorporating multiple patient care services into a single visit is one way to ensure a more holistic approach to patient care while being mindful of time and cost savings. [5] When patients present in the pharmacy for a vaccine, they are often required to wait for 10-15 minutes while the vaccine is being prepared and after the vaccine has been administered. [5] By capitalizing on this often-wasted time to complete a medication review, we hope to demonstrate that completing other standard patient-care services at the same time a patient is receiving a vaccine increases the number of typical interventions made by a pharmacist and increases positive patient outcomes, while decreasing the time spent to capture these interventions. [1]

Methods

Study Design and Setting:

This study was an archival data review set in a rural independent community pharmacy. The pharmacist who prepared and filled any vaccination notified another pharmacist or pharmacy student that a vaccination was to be given to a patient. The pharmacist who did not prepare the vaccine then conducted a medication review with the patient while they waited to be vaccinated. The review was conducted on an electronic tablet that was equipped with the StrandRx platform. The pharmacist-patient discussion and medication review was documented and any relevant, clinical interventions noted were sent to the patient's provider with patient consent. De-identified patient reports were ran to analyze pharmacist interventions made and patient outcomes noted during this period. Descriptive statistics were used to analyze the data. The project was approved by the South University Institutional Review Board in August of 2018.

Study Participants:

The patient population was non-pregnant patients aged 18 and older who came in to receive any vaccination at Richmond Hill Pharmacy, an independent pharmacy in Richmond Hill, GA during the study period. Children < 18 years of age and pregnant women were excluded from this study.

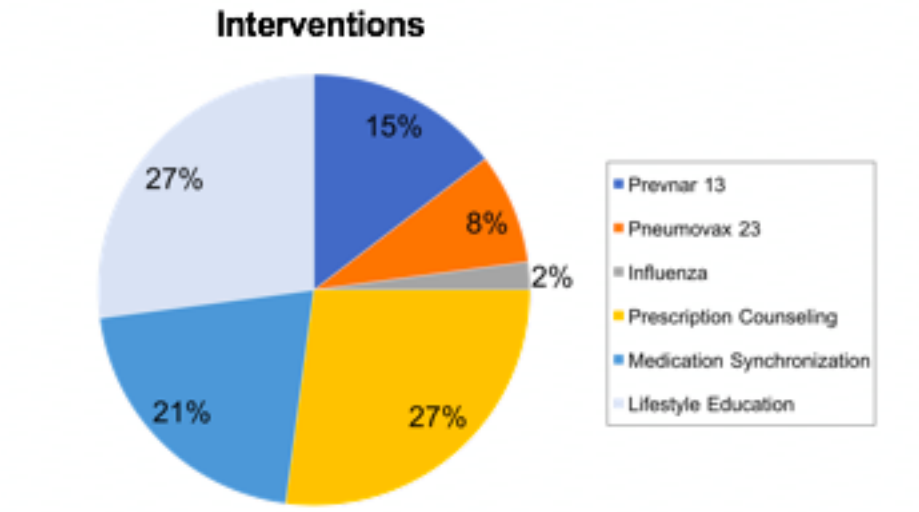
Interventions:

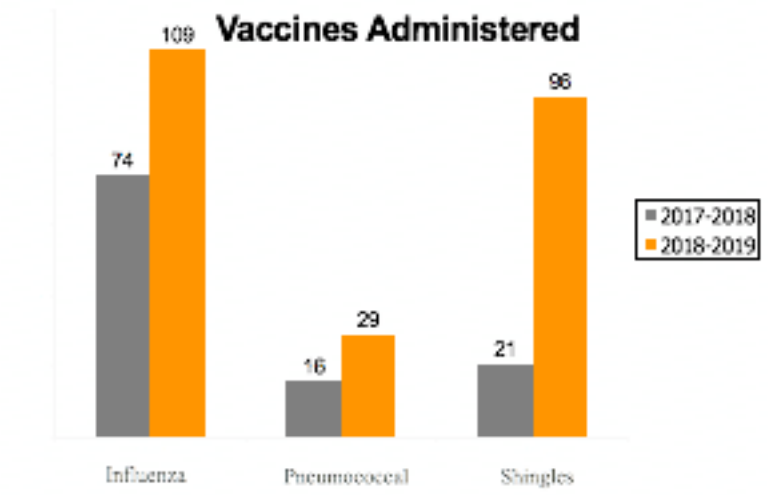
Several types of interventions were made during the study period. Medication reviews consisted of printing the patients' active drug therapies and reviewing the drug, route of administration, strength, and indication with the patient. Patient education, prescription counseling, and lifestyle education were conducted during every patient accepted medication review. Blood pressure and blood glucose screenings were also offered to every patient seen in the enhanced vaccination workflow. The Georgia Registry of Immunizations and Transactions (GRITS) was utilized for each patient to determine if there were any gaps in vaccination therapies. The patients' electronic profiles were used to refill prescriptions that were due to be filled, contact the physicians about any refills needed, and the patients were also offered enrollment in our medication synchronization program. The medication synchronization program at Richmond Hill Pharmacy is a service that is offered to patients that allows their medications to be filled at the same time each month or every 3 months and improves patient compliance.

Results

The study period took place from October 1st, 2018 until February 28th, 2019 with a total of 49 patients enrolled in the enhanced vaccination workflow. The age range of these patients was 53-91 with 38.8% being male and 61.2% being female. The new vaccination workflow added on average less than 5 additional minutes to the pharmacist's traditional workflow, while allowing the pharmacist to make many different types of interventions on the study population. The different types of interventions made during the study period were prescription counseling, lifestyle education, additional vaccinations

given, and medication synchronization. The most prevalent disease states noted during the study were hypertension, hypercholesterolemia, hypothyroidism, and type II diabetes mellitus. Vaccination rates compared to the same time period in the year prior increased by 110%. Interventions made by the pharmacist increased pharmacy vaccination revenue by 30.2%, leading to potential future cost avoidance. Pharmacist interventions in patient care decreased the number of trips to the pharmacy by up to 22 trips for patients. A total of 9 patients agreed to have their blood pressure checked, and the values for systolic blood pressure ranged from 90-138 mmHg and the diastolic blood pressure ranged from 60-76 mmHg. All patients were at their goal blood pressures for their associated disease states according to JNC 8.[6] One patient agreed to have their non-fasting blood sugar checked with the value being 104 mg/dL.[7] This value was at goal according to ADA recommendations for non-diabetic patients. The average number of medications per patient was 4 medications, with the fewest documented medications being 0 and the most documented medications being 9.





Discussion

The enhanced vaccination workflow was implemented for a total of 149 days. Within the study period, the pharmacists on staff were asked to perform medication reviews and conduct blood pressure and blood glucose screenings on willing patients. Community pharmacists' roles are shifting to perform more clinical duties such as comprehensive medication reviews (CMR's) that are typically assigned to pharmacies by insurance companies through platforms such as Mirixa and Outcomes MTM. The medication reviews conducted at Richmond Hill Pharmacy during the study period were separate from the CMR's that are assigned to pharmacies by insurance companies. The reviews conducted in this study were purely voluntary for any patient coming in to the pharmacy to receive any standard vaccination.

Two of the most common types of interventions made were prescription counseling and lifestyle education. These conversations with patients came very naturally and the patients felt more comfortable asking questions about their medications while they were sitting down waiting to receive a vaccination compared to at the check-out counter while they were trying to leave the pharmacy. The conversations held with the patients also helped the ease of administration of the vaccination as well, since the patient was inclined to ask questions about their medications or lifestyle choices while receiving the vaccination they presented for at the pharmacy. Some common examples of prescription counseling and lifestyle education for patients receiving vaccinations were the suggestion of the discontinuation of chronic proton pump inhibitor (PPI) therapy, exercise and diet education, and how to manage side effects that are associated with certain medications. Patients were also counseled on the importance of the correct administration of certain medications and the best ways to take them (i.e. with or without food, best time of day to take the medication, where to store medications, etc.). The conversations held with patients were very beneficial to both the pharmacist and the patient since free and flowing conversation allowed the pharmacist to step in and make interventions that he or she might have otherwise missed due to being behind the counter and not checking out the patient at the cashier station.

Medication reviews conducted by pharmacists during the study were beneficial to both Richmond Hill Pharmacy and the patients included in the enhanced vaccination workflow. The pharmacy's vaccination revenue increased by 30.2%, and streamlined efficiency in vaccination workflow. The pharmacy was more efficient when conducting medication reviews and making interventions at the forefront of conversations with patients and proved to decrease patient trips to the pharmacy by up to 22 trips. Adopting an appointment based model allowed the patients' trips to the pharmacy to decrease by offering additional vaccinations, synchronizing their medications to fill on the same day each month, and obtaining medication refills and new prescriptions from physician's offices.

During the course of the reviews, the patients were also analyzed through the platform GRITS to see if there were any gaps in vaccination therapies. Although the primary objective was not necessarily to increase vaccinations and vaccination revenue for the pharmacy, it is arguably the biggest impact that was made from the study. Most patients were unaware that they were missing recommended vaccinations such as Prevnar 13 and Pneumovax 23. By vaccinating patients with pneumococcal, shingles, and influenza vaccinations we increased both the pharmacy's vaccination revenue and also the potential cost avoidance by providing patients with preventative health benefits. Patient education was also conducted on vaccinations and the appropriate timeline to receive vaccinations.

Limitations to this study included a small percentage of the staff participating in the enhanced workflow, patient refusal for medication review, the patient population was relatively healthy, and other healthcare providers were not required to document vaccinations in the statewide database. Implementing any sort of different workflow is difficult in the world of pharmacy where many pharmacists are set in their individual workflows. The mindset of vaccinating patients quickly without conducting a medication review was pretty standard which contributed to missed opportunities for interventions. Some patients also refused to have the medication review conducted. These patients who refused to participate in the new workflow were under the misconception that it would add more time on to their visit at the pharmacy, and still refused the enhanced workflow when they were reassured that the visit at the pharmacy would not be lengthened but enhanced. The patient population was also relatively healthy compared to other patients who suffer from chronic disease states. This is most likely due to the fact that the patients were not asked to come in to receive a vaccination; they presented to the pharmacy out of their own volition and thus were advocates for their own preventative health. The last limitation noted in the study was that other healthcare providers are not required to document vaccinations given through the GRITS platform. Many patients were questioned about receiving an additional vaccination at their visit at the pharmacy and adamantly stated that they had received the vaccine in question at their physician's office. When the office was contacted it was confirmed that the patient had received the vaccine at the office without it being documented in GRITS. This led to increased time wasted and decreased efficiency for the pharmacist conducting medication reviews.

Conclusions:

The implementation of an enhanced vaccination workflow increased immunization rates and pharmacy revenue, while contributing to potential future, costly healthcare spending. The enhanced workflow positively impacted the efficiency of the patient visit and reduced the number of trips to the pharmacy required. Future research may investigate the impact of continued integration of the enhanced workflow

References

1 "What Can Pharmacists Do in General Practice? A Pilot Trial." *RACGP - Motivational Interviewing Techniques – Facilitating Behaviour Change in the General Practice Setting*, The Royal Australian College of General Practitioners, 2018, www.racgp.org.au/AJGP/2018/August/What-can-pharmacists-do-in-general-practice/.

2 J. Wuyts, et al. "Studying the Impact of a Medication Use Evaluation for Polymedicated Older Patients by the Community Pharmacist (SIMENON): Study Protocol." *BMC Health Services Research*, BioMed Central, 8 Aug. 2018, bmchealthservres.biomedcentral.com/articles/10.1186/s12913-018-3440-z.

3 "Influenza (Flu)." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 9 Dec. 2016, www.cdc.gov/flu/spotlights/flu-vaccine-protected-millions.htm.

4 Dempsey, Jillian, et al. "Evaluation of a Transitional Care Pharmacist Intervention in a High-Risk Cardiovascular Patient Population." *American Journal of Health-System Pharmacy*, American Society of Health-System Pharmacists, 1 Sept. 2018, www.ajhp.org/content/75/17_Supplement_3/S63.long.

5 Gauld, Natalie, and Tracey Sullivan. "Double-Dosing and Other Dangers with Non-Prescription Medicines: Pharmacists' Views and Experiences." *MDPI*, Multidisciplinary Digital Publishing Institute, 2 July 2018, www.mdpi.com/2226-4787/6/3/59/htm

6 Armstrong, Carrie. "JNC8 Guidelines for the Management of Hypertension in Adults." *American Family Physician*, 1 Oct. 2014, www.aafp.org/link_out?pmid=25369633.

7 "Practice Guidelines Resources." *Practice Guidelines Resources | American Diabetes Association*, professional.diabetes.org/content-page/practice-guidelines-resources.