IMPACT OF RN HYPERTENSION PROTOCOL

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Introduction: RN Hypertension Protocol was started at the Euclid Medical Office in August, 2011. It spread to La Palma Medical Office October 2012 and Santa Ana Medical Office June 2014. As of May 2015, over 4,237 patients have been approved by providers to be managed by the RN using the RN Hypertension Protocol standardized procedure.

Methodology: A standardized procedure, meeting the criteria set forth by the California Board of Registered Nursing, was developed and approved by appropriate medical staff committees, including Medical Executive Committee. Physician Hypertension Champions were selected from each Primary Care medical office in Orange County. The Department Administrators and Physician Champions selected RNs to train in the Standardized Procedure for RN Hypertension Protocol. Orange County Hypertension Champions, Dr. Joel Handler and Dr. Alec Does, certified Hypertension Specialists provided a 3.5 hour didactic presentation as the initial step in the training and competency validation. Medical Office Physician Champions and RNs attended the training together. After didactic training, the Physician Champion and RN met to review protocol in depth and develop a work flow for their medical office. The Physician Champion provided a presentation to Primary Care Physicians in their medical office about the program, entrance and exclusion criteria, how to engage members and how to order and refer patients to the program. The most successful practice was to run lists of patients who met criteria for protocol management and have RN pend order for physician to sign off. The Physician Champion and RN identified at least six cases for initial management and mentoring. These cases were discussed prior to the patients visit, discussed after the RN assessment and plan was developed and reviewed for adherence to the protocol after the visit. After the RN successfully completed six cases, they were deemed to be able to practice independently based on the protocol. Annual competency validation would occur by having the Physician Champion review six cases managed by the RN during the year using the protocol.

Results: Trend of hypertension control showed that after implementation of protocol the three medical offices that had had the lowest hypertension control rate, improve to at or above a similar sized medical office after implementing the protocol. Video ethnography showed that physicians felt the RNs using protocol helped access to their practice and helped engage members more fully in the management of their hypertension. RNs felt they have more of a connection with members and could help members be healthier and prevent complications. Patients felt that someone cared for them, spent time and really helped them to understand and problem solve in order for them to self-manage.

Conclusion: Use of the standardized procedure for RNs adjusting medication for uncontrolled hypertension allows for improved hypertension control, more detailed education and understanding towards self-management and patient satisfaction.
NUMBER OF ENCOUNTERS REQUIRED TO ACHIEVE BLOOD PRESSURE CONTROL IN HYPERTENSIVE PATIENTS: A RETROSPECTIVE STUDY

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There currently is no definitive answer to how many patient encounters are required to control BP. The main objective of this study is to describe and characterize the number of patient encounters required by the healthcare system to achieve BP control in newly diagnosed hypertensive patients in the outpatient setting. Additionally, we will examine the association between patient baseline characteristics and the source and type of encounter with the number of encounters required to control BP. Lastly, we will examine whether initial combination versus monotherapy reduces the number of encounters required to control BP. We will conduct a cross-sectional, retrospective, cohort study that will utilize the Kaiser Permanente Southern California electronic health record to identify all newly diagnosed hypertensive patients. These patients will be identified through diagnosis of hypertension with at least one antihypertensive medication dispensed within one year of that diagnosis. The number of encounters will be recorded from the date the patient is first diagnosed with hypertension to the first subsequent date when BP goal has been achieved using JNC-7 or JNC-8 hypertension guideline targets. This will be known as the “hypertensive period”. The number of encounters is defined as the number of office visits or virtual encounters in the period of time from diagnosis to BP control. We will record every encounter that had a “reason for visit” code related to hypertension or BP check. Then we will record the type of provider such as primary care provider, pharmacist, nurse, nurse practitioner, physician’s assistant or medical assistant who made the encounter, various patient baseline characteristics and whether the patients started monotherapy or combination therapy to examine if these factors are associated with number of encounters to control.
ADVERSE CARDIAC EVENTS ASSOCIATED WITH PATIENTS RECEIVING TRIMETHOPRIM-SULFAMETHOXAZOLE AND RENIN-ANGIOTENSIN-ALDOSTERONE-SYSTEM INHIBITORS

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Objective: To determine whether the prescription of trimethoprim-sulfamethoxazole with a Renin-Angiotensin-Aldosterone-System inhibitor is associated with an increased risk of SCD compared to other commonly used antibiotics for UTI and SSTI. Secondary objective: To determine what is the increased risk of hospitalization secondary to hyperkalemia amongst this population.

Methods: The Kaiser Permanente Southern California electronic medical record will identify patients who were diagnosed with hypertension between 2007-2014, taking a renin-angiotensin-aldosterone-system inhibitor, and subsequently prescribed trimethoprim-sulfamethoxazole or another common antibiotic for the indication of urinary tract infection or skin-and-soft-tissue infection. Patients will be followed for 14 days following the antibiotic dispense date for incidence of hyperkalemia-related hospitalization or sudden cardiac death. The following data will also be collected: patient demographics, antibiotic status, presence of and earliest diagnosis date of comorbidities, serum potassium levels, and other potential confounders such as concomitant medications, body mass index, systolic blood pressure, diastolic blood pressure, smoking status, and Charlson’s comorbidity index. Analysis will be conducted with a propensity-score adjusted Cox proportional hazards model for the effect of trimethoprim-sulfamethoxazole use on risk of sudden cardiac death or hospitalizations secondary to hyperkalemia. Findings will be reported as a relative risk with hazard ratios and 95% confidence intervals for the outcome due to treatment.
EVALUATION OF THE IMPACT OF A PHARMACIST-LED, TEAM BASED HYPERTENSION GROUP VISIT IN A PRIMARY CARE, PATIENT-CENTERED MEDICAL HOME MODEL

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Purpose: Early detection and treatment of hypertension can result in a reduced risk of heart disease and stroke contributing to a reduction in mortality. Pharmacist-led hypertension management has resulted in greater likelihood of achieving blood pressure control. The hypertension group visit model integrates the use of a primary care, patient-centered medical home pharmacist as part of the multidisciplinary team. The aim of this study is to evaluate the impact of a pharmacist-led, team based, hypertension group visit versus usual medical care on 1) blood pressure control, 2) time to blood pressure control, 3) patient satisfaction regarding group visit services, and 4) perform an economic analysis of the services.

Methodology: An observational, retrospective medical record review of the hypertension group visit versus usual medical care was conducted. Inclusion criteria included adult patients managed by Kaiser Permanente Riverside Family Medicine or Internal Medicine physicians, patients with essential hypertension which was currently uncontrolled, and patients taking three or less hypertensive prescriptions. Exclusion criteria included patients who did not attend follow-up visits. The study group consisted of patients who attended the hypertension group visit and had an intervention by the pharmacist, and the control group included patients who were managed under usual medical care, defined as a physician visit with nurse follow-up. The time frame of this study was between April 1, 2014 and November 31, 2014.

Results: This study analyzed thirteen group visits. Total sample size for the control group was 75 and for the study group was 81. The primary and secondary outcomes trended in a direction of similarity between the two visits, with 68% controlled in the control group and 63% controlled in the study group at follow-up, and an average of 35 days to reach control in the control group, and 46 days in the study group. Overall, 49% of patients stated they would return to this type of group setting for future blood pressure management and 81% of patients were satisfied or very satisfied with the services they received. An economic analysis of the services concluded that the financial benefit of the group visit is maximized as the attendance rate increases. Conclusion: The group visit may be able to provide similar control rates and time to control in comparison to usual medical care with a physician visit and nurse follow-up. The team based care approach allows for care to be patient centric, efficient, and patients feel very satisfied with the services they are provided. The model has the opportunity to continue expanding and with further refinement has the ability to continue improving patient care.
EFFICACY OF SPIRONOLACTONE TITRATION IN ACHIEVING BLOOD PRESSURE CONTROL IN AFRICAN AMERICANS WITH RESISTANT HYPERTENSION

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Introduction: In the United States, the prevalence of hypertension and its associated morbidity and mortality is especially high in African Americans (AA). At Kaiser Permanente Southern California, data from 2011 showed that there was a 5.3% disparity between rates of blood pressure control for AA vs. whites. Targeting this gap is particularly important because AA constitute a high risk group associated with 3 to 6 times greater risk of fatal stroke, 1.5 times greater risk of fatal heart disease, and 5 times greater risk of end-stage renal disease than their non-AA counterparts with hypertension. In several studies, spironolactone has demonstrated significant additive blood pressure reduction in AA with resistant hypertension (defined as uncontrolled blood pressure in patients on at least 3 antihypertensive medications). However, a Kaiser regional analysis of drug therapy for this population showed that although almost 60% were on three or more antihypertensives, only 3 % were prescribed spironolactone.

Methodology: The objective of this study was to evaluate the efficacy of pharmacist-based spironolactone titration on improving blood pressure control rates in AA with resistant hypertension. Using an electronic medical record system, AA patients with resistant hypertension were identified and chart reviews were conducted to identify appropriate candidates for pharmacist-based spironolactone titration under existing Kaiser Permanente protocol. Pharmacists followed patients both in Hypertension clinic and by telephone to monitor blood pressure progress and to order appropriate follow-up labs including electrolyte levels and serum creatinine. This pilot study consisted of retrospective data analysis comparing the percentage of AA patients with controlled blood pressure pre and post implementation of spironolactone titration and pharmacist intervention.

Results/Conclusion: The primary outcome of interest was the change in the percentage of targeted patients who achieved controlled blood pressure (< 140/90 mmHg) after spironolactone titration. Secondary outcomes included the change in the rate of blood pressure control for this population after any type of pharmacist intervention including adherence counseling, diet and exercise counseling, or non-spironolactone medication adjustments. Preliminary results will be discussed.
EFFICACY OF SPIRONOLACTONE TITRATION IN ACHIEVING BLOOD PRESSURE CONTROL IN AFRICAN AMERICANS WITH RESISTANT HYPERTENSION: AN EPILOGUE

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Introduction: The prevalence of hypertension and its associated morbidity and mortality is especially high in African Americans (AA). The rate of hypertension prevalence is 44.4% for AA vs. 32.6% in whites, while AA are simultaneously also 27% less likely to have controlled blood pressure. KP SCAL data from 2011 showed that there was a 5.3% disparity between rates of BP control for AA vs. whites. Targeting this gap is particularly important because AA constitute a high risk group associated with 1.3-1.8 times greater risk of fatal or nonfatal stroke, 1.5 times greater risk of fatal heart disease, and 4.2 times greater risk of end-stage renal disease than their non-African American counterparts with hypertension. In several studies, spironolactone has demonstrated significant additive blood pressure reduction in AA with resistant hypertension (defined as uncontrolled blood pressure in patients on at least 3 antihypertensive medications). However, a Kaiser regional analysis of drug therapy for this population showed that although almost 60% were on three or more drugs, only 3% were prescribed spironolactone.

Objectives: To report the present blood pressure control rates of patients within the original study population in the post-study period. To survey the treatment disposition of the original study population in the post-study period.

Methods: Chart review was conducted for the original intervention population to ascertain current blood pressure control status, according to JNC 8, based on the most recent blood pressure measurements. For all patients in the original study population current blood pressure measurements were collected. Additionally, for patients whose spironolactone dose was titrated as part of the original intervention, current spironolactone dose, and last recorded date of spironolactone dose titration were also collected.

Results: To be presented.

Conclusions: Spironolactone titration effectively improves blood pressure control in AA with resistant hypertension. In this sample, achieved blood pressure control following a pharmacist intervention of spironolactone titration was maintained in a significant portion of the study cohort. At the same time, achieved blood pressure control in patients who received any pharmacist intervention (spironolactone titration, other titration, adherence counselling) also seemed to endure in the post study period for a significant portion of the study cohort. Pharmacists can play an integral role in the interdisciplinary healthcare team for the management of hypertension by addressing issues of medication adherence, advocating therapeutic lifestyle changes, initiating medication adjustments when necessary, and performing the necessary follow-up.