2014 Gage Awards

Reference #	7492324
Status	Complete
Name of hospital or health system	John Peter Smith Health Network
Name of project	Impact of a Clinical Pharmacist within an Anticoagulation and Heart Failure Clinic
CEO name	Robert Earley
CEO approval	Check here to confirm that your CEO approves of this project being submitted for a 2014 Gage Award
Submitter name (first and last)	Nicole McNulty
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Within which of the two categories does your application best align?	Population Health

1. Provide a brief description of the project. (This section should resemble an abstract for a poster presentation or an abstract for a peer reviewed journal. Include an objective, data sources, study design, findings, and conclusions.)	Background: The safety and efficacy of warfarin therapy is measured by attainment of therapeutic International Normalized Ratio (INR). Pharmacist-managed anticoagulation clinics have been described for more than thirty years and there is growing evidence to support that better outcomes are achieved by such clinics. Successful implementation and improved outcomes associated with pharmacist-led anticoagulation clinics have led to implementation of other disease state management clinics such as heart failure. Despite current guidelines and numerous pharmacologic interventions, heart failure hospitalizations are among the most common indication for persons over the age of 65. National quality measures and regulations outlined by The Joint Commission and Centers for Medicare & Medicaid (CMS) aim to reduce adverse effects and improve safety of oral anticoagulant therapy and reduce preventable 30-day hospital readmissions for disease states like heart failure. Benefits resulting from collaborative practices between pharmacists and physicians have been noted in disease areas such as anticoagulation, heart failure, diabetes, and hypertension as pharmacist managed ambulatory clinics become increasingly accepted throughout the United States. The involvement of pharmacists in direct patient care has been shown to decrease drug-related morbidity and mortality, decrease healthcare associated costs, and improve patient care. Objective: To evaluate six-month clinical outcomes following the design and implementation of a pharmacist-led anticoagulation and heart failure clinic at John Peter Smith Health Network (JPS). Data Sources: Patient electronic medical records were reviewed through Epic. One hundred fifty-three unique medical record numbers were identified as having received anticoagulation or heart failure follow-up from the clinical pharmacist between January 1, 2013 through June 30, 2013. Microsoft Excel (ver. 2011) was used for data analysis. Study Design: A retrospective, observational chart review was performed for patients identified as having a clinical pharmacist visit for anticoagulation or heart failure management from January 1, 2013 through June 30, 2013. Patients greater than eighteen years of age with two or more INRs not more than six weeks apart were enrolled and INRs collected at each patient visit. Patients who suffered from left ventricular systolic dysfunction were enrolled and monitored for readmission to JPS Health Network. Results: Sixty-three patients received anticoagulation management and TTR was achieved 69.1% of the time for INR goal range of 2 to 3 and 71.5% of the time for INR goal range of 2.5 to 3.5. Eighty-three heart failure patients were followed over the six-month review and 10.8% experienced an all-cause readmission at

	30 days, however only 4% of patients experienced a heart failure related readmission within 30 days post hospital discharge. Conclusions: Reported TTR is comparable in efficacy to other pharmacist-led anticoagulation clinics (TTR: 40-73%). All-cause readmission at 30-days in patients with heart failure was significantly lower than the current national average of 24.6%.
1A. Attachment, if applicable (Applicable examples include a peer reviewed journal article, other content published in the literature, or a presentation at a national meeting)	JPSPoster_ClinicOutcomes_2013.ppt (526k)

2. Describe the methods use in this project. Include where, why, and how the project was accomplished.	This is a retrospective, observational chart review conducted at John Peter Smith Health Network in Fort Worth, Texas. Patient outcomes, percent time in therapeutic range (TTR), percentage of INRs in range, and all-cause readmission at 30-, 60-, and 90-days were evaluated. The patient-time spent within goal INR range was calculated using the Rosendaal Method, which assumes that changes between consecutive INR measurements are linear over time. Patients who had an appointment with the clinical pharmacist at the JPS Cardiology clinic from January 1, 2013 through June 30, 2013 and were eighteen years of age or older were enrolled. Patients receiving care for anticoagulation management were included if they had greater than two INRs, however INR values post hospital discharge and within the first thirty days of warfarin initiation were excluded as well as INRs that were greater than six weeks apart. Patients enrolled into the heart failure arm of this review had to have left ventricular systolic dysfunction documented with an echocardiogram. In October 2012, a residency trained ambulatory care clinical pharmacist drafted a collaborative practice agreement with JPS cardiologists outlining medication therapy management to be performed for anticoagulation services and heart failure follow-up. The clinical pharmacist orders laboratory and other screening tests, coordinates referrals to other healthcare providers, and adjusts pharmacologic therapy independently of cardiology clinic providers by practicing under collaborative practice agreements with supervising physicians. Patients must first be seen by a cardiologist before being referred to the pharmacist-run anticoagulation and heart failure management clinics. Initial anticoagulation patient visits include a comprehensive and detailed education concerning indication for anticoagulation, goal INR, drug-drug and drug-food interactions, adverse effects, need for appropriate follow-up, medication reconciliation, and ER precautions. Patients are seen every 1 to 2 weeks until INRs stabilize after which they are seen every 4 to 6 weeks. The pharmacist assesses for signs and symptoms of bleeding and thrombosis at each visit as well as medication and food interactions. INRs are obtained via point of care machine with the Coaguchek® system, and the pharmacist adjusts warfarin therapy based on patient specific factors and an institution approved algorithm in accordance with current American College of Chest Physicians (ACCP) Antithrombotic Guidelines. During heart failure visits, volume status is assessed as well as heart failure symptom presentation. Point of care BMP may be obtained within the clinic to help assist medical management decisions. Medications are adjusted under a collaborative practice agreement with a supervising physician and in accordance with current heart failure guideline recommendations.

3. Describe the results of the project. What data was used to support improvement results?	Sixty-three unique patients were identified as having at least two clinic visits with the clinical pharmacist for anticoagulation management. Forty-one percent were male with an average age of 58.3 years. Fifty-two percent were Caucasian, twenty-five percent African American, and nineteen percent Hispanic. The most common indication for anticoagulation with warfarin was atrial fibrillation followed by mechanical valve replacement. Sixty-four percent of patients had a CHADS2 score of 2 or higher and ninety percent of patients had a CHADS2-VASc score of 2 or higher. For patients with an INR goal of 2 to 3 based on CHEST Guidelines criteria, percentage time in therapeutic range (TTR) was achieved 69.1% and percentage of INRs in range was 60.7%. Within this same category, 7.9% of patients experienced an INR less than 1.5 indicating increased risk of thrombosis, and only 1.7% of patients experienced an INR greater than five indicating increased risk for bleeding. Percentage TTR for patients with a goal INR of 2.5 to 3.5 was 71.5% with 56.5% achieving percentage of INRs in range. Of these patients, 1.9% had an INR less than 1.5 and none suffered from an INR greater than five. Reported TTR and percentage of INRs in range are comparable in efficacy to other pharmacist-led anticoagulation clinics (TTR: 40-73%, percentage INRs in range: 32-76%)8. Eighty-three unique patients were identified as having at least one clinic visit with the clinical pharmacist for heart failure follow-up. Fifty-four percent were male with an average age of 56.1 years. Forty percent were Caucasian, forty-one percent were African American, and twelve percent were Hispanic. All-cause readmission at 30-days occurred in 10.8% of patients, however only 4% of patients experienced readmission for decompensated heart failure within 30 days which is significantly lower than the current national average of 24.6%9. The most common non-heart failure related reasons for hospital admission were diabetes related complications and pneumonia. Medical management in the ambulatory care setting is affected by numerous factors that have been noted to influence patient outcomes including percent time in therapeutic range and readmissions. These include transportation, office visit co-pay, cost of medications, low healthcare literacy, language, and alcohol and tobacco abuse. Several limitations of this retrospective, chart review may influence current results and include: small sample size, shortened time period of chart review, initiation and establishment of clinical services, and intervention by multiple providers in the care of heart failure patients.
3A. Attachment, if applicable (Only graphically displayed data such as charts will be accepted. Data should include baseline and improvement data)	Results_McNulty2013.docx (274k)

4. Describe what happened as a result of the project. Was the improvement related to the intervention? Can the project be duplicated by other organizations?	With favorable outcomes from this short review, a collaborative practice clinic using physicians and pharmacists may be an effective model for other chronic disease state management clinics such as diabetes and hypertension at JPS Health Network. Currently, negotiations are underway to establish pharmacist-led pharmacotherapy services within the family medicine clinic, a clinic used to educate family medicine residents at JPS. A second residency trained ambulatory care pharmacist has been hired at JPS Health Network allowing for the full-time operation of the anticoagulation and heart failure clinic within the cardiology offices of JPS Hospital. Clinic protocols have also been expanded to include the management of hypertension and hyperlipidemia for any patient receiving care through a JPS Health Network Cardiologist. As the role of the clinical pharmacist continues to expand, other institutions may consider implementing disease state management services offered by a clinical pharmacist. In 2003, the American College of Clinical Pharmacists published an article in Pharmacotherapy detailing overwhelming support for the economic value of clinical pharmacy services. It has been well documented, that patients managed under a clinical pharmacist achieve improved clinical outcomes based on disease state specific guidelines when compared to other healthcare providers.
5. Describe how patients, families, and if appropriate, community was included in the work.	John Peter Smith Health Network is a 547-bed county hospital located in Fort Worth, Texas providing patient-centered care to the indigent and unfunded population of Tarrant County. The pharmacist-run anticoagulation and heart failure follow-up clinic was established in an effort to provided multiple services in one location for patients who find it difficult to acquire and afford transportation to and from clinic visits and who often have difficulty paying for numerous clinic visits. The clinical pharmacist strives to uphold clinical practice guideline recommendations, prevent adverse effects, and reduce morbidity and mortality in patients at high risk for adverse clinical outcomes.
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