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## Implementation of Supplemental Oral Anticoagulant Education to Promote Medication Adherence

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## **Executive Summary**

### **Introduction of the Problem**

Poor adherence to medication protocols can increase the risk of adverse events for those patients suffering from chronic conditions. These patients may require many different medications to adequately manage their disease process, including high-risk medications such as oral anticoagulants. These oral anticoagulants are divided between two classes, Vitamin K Antagonists (VKA) such as warfarin and Non-Vitamin K Agonists (NOACs) such as dabigatran, rivaroxaban, edoxaban, and apixaban. Providers at a metropolitan cardiac electrophysiology office are faced with the challenge of identifying how to increase medication adherence and patient compliance to reduce the incidence of adverse events, additional procedures, and increased cost for patients associated with either Vitamin K Antagonists (VKA) or Non-Vitamin K Agonists (NOACs).

### **Literature Review**

When exploring the literature regarding this issue, the common theme of increasing educational efforts was noted. Supplemental patient education is a common intervention for improving patient knowledge, understanding, and outcomes (Wong, Schulman, Woodworth, & Holbrook, 2012). Providing supplemental educational intervention in addition to the current standard of practice can potentially improve both patient adherence and outcomes. When a patients' knowledge of their disease and medications is limited, their ability to manage their disease and their perception of medication adherence is impacted (Clarkesmith, Pattison, Khaing, & Lane, 2017). Patient education should involve less face to face and verbal instruction and focus on creation and refinement of clear, easy to understand instructions that patients can use as

a reference at home (Conn et al.,2009). The United States Joint Commission National Patient Safety Goals of 2012 suggested that best practice requires increased education through measures such as instructional booklets, videos, and brochures that provide more content and detail than information typically provided by the patient's healthcare provider (Wong, Schulman, Woodworth, & Holbrook, 2012). These cognitive educational interventions are designed to educate and empower patients based on the concept that if the patient is better able to understand their condition and rationales for treatment, they will be more likely to adhere to their medications, reducing the risk of adverse events (Demonceau et al., 2013).

The importance of providing adequate education from provider to patient regarding these medications is imperative to promote medication adherence to reduce the risk of adverse events. Patient counseling and education affords the patient the opportunity to be empowered in their care, being provided with the knowledge to recognize and prevent medications errors (Andreica & Grissinger, 2015). Quality of education remains optimal when healthcare providers have received adequate education themselves, leading to improved patient knowledge, perceived quality of care, positive patient outcomes, and reduced hospital admissions (Heidbuchel et al., 2015). Factors that influence medication non-adherence include forgetfulness, depression, cognitive limitations, illiteracy, inability to understand the rationale for treatment, a lack of trust between patient and provider, and a lack of knowledge regarding potential positive and negative outcomes of treatment with medications (Hugtenburg, Timmers, Elders, Vervloet, & van Dijk, 2013) Providers are challenged with identifying the reasons behind each patient's non-adherence and must formulate strategies through education, availability of resources, and provider to patient communication to promote adherence. Without the initial education and communication, further discovery is limited.

## **Project Methods**

The purpose of this project was to address patient medication adherence by increasing the level of educational resources and related communication between patients and providers. The supplemental education regarding oral anticoagulants created for this project was comprised of a sheet of medication specific information, with a focus on provider specific recommendations. These educational forms were provided according to which oral anticoagulant the patient is prescribed, either Vitamin K Antagonists (VKA) such as Coumadin (warfarin) or Non-Vitamin K Agonists (NOACs) such as Pradaxa (dabigatran), Xarelto (rivaroxaban), or Eliquis (apixaban). Patients eligible for this education included all established patients currently prescribed oral anticoagulants, with an emphasis on those individuals who are initiating long-term oral anticoagulant therapy at a Cardiac Electrophysiology office in South County St. Louis, Missouri.

This intervention aimed to supplement current educational practices regarding oral anticoagulant therapy through increased patient education and availability of resources. previously involved a one-time face to face educational session that was performed by either physicians or nurse practitioners that did not include any additional resources for the patients. The medication specific informational sheets provided to patients included an overview of pertinent medication information including: prescription rationales, directions for use and dosing, common side effects, potential adverse effects and when to seek emergency care, dietary restrictions, lifestyle modifications, and laboratory monitoring as needed.

## **Evaluation**

My Doctor of Nursing Practice project was focused on improving oral anticoagulant education to promote medication adherence at a metropolitan Cardiac Electrophysiology office in St. Louis, Missouri. After reviewing educational practices that were conducted at the office,

supplemental education sheets were created, highlighting pertinent information for each medication for those patients prescribed Vitamin K Antagonists (VKA) or Non-Vitamin K Agonists (NOACs) for thromboembolism prevention. The population focused on patients who are newly prescribed oral anticoagulants and those with previously identified poor medication adherence. Educational sessions with the physicians, nurse practitioners, nurses, and medical assistants regarding the intervention were conducted on June 3 and June 10, 2019, informing the staff of the rationale of this project, its intended outcomes, and introduction of the material for staff to review and provide feedback. Implementation of the supplemental education for oral anticoagulants was initiated on July 1, 2019 and is currently still being utilized in practice past the end of the implementation period for this project through the end of September 2019.

Feedback provided by the physicians, nurse practitioners, and nurses through formal meetings recommended the addition of medication specific considerations along with minor editing of grammar and verbiage used. Examples of amendments made included ensuring that patients were educated to inform their healthcare providers prior to any new medications, “You must inform your healthcare provider of any new medications” and “Taking Coumadin with certain medications may cause harmful effects”. Another amendment focused on diet considerations when taking prescribed NOACs, “should be taken with food to reduce the risk of diarrhea, abdominal pain, or indigestion” and “While you do not have to avoid certain foods while on this medication, it is best to eat a well-balanced diet”. The final amendment made to the oral anticoagulant education included a review of the adjectives used to described severity of symptoms and when it would be appropriate to contact a healthcare provider or present to the emergency department. The physicians and nurse practitioners recommended to clearly state

that symptoms from headaches, bleeding, or pain must be “severe” and unusual to the patient, to avoid unnecessary communication and use of emergency services.

Throughout the implementation process, it was identified that making significant changes in the way that the office had conducted their educational practices was going to be a challenging obstacle to overcome. A major barrier to implementation of this project included provider willingness to utilize the supplemental education for their patients. While many of the providers and office staff reported that they provided the supplemental education to each patient that met criteria, others admitted that at times they had forgotten that the materials were available or simply chose not to use the materials. Another barrier to the implementation of the project was that current guidelines utilized by the physicians and nurse practitioners dictates that all patients must be anticoagulated for at least 3 weeks prior to a cardioversion without the use of transesophageal echocardiogram to rule out existing thrombus. This pertained almost exclusively to patients who were admitted to the hospital as an inpatient and were prescribed oral anticoagulants and required a synchronized cardioversion, the most common procedure during the study. This resulted in add-on transesophageal echocardiograms for the inpatient population in both the pre-implementation and post-implementation data. This was significant as this population did not have the opportunity to receive the proper education regarding their oral anticoagulants that other patients received at their outpatient appointments and underwent additional procedures. The implementation phase of this project challenged me to evaluate and adapt the supplemental education to fit the needs of the office and specific patient population that requires the use of oral anticoagulants, it was rewarding to receive positive feedback and constructive criticism from physicians, nurse practitioners, nurses, and office staff alike.

### **Impact on Practice**

During the post implementation phase, the number of patients who were subject to cancellations or add on procedures due to incorrect dosing or sub-therapeutic drug levels was evaluated. Of the 255 patients who were provided supplemental education during the implementation period, 68.6% (n=175) were prescribed Eliquis, 27.1% (n=69) were prescribed Xarelto, and 4.3% (n=11) were prescribed Coumadin. During the implementation period, the number of cases that were added onto the procedure schedule (N= 14) or cancelled (N=9) due to inadequate or questionable anticoagulation status were monitored. When compared to the number of add-on cases (N=17) and cancellations (N= 11) during the pre-implementation period, the results of the intervention revealed less cancellations and add-on procedures during the project implementation period. This might suggest that the additional education strategies were having a positive effect.

Predicted long-term impact of this project includes enhanced patient education, increased availability of resources, better medication adherence for those newly prescribed oral anticoagulants, and decreased costs from cancelled or additional procedures. Further efforts must be made to show the long-term effects of supplemental education for this patient population. Creation of supplemental education for commonly prescribed, yet high risk medications could be readily applicable and easily amendable for specific populations for specialty offices, primary care offices, and urgent care facilities.

## **Conclusions**

While the use of supplemental education sheets for patients prescribed oral anticoagulants did not show significant change when compared to pre intervention data, the utilization of the educational materials by providers and the rest of the office staff assisted in establishing new office educational protocols to alter the culture of the office. Recommendations

for future efforts include more detailed data collection to better analyze the statistical significance of the intervention along with expansion of the educational sheets to include other commonly prescribed medications for chronic conditions.

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