

Anticipated Impact on Veterans Health Care: An estimated 2.7 million individuals in the United States were diagnosed with atrial fibrillation (AF) in 2010. These individuals are estimated to have a five-fold increased risk of ischemic stroke. The emergence of novel anticoagulants (NoAC) has provided clinicians with alternatives for anticoagulation therapy. After demonstrating the feasibility of the proposed methods in this pilot study, we propose to conduct a future cost-effectiveness study comparing warfarin to the NoAC, dabigatran. Results will increase access to the most effective treatments for veterans and help VA policymakers develop evidence-based guidelines for AF treatment.

Project Background: A key component of AF treatment is the prevention of blood clots to reduce the risk of stroke. Vitamin K antagonists (e.g. warfarin) have successfully reduced the risk of stroke but the effectiveness of these methods are hampered by narrow therapeutic ranges and the need for monthly laboratory monitoring for dose adjustment to prevent over-anticoagulation and subsequent hemorrhage. Since 2010, two new classes of oral NoACs thrombin inhibitors (e.g. dabigatran) and Xa inhibitors entered the market. An advantage of these drugs is that they do not require regular laboratory monitoring for dose adjustment. Clinical trials provide good evidence that the NoACs are either superior or not inferior to warfarin on a variety of outcomes. A disadvantage of NoACs is cost but initial cost-effectiveness studies based on clinical trial results have concluded the NoACs may be cost-effective. It is unknown whether the health and cost advantages of NoACs found in clinical trials will be maintained in standard clinical practice since these trials enroll healthier patients and maintain better adherence. Our future proposal will be a cost-effectiveness study of warfarin and dabigatran in veterans diagnosed with AF.

Project Objectives: Dabigatran was approved in the VA starting in FY2012. Two objectives will determine the feasibility of conducting the larger cost-effectiveness study.

Objective 1: Examine trends in dabigatran prescriptions. In one test year of data, identify a cohort of VA patients diagnosed with non-valvular AF and prescribed warfarin or dabigatran. Determine number of years of data needed to achieve adequate expected statistical power in future proposal.

Objective 2: In one test year of data, demonstrate geographic practice pattern variation in likelihood of receiving dabigatran as a function of medical center effects and distance to the nearest medical center. Control for known factors affecting choice of anticoagulation therapy including comorbidity burden and quality of facility anti-coagulation clinic (ACC).

Project Methods: The proposed pilot is a retrospective observational study of secondary data from patient-level administrative and claims data from VA and Medicare. VA pharmacy data will be used to count how many patients are prescribed warfarin or dabigatran in FY 2012. We will estimate sample sizes for the future study based on this cohort and calculate expected statistical power based on observed stroke, hemorrhage and mortality rates. For objective 2, we will estimate a logistic regression model of the probability of receiving dabigatran as a function of individual (e.g. CHADS<sub>2</sub> score) and facility-level predictors. We will predict one linear probability model to calculate the percentage of variance attributable to facility effects without facility-level ACC quality. A second linear probability model will include both facility fixed effects and ACC quality to estimate how much of the geographic variation is attributed to facility-level quality.