OBJECTIVE: To quantify the rate and risk of bleeding events inpatients with CHF who are concurrent users of carvedilol and warfarin. Specifically, we will learn:

1. Incidence rates of bleeding events overall and stratified by type of bleeding event and severity of underlying CHF in users of warfarin and carvedilol.
2. Incidence rates of bleeding events by selected factors of interest such as race and comorbidity.
3. Relative risk of bleeding events in carvedilol/warfarin users compared with patients taking warfarin only.

Research Design: A retrospective cohort study was performed to quantify the rate of bleeding events in patients with CHF who are co-users of carvedilol and warfarin.

METHODOLOGY: The study was conducted using national VA databases from which we obtained information on inpatient and outpatient diagnoses, procedures delivered, and admission and discharge dates. The Pharmacy Benefits Management database provided automated data on prescription use within the VA. This includes the list of all medications dispensed, dosage, and dates of refills. Information on mortality was obtained from the Beneficiary Identification and Record Locator Subsystem (BIRLS). Additional information was obtained from approximately 8 VA sites identified on the basis of having large numbers of CHF patients on the combination of carvedilol and warfarin. Information obtained from these sites included items from the vitals sign package, results of laboratory testing, including the prothrombin time, electrolytes, and blood counts.

The outcomes of interest will include bleeding events as defined by bleeding times and clinical bleeding events. Bleeding times and intensity of anticoagulation were determined by prothrombin times and INR values obtained from the laboratory data. Bleeding events were determined using ICU-9 codes, categorized and stratified as minor, major, and life-threatening events. Clinical bleeding events were further characterized by anatomic site (e.g. cerebrovascular versus gastrointestinal). Analyses will quantify the absolute rates of bleeding events and the risk of these events in patients who are concurrent users of carvedilol and warfarin compared with a relevant comparison group. We will further conduct multivariate analyses controlling for potential confounding factors on a subset 1,000 patients in each group.

RESULTS: Initial analysis has begun and bleeding events have been categorized and stratified as minor, major or life threatening. Initial data shows that patients on warfarin and carvedilol may be at lower risk for bleeding events. Results were similar when hemorrhagic events were examined by site such as upper and lower gastrointestinal bleeds. Older age, alcohol or NSAID use, and several comorbidities were also independent predictors of bleeding. Conclusion: CHF patients on warfarin may be at a lower risk for hemorrhagic events when treated with carvedilol compared to other beta-blockers or no beta-blocker.