Title: Does Frequency of Physician Visits Predict Cardiovascular Events in a Susceptible Subset of the ARIC Cohort?
Abbreviated Title: Does Frequency of Care Predict Outcomes?


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Timeline: Data Analysis will begin as soon as all data from visit 3 is available. Begin paper within 3 months after data available. Submit draft to publications committee within 6 months after data is available.

Rational:
It has long been recognized that socioeconomic status (SES) affects many aspects of a person's health. A number of conditions or factors associated with SES have been determined to affect health status in other studies. An unpublished nationwide Veterans Administration study suggested that the mix of medical care provided may affect survival, with VISNs (large areas of VA medical care) providing more outpatient care having better survival (1). However, the VA study was unable to control for many SES factors and many clinical factors. We would like to investigate whether there is an association between frequency of outpatient care and negative health outcomes in the ARIC population in which extensive SES and clinical information is available. We hypothesize that infrequency of health care in some populations with significant health problems such as diabetes, hypertension, and significant atherosclerosis may be a factor that contributes to significant medical outcomes such as myocardial infarction, stroke, and death. In participants who report being unable to see a physician when they feel they should, we would like to investigate the reason. We would also like to see if change in frequency of physician visits is associated with a change in blood pressure which is known to contribute significantly to poor health outcomes.

Main Study Questions:
1. Does the reported time since last physician visit or reported frequency of routine physical exams vary from visit 1 to visit 2 or 3? [ARIC clinic visits and referrals may affect the length of times between physician visits due to referrals, but may not effect frequency of routine physical exams.] Does a change in reported frequency of routine physical exams or time since last saw a physician from visits 1 to visit 2 ARIC visit 2 to visit 3 correlate with the change in blood pressure from the same intervals?

2. We will define a susceptible subset of the ARIC cohort as those who, at visit1, were on anti-hypertensive medication, had SBP >= 140 or DBP >= 90, had a fasting glucose > 130, were on insulin or other medication for control of blood glucose) reported angina, had evidence of a previous ~11 on ECG or by history, or reported a prior stroke. In this subset of participants at risk for cardiovascular events, are those with infrequent care more likely to suffer significant events (acute MI, stroke, or death) than those with more frequent care? Does this question vary with income, education, gender, race, or insurance status. (Intuitively you would expect persons with more severe illness to be seen more frequently and therefore frequency of care should be positively correlated with significant events. However, if a person with significant risk factors can not afford medical care, he may be at increased risk for a poor health outcome.) Do the above correlations remain after controlling for other risk factors of cholesterol, smoking, physical activity, BMI, and
age? We will exclude patients with a diagnosis of cancer. We will control for variation in time at risk for events among participants.

3. Among the participants who knew they were hypertensive and who reported not being able to see a physician at some time for treatment, is there a correlation between the reasons given for not being seen for hypertension and the reported time since last physician visit or reported frequency of routine physical exam? Does this vary by race and gender?

**Data (variables, source):**
The following variables are needed for this analysis:

a. Visit 1: race, gender, age, income, education level, occupation, BMI, cholesterol level, smoking, level of physical activity, date of visit 1

b. Visit 1, 2, and 3: BP, glucose, reported time since last seeing a physician for any reason, reported frequency of routine physical exam, insurance information, medications, ECG finding IT, history of angina, MI, or stroke, and occurrence of myocardial infarct, stroke, or cardiovascular death between visit one and visit 3, and date of visit 3.

c. Visit 3 In the subset of cohort participants who had knowledge of hypertension, how many participants state they could not see a physician for treatment of their hypertension. Among these participants, the reason given for inability to see a physician:
   1) Reported inability to pay or lack of insurance.
   2) Lack of designated physician or clinic.
   3) Inability to reach physician or clinic.
   4) Lack of time or seeing a physician of a lower priority than other needs.

Reference: