

## ARIC MANUSCRIPT PROPOSAL FORM

Manuscript #626

1. Title:

Differential prediction of CHD risk by trait anger subtype

2. Writing Group:

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4. Timeline:

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5. Research question:

1. Recent analyses from ARIC indicated a linear increase in Chd risk as a function of trait anger. The proposed study asks the question of whether each trait anger subtype - anger - temperament (T) and anger-reaction (R) - has equal predictive value relative to CHD.

6. Rationale:

A recent study of the ARIC cohort (MS #508 by the current authors) (1) reported that individuals high in trait anger and free of CHD at baseline were two and one-half times more likely to suffer a CHD event than their low anger counterparts in the 2-4 year follow-up period. In that study, trait anger was assessed using the Spielberger Trait Anger Scale which is comprised of two distinct subscales: anger-temperament (T) and anger-reaction (R) (2). Characteristically, trait anger- T persons experience anger in a broad range of situations and quickly express their anger with little or no provocation. High trait anger - R persons, on the other hand, typically experience anger when frustrated, mistreated, or negatively evaluated by others. The previous ARIC study reported results for the association between global trait anger and CHD. Whether both subcomponents of trait anger equally predict CHD risk is unknown. The current study, therefore, is proposed in order to pursue this line of inquiry by examining the association between each trait anger subscale and CHD risk. We will also ask the question of whether the probability of CHD event-free survival differs between levels of anger for both trait anger-T and trait anger-R.

Similar to the prior ARIC study on trait anger (MS #508), the proposed study fills a gap in the current literature on the role of psychosocial factors in CHD in a number of ways: by examining these associations in a middle-aged population-based sample of white and black men and women; by employing a valid and reliable psychosocial assessment instrument; and by the availability of CHD events that are validated against standardized criteria. These results have important implications for our increased understanding of the impact

of negative psychological states on incident CHD.

#### 7. Variables:

Visit 1: level of education attainment, prevalent CHD; Visit 2: age, race/ethnicity, gender, smoking status, serum total cholesterol level, drinking status, BMI, hypertensive status, diastolic BP, systolic BP; incident CHD events through 1995.

#### 8. Statistical analysis:

The age-adjusted association between each trait anger subtype (anger-T and anger-R) and CHD risk will be determined using Cox proportional hazards regression, with and without adjustment for the covariables identified above. The age- and gender-adjusted probabilities of CHD event-free survival will be determined using the direct method developed by Nieto and Coresh (3).

#### References:

1. Williams JE, Paton CC, Siegler IC, Eigenbrodt M, Nieto FJ, Tyroler HA. Anger and CHD events: A prospective analysis from the Atherosclerosis Risk in Communities Study (ARIC), under review for official data analysis by the Collaborative Studies Coordinating Center
2. Spielberger CD, Jacobs G, Russell S, Crane RS. Assessment of anger: The State-Trait Anger Scale. In JN Butcher & CD Spielberger (Eds.), *Advances in Personality Assessment* (vol. 2), pp.161-189. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
3. Nieto FJ, Coresh J. Adjusting survival curves for confounders: A review and a new method. *Am J Epidemiol* 1996;143:1059-1068.