1. Title:
Risk advancement: examples from ARIC

2. Writing Group:
(lead) M. Brenner, P. Sorlie, J. Nieto, G. Evans, G. Heiss

3. Background:
In epidemiologic studies, the strength of risk factor-disease associations is commonly quantified by risk and rate differences or relative risks and relative rates (sometimes approximated by odds ratios). In addition, various concepts of the "attributable fraction" are sometimes employed as measures of risk factor impact. For many chronic diseases, including most cardiovascular diseases, risk factors merely advance the occurrence of disease. However, the traditional concepts outlined above do not convey this information on the time dimension of premature disease occurrence. Measures of years of disease-free life lost have been proposed to reflect this time dimension but are often not estimable without special assumptions (1).

The proposed lead investigator has recently published two measures to quantify the degree to which the risk or rate of a condition is advanced in time among exposed individuals, conditional on disease-free survival to a baseline age (2). These measures are particularly applicable to risk factors that promote progression of chronic diseases whose rates increase with age. Adjusted point and interval estimates of these measures can easily be derived from standard multivariate modelling analyses of cross-sectional, case-control or cohort studies. Because of their simple interpretation the risk or rate advancement periods may facilitate communication of the role of risk factors, and be helpful tools in health promotion.

4. Goal:
The purpose of the proposed writing group is to develop applications of these measures on selected ARIC study variables, and explore their usefulness in addressing study questions of general epidemiologic interest and of specific interest to the ARIC investigators. The focus of this activity is methodologic; substantive study questions will not be addressed, but will serve only as examples for analytic applications contrasting the Risk/Rate Advancement Periods to conventional methods. Such questions include:

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differences in prevalence of (say) Diabetes
incidence of (say) Diabetes

RAP vs conventional estimates of Gender & Race
differences in prevalence of (say) CHD

What is the impact of modelling choices, and of measure-
ment error on RAP and conventional measures of association?

6. Data Needed:
After plans of analysis have been reviewed by the writing group, a data set containing selected study variables will be assembled from Visits 1 and 2. Variables of interest will include demographics, established cardiovascular risk factors, symptom-derived and ECG-based measures of prevalent CHD, diabetes mellitus, and summary measures of arterial wall thickness.

REFERENCES