1. Title: MRI Findings vs. B-mods

2. Writing Group: Evans, Burke, Liao, Howard, Cooper, Cai, Toole, Clegg (other interested parties welcomed)

3. Timeline:

Proposed analyses will be started as soon as MRI data set is distributed.

4. Rationale:

Studies in TIA patients have consistently identified an association between carotid stenosis and silent cerebral infarctions identified with CT or MRI imaging. This relationship, however, has not yet been demonstrated for the general population, nor is the relationship between carotid atherosclerosis and other MRI findings such as white matter lesions well understood. The MRI component of the ARIC study provides an opportunity to examine these relationships in a generally healthy population of middle-aged adults.

5. Main Hypotheses:

(1) an association exists between the presence of MRI identified cerebral abnormalities and subclinical carotid disease identified with B-mode ultrasound.
(2) The extent and location of MRI identified abnormalities is related to the severity and location of carotid atherosclerosis.
(3) The relationships described in (1) and (2) above will persist after control for common risk factors.
(4) The presence and extent of MRI identified abnormalities related to rates of common carotid IMT progression.

6. Data (variables, time window, source, inclusions/exclusions):

Ultrasound and risk factor data will be obtained from distributed sets for ARIC visits 1, 2 and 3. Distributed data sets for visits 1 and 2 are currently available at the URC, and partial data sets for visit 3 are scheduled to be distributed this summer, along with the ARIC MRI data. Ultrasound variables will include mean far wall thickness at six carotid sites (including three angles at the common carotid for visits 1 and 2), and the presence of plaque and shadowing at each site. Risk factor variables will include age, race, gender, blood pressure variables, lipid variables, smoking variables, diabetes and prevalent cardiovascular disease.