1. Title:
Retinal microvascular pathology associated with hypertension in blacks and whites: the ARIC Study

2. Writing Group (lead person listed first):
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3. Timeline:
Analysis will begin with a temporary set of data from the first 250 participants with retinal measurements, which will be delivered from the Retinal Center and Coordinating Center by 12/1/93. Data for a total of 500 participants will be delivered by 1/1/94 and for all pre-4/1/94 examinees by 6/1/94. Analyses performed at NHLBI will be completed by 8/15/94 for presentation at 9/94 conference on Atherosclerosis Risk in African Americans.

4. Rationale:
Hypertension and its cardiovascular consequences are more frequent in US blacks than whites. Microvascular disease may influence the types and the severity of cardiovascular complications of hypertension in blacks. Little is known about the distribution of arteriolar changes in black and white populations. Retinal examinations provide a window to the microvasculature not previously explored for this purpose.

Retinal arteriolar signs of longstanding hypertension, e.g. A/V crossing changes, are infrequently found in modern populations with access to antihypertensive therapy. Generalized arteriolar narrowing, which occurs at an earlier stage of hypertension, has previously been assessed imprecisely. It will be measured accurately in a standardized manner at the Retinal Artery Center using measures of the diameter of peripheral retinal arterioles to estimate a Central Retinal Artery Equivalent (CRAE), which is scaled against a similarly estimated Central Retinal Venous Equivalent (CRVE).

5. Main Hypothesis:
(1) Blacks will have more generalized retinal arterial narrowing than whites. (2) Blacks will have more narrowing at similar BP levels, both among the entire population (or the non-diabetic population) not treated for hypertension and among persons on antihypertensive treatment. (3) Secondary hypotheses (sample sizes likely to be inadequate): similar relationships for retinal signs of more severe hypertension.

6. Data (variables, time frame, source, inclusions/exclusions):
Retinal data, race, sex, age, field center, all visit 1, 2, and 3 sitting and supine BPs, medications, diabetes, medical history, anthropometry, smoking.

Visit 3 participants examined before 4/1/94 excluding those without retinal or BP data.