1. Full Title: Baseline clinical characteristics and clinical course of cardiovascular disease in individuals with impaired fasting glucose.
   Abbreviated Title (length 26): Impaired Fasting Glucose - CHD

2. Writing Group:
   Lead: Bruce B. Duncan
   Address: CSCC, Suite 401 Room 12
   137 E. Franklin St.
   Chapel Hill, NC 27514
   Phone: 919 966-0091
   Email Address: bruce_duncan@imhs.unc.edu
   George Howard
   Peter Savage
   Steven Haffner
   Maria Ines Schmidt

3. Timeline:
   11/97 - 5/98

4. Rationale:
   An Expert Committee sponsored by the American Diabetes Association (1) has recently established a new stage in the development of diabetes - impaired fasting glucose (IFG). This pre-diabetes stage is defined solely by a fasting glucose (110-125 mg/dl).
   Additionally, the fasting cut point for diabetes was lowered from 140 mg/dl to 126 mg/dl, creating a new subset of diabetic individuals (NEWDM). CHD risk in these categories has been inadequately described in the literature.

   The “common soil hypothesis”, that is to say a common underlying pathophysiology for diabetes and CHD is being increasingly raised. (2). This implies that individuals with impaired fasting glucose will have a CHD risk similar to that of diabetes, a prospect suggested by some to have important clinical implications.

   The objective of this proposal is to describe the baseline cardiovascular risk status of individuals with IFG and NEWDM (in comparison with both normoglycemic and traditionally diabetic (OLDDM) individuals), and describe their clinical course, in terms of clinical coronary heart disease (CHD) endpoints in ARIC. (Note: the term OLDDM here does not imply those with a diagnosis of diabetes prior to the ARIC visit.)

5. Main Hypotheses:
1. (a) CHD risk factors associated with diabetes -- hypertension, dyslipidemia (high triglycerides/low HDL-C), smoking, hemostatic abnormalities - will be similar in prevalence between the categories IFG, NEWDM, and OLDDM.
(b) All three categories will present higher values than normoglycemia.
2. Baseline carotid IMT will be greater in those with IFG and NEWDM than in normoglycemic individuals, but less than that of OLDDM.
3. Baseline prevalences of clinical cardiac disease will be greater in those with IFG and NEWDM than in normoglycemic individuals, but less than those of OLDDM.
4. Change in carotid IMT will be greater in those with IFG and NEWDM than in normoglycemic individuals, but less than that of OLDDM.
5. a. Incident overall death rates will be higher in those with IFG and NEWDM than in normoglycemia and lower than rates in those with OLDDM.
   b. Incident CHD (confirmed MI, CHD death, silent MI, coronary procedures) rates will be higher in those with IFG and NEWDM than in normoglycemia and lower than rates in those with OLDDM.
   c. Incident angina rates will be higher in those with IFG and NEWDM than in normoglycemia and lower than rates in those with OLDDM.
   [Note: Incident angina will only be combined with the standard ARIC incident CHD events if the associations studied are found to be consistent across these outcomes.
   Among those with IFG, there will be a graded increase of risk for change in carotid IMT and incident events with increasing baseline glycemia.

6. Data (variables, time window, source, inclusions/exclusions):
All ARIC subjects, Visit baseline data, V3 IMT, incident CHD event data (Visit 2 and 3, and surveillance data through 1995.): Glucose and additional variables to define diabetes and impaired fasting glucose (fastO802, medication use, physician history). CVD risk factors for baseline analyses and for use as covariates in prospective analyses: gender, age, ethnicity, BMI, WHR, blood pressure, lipids, hemostatic factors. Additional covariates for prospective analyses: alcohol, aspirin/NSAID use, menopause status, hormone replacement therapy.
Outcome data: Visit 1 data: Prevalent CHD (prevchd04, Rose angina, angina pain medication) and IMT. Visit 3 data: IMT, angina, angina pain medication. Follow-up overall mortality and CHD Events: Overall mortality; CHD incident events (confirmed MI, CHD death, revascularization procedures, silent MI).