1. Title (length 26):
New Approach to Distens.

2. Writing Group (list individual with lead first):
(lead) Barnes
       Riley
       Ellison

3. Timeline:
Programs are currently under development. Preliminary results are encouraging.

4. Rationale:
The distensibility curves obtained from ARIC participants can be viewed as the interaction of the pumping action of the heart and the response of the arteries. After aortic valve closure, the distensibility curve behaves according to the left common carotid response. Using this information and the mathematical process of deconvolution, we can determine a new wave component which is itself a function of the heart component and contributions from arteries other than the left common carotid. This new wave component contains information relevant to the atherosclerosis process. This manuscript will be a methods paper describing the theoretical development and implementation of the computational techniques to obtain this new wave component. Selected participant distensibility studies will be used to illustrate this approach to analysis of the distensibility curve.

The companion paper on analysis of strain waveforms with Ward Riley as the principle author is another distinct approach to analyzing the distensibility waveforms. The objective in both manuscripts is to identify patterns which may be indicative of arterial disease. Drs. Riley and Barnes are working together on these non-overlapping approaches.

5. Main Hypothesis:
The methods developed here may lead to hypotheses related to atherosclerosis which will be tested in a subsequent manuscript.

6. Data (variables, time window, source, inclusion/exclusions):
The data required are the distensibility curves, available on floppy disks at the URC and the Ep and blood pressure from the distensibility data base at the Ultrasound Reading Center.