ARIC MANUSCRIPT PROPOSAL FORM

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Steering Committee:

1.a. Full Title: Relation between clinic and home blood pressure

      b. Abbreviated Title (Length 26): Relation between clinic and home blood pressure

2. Writing Group (list individual with lead responsibility first):

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3. Timeline: It will depend on the availability of data from parent cohorts.

4. Rationale: In most clinical and research settings, blood pressure is measured in a more-or-less standardized fashion, by medical or trained personnel. These measurements are often carried out in the morning. It is not entirely clear, however, how representative of the person’s usual blood pressure are these clinic-based blood pressure measurements.

   Studies using 24-hr monitoring have documented that clinic blood pressure tends to be higher than average day and night blood pressure (Lee et al, 1995). There have been a number of factors that have been shown associated with daily blood pressure fluctuations, including circadian rhythms, psychosocial, environmental, and behavioral factors (Purcell, 1992; James and Pickering, 1993; Coca, 1994). There is evidence that blood pressure variability is prognostically important in hypertensive patients (Parati, 1994; Coca, 1994).

   Many of the studies on daily variations in blood pressure have been done using 24 hr monitoring in selected patients from hypertension clinics (James and Pickering, 1993), the conclusions are heavily dependent on the methods of analysis (Pickering and James, 1993), and the number of factors determining these variability is limited.
The data from the SHHS lends itself for the study of the relation between blood pressure measured by the parent studies (usually in the clinic and in the morning) to the evening blood pressure measured at the time of the home sleep study. Both measurements are taken using a very similar protocol. Although we will not be able to discern how much of the variation is due to circadian variation or to clinic-vs-home psychological effects, a differential correlation of blood pressure measurement according to the sociodemographic and other factors (e.g., smoking, diabetes) could provide clues regarding how “representative” is the clinic blood pressure of the blood pressure assessed in a more relaxed and familiar environment on a difference segment of the day, and how this varies according to the person’s characteristics. This information could be relevant both for clinicians as well as for researchers in the field.

5. Main Hypothesis:
   1) Blood pressure measured in the clinic (parent study’s BP) correlates with blood pressure measured in the home (SHHS BP).
   2) On average, clinic BP is higher than home BP.
   3) The correlation between clinic and home BP is modified by the pressure of other risk factors (e.g., age, overweight, diabetes, smoking, medications).


Linear regression methods will be used to assess the relation of the parent study and the SHHS blood pressure measurements. In order to control for temporal trends, only participants with parent-SHHS measurements taken within 1 year will be included. Further restriction to participants with measurements taken within 1 month will be conducted in order to control for the possible seasonal blood pressure variations, which seem to be particulary relevant in older people (Coca, 1944; Purcell, 1992). Even with these restrictions, further control for the length of time between the measurements as well as for change in treatment status will be implemented.

The agreement between the parent-SHHS Blood pressure measurements will be explored according to the participant’s demographic characteristics (sex, age, ethnicity), SES as well as the presence of other risk factors (overweight, diabetes, smoking).