Manuscript #112

1. Title:
Passive Smoking and Spirometry

2. Writing Group:
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3. Timeline:
Proposal has been reviewed by the writing group. Analyses can begin as soon as Publications Committee approval is received.

4. Research Question:
What is the relationship between passive smoking and pulmonary function in population aged 45 to 65 years.

5. Specific Aims:
The purpose of this population-based cross-sectional study is to examine passive smoking as a risk factor for the impairment of lung function indicated by a reduced Forced expiratory volume in one second (FEV1) or Forced vital capacity (FVC) or FEV1/FVC ratio in persons aged 45 to 65 years.

6. Main Hypothesis:
Nonsmokers exposed to environmental tobacco smoke have lower pulmonary function measured by FEV1, FVC and FEV/FVC than nonsmokers not exposed to environmental tobacco smoke.

7. Rationale:
Impaired lung function is a risk factor for all cause mortality and cardiovascular mortality. Cigarette smoking is the most important risk factor for the impairment of pulmonary function. Exposure to environmental tobacco smoke has been identified to be a risk factor for the impairment of lung function growth in childhood. However, the relationship of passive smoking to pulmonary function in adults has not been well evaluated in U.S. population based epidemiologic studies. Most previous studies about passive smoking and lung function were conducted in childhood and focused mainly on the passive smoking and lung function growth impairment. Very few articles have been published dealing with the effects of passive smoking and lung function in adults and they more or less had some methodology problems. These methodology problems are summarized as following: Reliability and Validity of lung function measurement; Quantitatively measuring passive smoking; Control of potential confounders; Generalizability of studies based on selected populations. Computerized Spirometry conducted according to the ARIC protocol has demonstrably improved acceptability and reproducibility and provided for better spirometry quality. This improvement in technique will help in measuring the lung function with high reliability and validity. More importantly, the ARIC study provides a population based probability sample for this cross-sectional study of the relationship between
passive smoking and lung function in adults.

8. Data (variables, source, inclusion/exclusion):
Visit 1 cohort data for all nonsmokers are to be used. Independent variables include environmental smoke assessment, age, race, sex, education, income, height, weight, blood pressure, histories of heart attack and chronic pulmonary symptoms and diseases. Dependent variables include FEV1-6, FVC, FEF25-75 with corresponding predicted values.

9. Study Design:
A. Overview of Study Design:
This population based cross-sectional study will select all nonsmokers from ARIC participants as study population. Pulmonary function was measured in all study participants shortly after being interviewed and examined for exposures to environment, tobacco smoke, and other potential confounders.