ARIC Manuscript Proposal # 1137S
SHHS Manuscript/Abstract Proposal Format

1a. Predictors of Change in the Respiratory Disturbance Index (RDI)

b. RDI Change Predictors

2. Jonathan Samet, Brian Caffo, Marie Diener-West

3. April 1 –September 1, 2006

4. Few studies have had longitudinal data on the RDI and predictors of change have not been adequately examined.

5. In addition to weight and age, multiple factors predict change in RDI, including smoking, disease status and medications.

6. Data [variables, time window, source, inclusions/exclusions] Demographic factors, BMI, smoking, disease status, medications (specific), alcohol use.

7. Mainline Study

8. Journal Article

9. Central Analysis

10. Introduction

Few studies have tracked sleep-disordered breathing (SDB) over time in the general population. To date, findings have been reported for the Wisconsin Sleep Cohort Study (Peppard et al. 2000), the Cleveland Family Study (Tishler et al, 2003; Redline et al. 2005), and the Sleep Heart Health Study (Newman et al. 2005). The latter analysis focused on weight change as a predictor of change in the respiratory disturbance index (RDI). These studies indicate that weight is a key product of change and that age is also an important predictor and modifier. The analysis of the SHHS data did not explore other predictors, however, that might change over time, including tobacco use, disease and medications, as examples.

11. Brief Analysis Plan (see attached variable list):

The analysis will both describe the change in RDI between the two polysomnograms (PSGs) and characterize predictors of change. The descriptive component will be straightforward and provide distributions overall and by appropriate strata of gender, age, and race/ethnicity. In assessing predictors of change in RDI, several complementary approaches will be considered as will several outcome variables: absolute change in RDI and a shift in RDI across a clinically relevant boundary. In analyses directed at absolute
change in RDI, multivariate regression will be used with adjustment for baseline RDI; additionally mixed models will be used. For the analyses directed at charges across specific values, logistic regression would be the initial approach, possibly followed by multinomial or quantile regression.

12. Summary:

We propose a complete analysis of descriptive characteristics of change in RDI and the determinants of change in RDI. This paper might lead to additional manuscripts to address new hypotheses.

13. References


Redline S, Schluchter MD, Larkin EK, Tishler PV. Predictors of longitudinal change in sleep-disordered breathing in a nonclinic population. SLEEP: 2003; 703-709.