

## ARIC Manuscript Proposal # 956

PC Reviewed: 08/07/03  
SC Reviewed: 08/07/03

Status:   A    
Status:   A  

Priority:   2    
Priority:   2  

### 1.a. Full Title:

A comparison of occupation reported on death certificate to occupation at midlife

**b. Abbreviated Title (Length 26 characters):** - Self- death certificate-reported occupation

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

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### 3. Timeline:

We plan to submit an abstract to the AHA Annual Conference. It is anticipated that a draft of a manuscript would be completed by the end of Fall 2003.

### 4. Background and Rationale:

#### **Background**

The validity of educational achievement as ascertained from death certificates has been assessed in previous studies (Shai et al., 1989; Rosamond et al, 1997). There are few studies that assess concordance between occupations recorded on death certificates with occupations reported on other sources. In a cohort of electrical utility workers Andrews et al. (2000) found substantial differences in occupations and industries reported on death certificates compared to those reported on industry records. A similar study was conducted at the University of Utah

involving white males (Turner et al., 1987). The agreement between lifelong occupational history obtained by interview prior to death with death certificate data for male bladder cancer patients' job title was 54%, while the agreement for industry was 72%. Similar results were obtained previously for male colon cancer patients. The authors conclude that occupations and industries listed on death certificates reflect at least part of the work history of the majority of individuals. Variables affecting agreement were duration of the job and education. Another study (McLaughlin et al., 1991) showed the highest levels of concordance (over 80%) between occupational data reported on the death certificate and interviews for agricultural, medical, and public administration activities. The overall agreement (56% for usual occupation and 51% for usual industry of employment) led authors to question the value of death certificate derived occupational assessment. Agreement was relatively high for agricultural, forestry, fishing, public administration and transportation and public utilities.

### **Rationale**

The validity of occupation as recorded on death certificates has been questioned as it is recorded by next of kin or another informant, whose information is at times inaccurate.

Nevertheless it may be the only available source of data on occupational exposure in studies of decedents when occupational data are not available from other sources.

Death certificates are currently standardized and record information on 'usual occupation' during the decedent's lifetime. This is in contrast to many epidemiologic studies where data are collected based on current occupation at the time of the interview or study inception. The ARIC study has the advantage of having collected current occupational data at each of the ARIC visits. Additionally, during the 4<sup>th</sup> ARIC examination, information on most representative occupation between the ages of 25 and 44 years was also collected. Thus, self-reported occupation is available for multiple time periods.

In occupational studies, precise ascertainment of job title and industry is often crucial in estimating exposure to various occupational hazards. However, in studies assessing influences of socioeconomic status on health, occupational and educational exposures are often categorized. Rosamond et al. found that in the ARIC study concordance between death certificate-derived education and self-reported education was higher when data were grouped than when exact values were used. Similarly, an assessment of the correspondence between death certificate-derived occupational information with self-reported occupation would be of interest and have potential applications to analytic work on ARIC data.

#### **5. Main Hypothesis/Study Questions:**

1. What is the concordance between occupations recorded on death certificates to those reported by these participants during the 1<sup>st</sup> ARIC examination?
  - Does level of agreement vary by sociodemographic characteristics?
  - Is agreement higher for occupational categories than for specific job titles?
2. For the subset of ARIC Forsyth decedents who provided occupational data at repeat examinations in ARIC, what is the correspondence between occupation / employment status reported at each visit/period (V1-V4, and for ages 25-44 as ascertained at V4) with each other?
  - Does the correspondence between death certificate derived occupation and self-reported occupation varies for different life epochs (early adulthood vs. middle-age)?

#### **6. Data (variables, time window, source, inclusions/exclusions):**

Death certificate-derived occupational data will be obtained from 450 death certificates of Forsyth County ARIC decedents obtained as part of ARIC ancillary study 031 (“Using Historical Records to Reconstruct the Early Life SES Exposures of Decedents.”) This information will be abstracted and coded to correspond to the 1980 Bureau of Census job titles

and occupational categories used in the ARIC study. Coding will be performed by two trained coders, independently. Discrepancies will be identified and resolved with input from a certified coder. The following Visit 1 ARIC data will then be obtained for these decedents: age, race, sex, and educational attainment, and self-reported occupation (job title and occupational grouping). Occupational data (code for job title and occupational category) from the two sources will be compared using percentage agreement and kappa-coefficient, with confidence intervals (Fleiss, 1981). We will also evaluate variations in agreement by age group, gender, race, and education.

For the subset of 112 Forsyth decedents who were alive, and participated in the V4 examination, we will compare Visit 1, self-reported occupation, coded into census categories, with occupational categories reported at the time of V2-V4, and the self-reported longest occupation held (between ages 25 and 45). We will also examine variations in death certificate-derived occupation with self-reported occupation across the ARIC visits. The kappa statistical technique that was described above will be used.

**7.a. Will the data be used for non-CVD analysis in this manuscript?**     Yes     No

This paper is methodologically focused. However, the findings will have implications for other ARIC manuscripts that focus on occupation and CVD-related outcomes.

**b. If Yes, is the author aware that the file ICTDER02 must be used to exclude persons with a value RES\_OTH = “CVD Research” for non-DNA analysis, and for DNA analysis RES\_DNA = “CVD Research” would be used?**     Yes     No  
(This file ICTDER02 has been distributed to ARIC PIs, and contains the responses to consent updates related to stored sample use for research.)

**8.a. Will the DNA data be used in this manuscript?**     Yes     No

**8.b. If yes, is the author aware that either DNA data distributed by the Coordinating Center must be used, or the file ICTDER02 must be used to exclude those with value RES\_DNA = “No use/storage DNA”?**     Yes     No

**9. The lead author of this manuscript proposal has reviewed the list of existing ARIC Study manuscript proposals and has found no overlap between this proposal and previously approved manuscript proposals either published or still in active status.**

ARIC Investigators have access to the publications lists under the Study Members Area of the web site at: <http://bios.unc.edu/units/csc/ARIC/stdy/studymem.html>

Yes     No

**10. What are the most related manuscript proposals in ARIC (authors are encouraged to contact lead authors of these proposals for comments on the new proposal or collaboration)?**

MS#226: Educational achievement recorded on certificates of death compared with self-report. Rosamond W, Tyroler HA, Chambless LE, Folsom AR, Cooper L, Conwill D

**11. Manuscript preparation is expected to be completed in one to three years. If a manuscript is not submitted for ARIC review at the end of the 3-years from the date of the approval, the manuscript proposal will expire.**

#### REFERENCES

1. Shai D, Rosenwaike I. Errors in reporting education on the death certificate: some findings for older male decedents from New York State and Utah; American Journal of Epidemiology: 130: 188-192 (1989).
2. Rosamond WD, Tyroler HA, Chambless LE, Folsom AR, Cooper L, Conwill D. Educational achievement recorded on certificates of death compared with self-report; Epidemiology: 8(2): 202-204 (1997).
3. Andrews KW, Savitz DA. Accuracy of industry and occupation on death certificates of electric utility workers: implications for epidemiologic studies of magnetic fields and cancer; Comment in: Bioelectromagnetics: 21(5): 411 (2001).
4. Turner DW, Schumacher MC, West DW. Comparison of occupational interview data to death certificate data in Utah; American Journal of Industrial Medicine: 12:145-151 (1987).
5. McLaughlin JK, Mehl ES. A comparison of occupational data from death certificates and interviews; American Journal of Industrial Medicine: 20:335-342 (1991).

6. Fleiss JL. Statistical methods for rates and proportions; New York: John Wiley and Sons: 140-147 (1981).