Respiratory Function And Farming Exposures In A Rural US Cohort

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Rationale. The Keokuk County Rural Health Study (KCRHS) is a 20-year, prospective cohort study focusing on chronic disease and injury in one rural, predominantly agricultural county in southeastern Iowa. A major component of the study is evaluation of respiratory health and occupational exposures. Here we address the impact of farming on respiratory status. **Methods.** We conducted cross-sectional analysis of data collected on 1000 families including 1621 adult men [43.8%] and women aged 18 years and older [mean age=54.16 ± 17.02 years; range: 18-92] during Round 2 of the study (1999-2004). A primary outcome measure was pulmonary function. Respiratory status measured by spirometry was gathered along with survey data addressing heath status as well as occupational and life style risk factors. Farming was defined as ever having worked in on a farm for at least 10 hours per week for a year or for at least one month during a year. Current farming was defined as being engaged in "farming" during the past 12 months. Multiple linear regression modeling was used to adjust for potential confounding variables. **Results.** In cross-sectional analyses, age, male gender and smoking history were significantly and negatively associated with respiratory function. Forced expiratory volume (FEV 1) and forced vital capacity (FVC) were significantly higher among individual who were currently farming [n=290] versus the non-farming [n=1265] sample. Similarly, we found significantly higher FEV 1 and FVC among current farmers versus ex-farmers [n=661] as well as significantly higher FVC among current farmers versus those currently living on a farm or in a rural residence [n=469]. Moreover, FVC and FEV1/FVC were significantly higher among individuals with any history of farm work [n=951] versus individuals with no reported farm work experience [n=604]. Also, ex-farmers as a group had significantly higher FVC compared to individuals reporting no previous farm work experience. **Conclusions.** These findings are consistent with Round 1 findings of a healthy worker effect/selection, a finding currently being pursued prospectively in Round 3 of the KCRHS.
This research was supported [in part] by Grants #U07/CCU706145 and #U50 OH07548 from the National Institute for Occupational Safety and Health to the Great Plains Center for Agricultural Health, The University of Iowa.

This abstract is funded by: This research was supported [in part] by Grants #U07/CCU706145 and #U50 OH07548 from the National Institute for Occupational Safety and Health to the Great Plains Center for Agricultural Health, The University of Iowa.