

Prevalence Of Airflow Obstruction And Chronic Bronchitis By Occupational Groups Among The U.s. Population Aged 40-79 Years: Nhanes Survey Data 2007-2010

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Rationale:

The objective of this study was to estimate the prevalence of airflow obstruction and chronic bronchitis by occupational groups among the U.S. population.

Methods: Spirometry and interview data for adults aged 40–79 from the 2007–2010 National Health and Nutrition Examination Survey (NHANES), a nationally representative survey of the non-institutionalized U.S. population, were analyzed. The prevalence of airflow obstruction was estimated based on American Thoracic Society (ATS) criteria using pre-bronchodilator spirometry test results. Airflow obstruction was defined as forced expiratory volume in 1 second (FEV_1)/forced vital capacity (FVC) < lower limit of normal (LLN) and moderate and more severe airflow obstruction was defined as $FEV_1/FVC < LLN$ and $FEV_1 < 70\%$ predicted. Adult interview data was used to analyze doctor-diagnosed chronic bronchitis by occupational groups. Linear regression models were used to estimate prevalence of airflow obstruction or doctor-diagnosed chronic bronchitis and identify occupational groups with highest prevalence. The 23 Bureau of Census occupational groups were further combined to 14 groups based on self-reported occupational exposure to mineral dust, organic dust, exhaust fumes, and other fumes.

Results: The age-adjusted overall prevalence of airflow obstruction among ever working adults 40–79 years was 16.6% (SE 0.9). The occupational groups with prevalence greater than 20% included installation, maintenance and repair; production; construction, extraction, and agricultural; and food preparation and serving. The age-adjusted prevalence of moderate and more severe airflow obstruction was 5.9% (SE 0.7) and occupational groups greater than 8% included installation, maintenance and repair; building and grounds cleaning and maintenance; food preparation and serving; construction, extraction and agricultural; production; and transportation and material moving. The age-adjusted prevalence of chronic bronchitis was 4.6% (SE 0.6), and the occupational groups with the highest prevalence included food preparation and serving (8.8%, SE 2.4); healthcare (7.1%, SE 2.3); and production (6.4%, SE 1.6).

Conclusions: Prevalence of airflow obstruction, moderate and more severe airflow obstruction, and chronic bronchitis varied by occupations, suggesting workplace exposures may contribute to obstructive pulmonary disease. The occupational groups with the highest prevalence for airflow obstruction and moderate and more severe airflow obstruction included installation, maintenance and repair; production; construction, extraction, and agricultural; and food preparation and serving. Two of these groups, production and food preparation and serving, also had high prevalence of chronic bronchitis. Occupational groups with typically greater exposures to agents associated with obstructive pulmonary disease had higher prevalence of airflow obstruction and chronic bronchitis in this study.

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