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DETERMINANTS OF LUNG FUNCTION IN RURAL-DWELLING WOMEN AND MEN. Bonnie Janzen*, Chandima Karunanayake, Louise Hagel, Josh Lawson, Donna Rennie, William Pickett, Ambikaipakan Senthilselvan, James Dosman, Punam Pahwa (University of Saskatchewan)

BACKGROUND: Few studies have examined determinants of lung function in general populations of rural-dwellers, particularly in relation to sex/gender. **OBJECTIVE:** To investigate the association of individual and contextual factors with lung function in rural-dwelling women and men. **METHODS:** Participants were 1609 adults (762 men, 847 women) who were part of the baseline sample of the Saskatchewan Rural Health Study and who volunteered to participate in additional clinical assessment. The lung function outcomes of interest were: forced expired volume in one second (FEV1), forced vital capacity (FVC), and FEV1/FVC ratio. Mobile clinics were set up in participating towns and research nurses trained in spirometry conducted lung function testing, along with other clinical measurements. A mail questionnaire was used to obtain additional information on individual and contextual factors (eg. income, occupational exposures, household exposures). The primary analysis was multiple linear regression, conducted separately for each outcome and by gender. **RESULTS:** Other than age, there was considerable variation in relationships by both gender and lung function measure. Lower income was associated with lower FVC and FEV1 among men, as was lower education among women. Occupational exposures were unrelated to women's lung function; among men, grain dust exposure was associated only with lower FEV1/FVC ratio. Farm/non-farm residence was unrelated to lung function for both genders. Household smoking was related to lower FEV1 for women and men (and lower FEV1/FVC ratio for men) but unrelated to FVC. Home dampness was not associated with FVC or FEV1 for either gender and associated with lower FEV1/FVC ratio only among women. **CONCLUSION:** In this rural population, the correlates of lung function varied by gender and outcome. Study limitations are discussed, as are challenges in disentangling the role of sex (biological) versus gender (social) in the study of lung function determinants.

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SMOKING, SERUM COTININE, AND EXHALED NITRIC OXIDE IN U.S. ASTHMATIC AND HEALTHY POPULATION: RESULTS FROM THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY 2007-2012. Hui Hu*, Xiaohui Xu (Department of Epidemiology, College of Public Health and Health Professions & College of Medicine, University of Florida)

Background: Fractional of exhaled nitric oxide (FeNO) has been used as a noninvasive marker of airway inflammation. Previous studies using self-reported smoking status have suggested the association between cigarette smoking and decreased FeNO. However, most of them lacked objective measurements of smoking. Moreover, the effects of passive smoking on FeNO have not been well studied. **Methods:** In this study, we analyzed the 2007-2012 National Health and Nutrition Examination Survey (NHANES) data to examine the association between FeNO and active/passive smoking assessed by both self-reported questionnaire and serum cotinine among 11,160 subjects aged 6-79 years old with asthma or without any respiratory disease. **Results:** A 0.34 lower (95%CI: -0.39, -0.29) and a 0.59 lower (95% CI: -0.74, -0.43) ln(FeNO) was observed among healthy and asthmatic participants with serum cotinine in the highest quartile compared to those in the lowest quartile, respectively. Self-reported smoking status and recent tobacco use were also associated with decreased ln(FeNO). Self-reported passive smoking is significantly associated with a decrease of 0.01(95%CI: -0.02, 0.00) ln (FeNO) among asthmatic subjects but not among healthy subjects. **Conclusions:** Both active and passive smoking were found to be associated with decreased FeNO. The appropriate use and interpretation of FeNO in Clinical practice need to be cautious when passive or active smoking presents.

CONSEQUENCES OF THE ASTHMA CALL-BACK SURVEY METHODOLOGY CHANGES ON ESTIMATES OF THE PROPORTION OF WORK-RELATED ASTHMA, 19 STATES, 2007—2012. Katelynn E. Dodd*, Jacek M. Mazurek (Division of Respiratory Disease Studies, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention (CDC), Morgantown, WV, USA)

The Asthma Call-back Survey (ACBS), a module of the Behavioral Risk Factor Surveillance System (BRFSS), collects detailed information on work-related asthma (WRA) through telephone interview using a sample of land-line phone (LLP) users. Because of decreasing BRFSS response rates and increasing proportion of cellular phone (CP)-only households, iterative proportional fitting (raking) replaced the poststratification method to weight BRFSS survey data in 2011 and some states conducting ACBS added the CP user sample to the traditional LLP user sample in 2012. In addition, the wording of the WRA question was revised in 2012. To assess the effect of these three methodology changes on the proportion of asthma that is WRA we analyzed data for ever-employed adults (≥ 18 years) with current asthma from 19 states that consistently collected data during 2007–2012. Persons with WRA were those with physician-diagnosed WRA. We calculated estimates using poststratification weights (2007–2010) and raking weights (2011–2012) for the sample of LLP users. Also, we calculated estimates using raking weights for 2012 data collected from the combined sample of LLP/CP users. In these 19 states, based on the LLP user sample data, the prevalence of current asthma was 7.6% to 7.8% between 2007 and 2010, was 7.9% in 2011 and 2012. Of those with current asthma, the proportion of asthma that is WRA was 7.8% to 9.7% between 2007 and 2010, was 9.1% in 2011, and 15.4% in 2012. Using the 2012 LLP/CP user sample data, the prevalence of current asthma was 7.6%, of which 15.4% had WRA. Implementation of raking did not substantially change the proportion of asthma that is WRA and the estimates calculated from LLP and LLP/CP user samples in 2012 were comparable. The upward shift in the estimates in 2012 likely was associated with the revision of the ACBS WRA question. Until trends can be established with new data, the survey methodology changes should be considered when interpreting new WRA estimates.