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Title: Lung function and respiratory symptoms of Brazilian sugarcane cutters exposed to biomass burning

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Body: Brazil is the largest producer of ethanol from sugarcane in the world and part of this production is still manually harvested and for this, it needs to be burned. This action releases toxic gases to atmosphere and produce large quantities of particulate matter (PM) directly exposing the sugarcane cutters for a prolonged period which can cause important respiratory illness. The objective of this study was to evaluate the lung function and frequency of respiratory symptoms of sugarcane cutters. We evaluated twenty-three male sugarcane cutters (age=25±4,7 years, BMI = 24±3 kg/m2), non-smokers, from Sugar and Ethanol Company located in Brazil. Evaluations were performed in the pre-harvest and harvest. Lung function was assessed by spirometry and respiratory symptoms by questionnaire. Data normality was tested by the Shapiro-Wilk test, and comparison of spirometric values in the two periods was performed using the paired t test. To compare the qualitative variables we used the Goodman test.The level of significance was p≤0,05. In the pre-harvest spirometric values were: FVC (4,4±0,57), FVC% (93,8±14,33), FEV1(3,9± 0,47), FEV1% (96±13,3), FVC/FEV1 (89,4±5,55) FVC/FEV1% (101±6,22). In the harvests of we found the following values: FVC (4,5±0,85), FVC% (94±14), FEV1 (3,9± 0,47), FEV1% (90,3±13,23), FVC FVC / FEV 1 (83,65±7,85) e FVC / FEV 1% (94,4±10,4). There was a statistically significant decrease in FEV1% (p=0.033) and FEV1/FVC (p=0.002) after harvest. The prevalence of difficulty of breathing when there is dust and/or climate change increase after harvest. Our results suggest that six months of harvest leads to airway obstruction and increases respiratory symptoms in these workers.