

## Association of Self-Reported Military Occupational Exposures and Chronic Respiratory Disease Among Participants in the Airborne Hazards and Open Burn Pit Registry

Nisha Jani, Mangala Rajan, Michael Falvo, Anays Sotolongo

**INTRODUCTION AND BACKGROUND:** Deployed U.S. military servicemembers are exposed to various environmental health hazards. Their physical demands associated to deployment and combat stress can also increase the impact of these environmental exposures. The purpose of this study is to examine the relationship between respiratory conditions self-reported post-deployment with occupational exposure during deployment.

**METHODS:** The Airborne Hazard and Open Burn Pit Registry (AHOBPR), run by the Department of Veteran Affairs and Department of Defense, is a voluntary self-administered questionnaire. We examined Participants who completed the AHOBPR by July 1, 2018. Self-reported occupational vapors, gas, dust, or fumes (VGDF) exposure was classified as a positive response to 'Were you in a convoy or other vehicle operations?', 'Performed refueling operations', 'perform aircraft, generator/large engine maintenance', and/or 'Perform construction activities'. Participants who reported non-military occupational exposure to a dust, gas, smoke, chemical vapors or fumes were excluded. The self-reported diagnosis included a 'Yes' response to a diagnosis of COPD, Asthma, Emphysema, or Chronic Bronchitis after return from deployment.

**RESULTS:** Among 148,712 Participants, 103,090 (72%) reported military occupational VGDF exposure. The exposed cohort tended to be younger 22-40 years of age (34.5%), male (88.1%), and overweight (47%). The exposed cohort tended to report current dyspnea or decreased exercise tolerance, wheezing, and other respiratory symptoms. Logistic regression revealed strongest associations between VGDF exposure to the following diagnoses (yes vs no) COPD [OR 1.3 (CI 1.3-1.4)], Chronic Bronchitis [OR 1.2 (CI 1.0-1.2)] and emphysema ([OR 1.3 (CI 1.1-1.5)]).

**CONCLUSION:** AHOBPR participants who report VGDF during deployment have an increased odds of self-reporting chronic respiratory disease post-deployment. There is a need to increase education on the specific occupational exposures which servicemembers are exposed to at deployment. More research is also needed on the impact of these exposures and ways to prevent its hazardous effects.