

WRIISC *Advantage*

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Veterans may be concerned about exposure to airborne hazards during their deployment to Iraq and Afghanistan. This timely edition of “WRIISC Advantage” is focused on these concerns, including the launch of the Department of Veterans Affairs (VA) Airborne Hazards and Open Burn Pit Registry (learn more on page 3), and the important role of the VA provider. We also cover enhanced clinical diagnostic and specialty services available at the War Related Illness and Injury Study Center (WRIISC) and discuss our innovative research in the field.

What Are Airborne Hazards and What Do We Know About Them?

Veterans may hear the term “Airborne Hazards” and wonder what types of exposures are included. Airborne hazards are particulate matter (PM) and gaseous air pollutants that come from a number of sources such as:

- Burning of human and non-human solid wastes
- Smoke from structural fires and explosions
- Smoke from burning oil wells
- Dust and sand particles
- Industrial and ambient air pollution
- Air craft and automobile engine exhaust

A Veteran may have been exposed to airborne hazards during deployment to Iraq and Afghanistan by having ingested (swallowed) or inhaled (breathed in) any of the above substances. The potential for and type of possible health effects from exposure to airborne hazards depends on what substance an individual was exposed to, how much of the substance was ingested or inhaled, and how long a time that individual was exposed.

The health effects of air pollution have been studied for many years throughout the world. Short- and long-term exposure to air pollution has been shown to result in harmful health effects on respiratory and cardiovascular systems (heart and lungs). Recent scientific publications about Veterans who were deployed to Iraq and Afghanistan have reported a variety of findings. To learn more about these studies, visit our website which includes our fact sheet for Veterans on Airborne Hazards entitled “Airborne Hazard Concerns: Information for Veterans.”



A report “Long-Term Health Consequences of Exposure to Burn Pits in Iraq and Afghanistan” by the Institute of Medicine in 2011 summarized all of the available scientific literature related to the possibility of adverse health effects of airborne hazards exposure by U.S. Servicemembers during deployment to Iraq or Afghanistan. Some of the key findings of that report are:

- ▶ U.S. Department of Defense (DoD) air quality monitoring data indicated higher levels of PM air pollution than generally considered safe by the U.S. Environmental Protection Agency and other U.S. regulatory agencies;
- ▶ Studies show that a link exists between exposure to high PM levels and cardiopulmonary (heart and lungs) complications, particularly in individuals with pre-existing conditions such as asthma and emphysema;
- ▶ There is limited evidence of an association between exposures to combustion products and reduced pulmonary function in deployed military personnel;
- ▶ There is no evidence of an association between exposure to airborne hazards and any specific disease;
- ▶ It is unknown if reduced pulmonary function is a consequence of exposure to PM or exposure to combustion products is a risk factor for the development of clinical disease later in life.

Read below to find out how to become a part of the VA’s important effort to better understanding about airborne hazards. [↪](#)

INTRODUCING... VA’s Airborne Hazards & Open Burn Pit Registry FOR VETERANS

VA takes action in implementing a new online self-assessment survey known as the Airborne Hazards and Open Burn Pit Registry (Registry) required by Public Law 112-260.

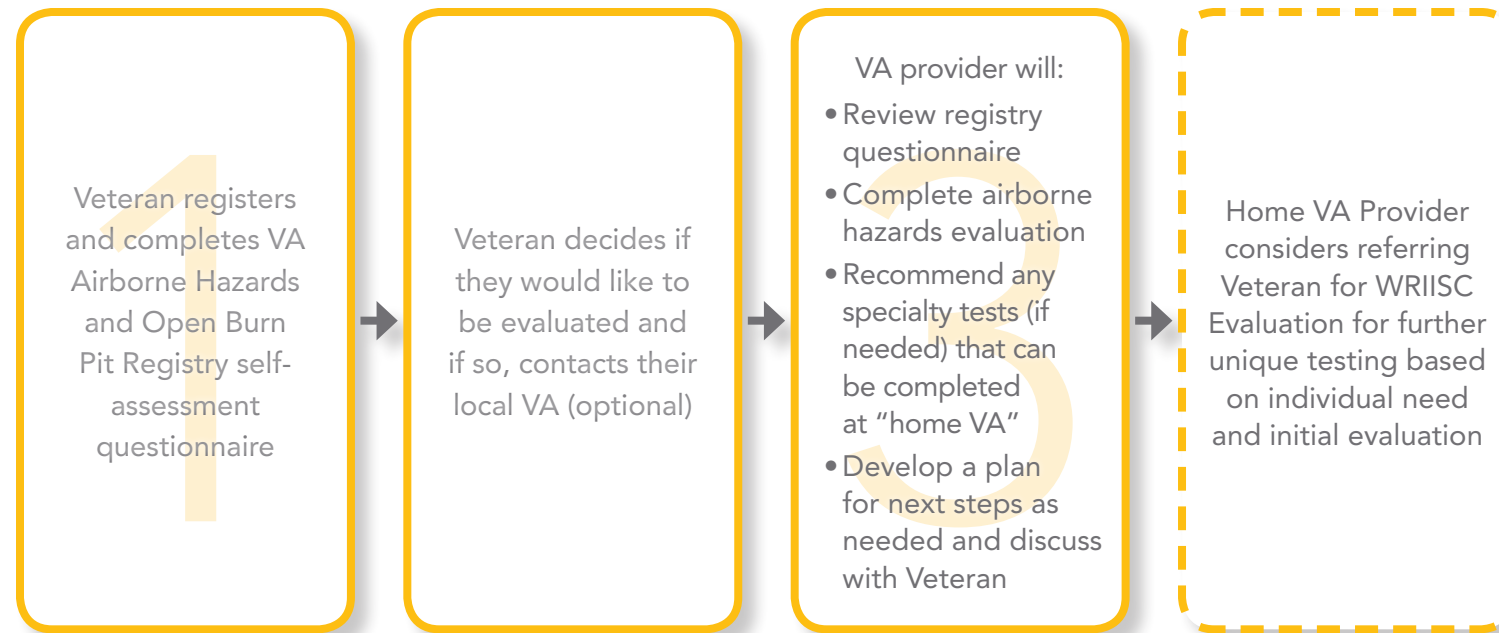
THE REGISTRY was established by VA to help keep Veterans informed about scientific studies including long-term studies on airborne hazards as well as emerging treatments on airborne hazard-related concerns. Additionally, it will also help VA to monitor the health conditions affecting Veterans as a result of airborne hazards exposure. All data collected will be used to improve programs at VA to help Veterans with deployment exposure concerns. To learn more about the registry process, see the article, “How the Registry Process Works,” on the next page. [↪](#)

Eligible Veterans include those who were:

- ✓ Deployed to the Southwest Asia theater of operations (as defined in 38 CFR 3.317 (e)(2)) after August 1, 1990
- ✓ Deployed to Djibouti, Africa or Afghanistan after September 11, 2001

How the Registry Process Works

VETERANS CAN participate in the Registry whether or not they are enrolled in VA by completing a web-based self-assessment health questionnaire: <https://veteran.mobilehealth.va.gov/AHBurnPitRegistry/#page/home>. As part of this questionnaire, Veterans can choose to request an in-person medical evaluation with their VA provider. If the Veteran is already enrolled in VA health care, they can schedule an appointment. If a Veteran is not enrolled in VA health care, they can request a registry evaluation by contacting their local Environmental Health Coordinator (see <http://www.publichealth.va.gov/exposures/coordinators.asp> for a listing by facility). During the in-person evaluation, Veterans can discuss their concerns and any symptoms and providers will conduct a medical exam. A provider may suggest further testing, including specialty evaluations based on the individual Veteran's health.

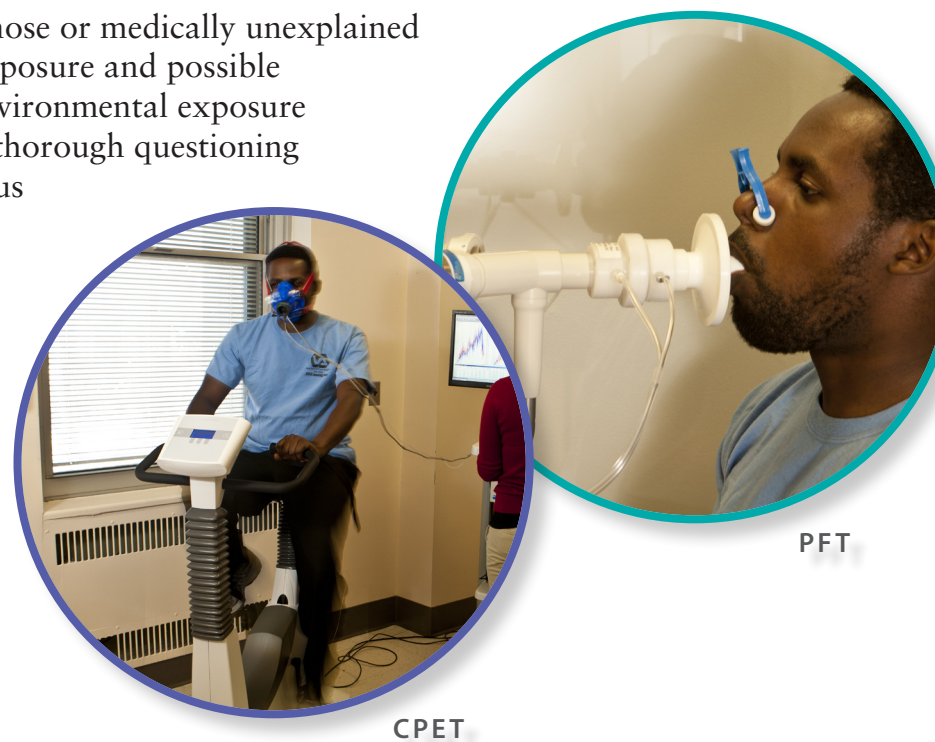


PROCESS FOR VETERANS WITH AIRBORNE HAZARD EXPOSURE CONCERNS

WRIISC Expertise and Specialty Testing Capability for Airborne Hazard Exposures

WITH EXPERTISE in clinical evaluation of Veterans with complex, difficult-to-diagnose or medically unexplained health concerns, the WRIISC looks at underlying mechanisms of airborne hazard exposure and possible treatments for related health concerns. Our multi-disciplinary team, including an environmental exposure specialist and pulmonologist, conducts a comprehensive evaluation which contains thorough questioning about airborne hazards exposure. All of our evaluation components and any previous medical work up help us assess the whole Veteran. Depending on individual needs of a Veteran and previous findings, the WRIISC clinical evaluation components for airborne hazards concerns may also include state-of-the-art assessments of lung function and exercise capacity. Just two of these methods include complete pulmonary function testing (PFT) and cardiopulmonary exercise testing (CPET), shown right. PFT includes assessment of spirometry, lung volume, and lung diffusing capacity while CPET helps evaluate how well the lungs, heart, blood vessels, and muscles work together during an exercise challenge. All of this information is utilized to develop recommendations focusing on improving the quality of life and symptom management for Veterans. Any recommendations we make are shared with a Veteran and their provider.

To have a WRIISC clinical evaluation, a referral from a VA provider is needed. See www.WarRelatedIllness.va.gov for more information. [↗](#)



WRIISC Airborne Hazards Research

SEVERAL RESEARCH PROJECTS at the WRIISC complement our clinical efforts related to the health effects of airborne hazards. These research studies involve many of the same tests implemented clinically that are used to characterize the function of the heart and lungs of Veterans deployed to Iraq and Afghanistan with exposure to airborne hazards. We also target non-pulmonary systems as well to study cellular function in these deployed Veterans. Veterans who volunteer for our studies participate in a variety of testing. This includes assessments of airway mechanics, gas exchange, and pulmonary function both at rest and during exercise (see photos, left). As the lungs work in connection with the heart to supply the body with oxygen we also assess the cardiovascular system. For example, we perform beat-by-beat measurements of blood flow through peripheral and cerebral arteries via ultrasound and evaluate the vascular response to different types of stress (e.g., exercise). During these investigations we also acquire blood samples to study flow properties, deformation of red blood cells, organelles, cellular respiration, and cellular energy. Collectively, these tests will allow an integrative understanding of the effects of airborne hazards exposure. Our hope is that findings of the different studies will lead to better treatments for Veterans with airborne hazards exposure concerns. [↗](#)



DC WRIISC

Educational Efforts Address Concerns about Airborne Hazards Exposure

DC WRIISC continues to work closely with other VA departments and DoD on programs designed to improve the health of Veterans concerned with airborne hazard exposure. During the past year, DC WRIISC has been involved in several educational efforts that address this important topic. First, Michelle Prisco, MSN, ANP-C, from the DC WRIISC was involved in the planning process for the second annual joint VA/DoD Airborne Hazards Symposium that was held in August 2013. During this symposium, VA/DoD researchers and clinicians, Veterans Service Organizations, and stakeholder's in Veterans health met to discuss collaborative DoD and VA efforts on airborne hazards to help improve the care of Veterans. Insight gathered from this symposium is being used to help guide the launch of the VA Airborne Hazards and Burn Pit Registry. Several faculty members from the NJ WRIISC participated in the Symposium as presenters as well.

Second, in response to feedback from VA primary care clinicians, DC WRIISC has recently created new group environmental exposure health classes designed to educate Veterans, family members, and health care providers about potential deployment exposures and their possible health effects. One of these classes titled "OEF/OIF/OND Military Exposure Concerns" covers potential airborne hazard exposures as well as other potential exposures for Veterans of Operation Enduring Freedom/Operation Iraq Freedom/Operation New Dawn. Class content is posted on the WRIISC Website and is available for both Veterans and providers to review.

CA WRIISC

A Detailed Encounter of Symptoms Related to Airborne Hazard Exposure

Veterans with symptoms related to Airborne Hazard exposure evaluated at the CA WRIISC are seen by the VA Palo Alto Pulmonary Clinic under the direction of Dr. Ware Kushner. Dr. Kushner is Chief of the Pulmonary Section at the VA Palo Alto Health Care System and Professor of Medicine at Stanford University and an expert in pulmonary symptoms and illnesses. He reports that Veterans want to learn about the potential health effects of airborne hazards and find out if their current health issues might be attributable to toxic vapors, gases, dusts, and fumes encountered during deployment.


During Dr. Kushner's examination, Veterans often report exposures to the combustion products of burn pit fires, jet fuel aerosols, and breathable sand particles. Many describe health effects resulting from these exposures that included initial symptoms of irritation of the eyes and nose, cough, and chest tightness, and limits to exertion. Personal respiratory protection was worn inconsistently, if at all. In many cases, symptoms resolved over time, but some Veterans continues to experience episodes of chest tightness, wheezing and coughing, diminished exercise capacity, and episodic breathlessness that was not there before deployment. Dr. Kushner's team carefully listens to the Veteran's concerns and reviews additional tests such as chest x-rays, pulmonary function tests, CT scans, and cardiopulmonary exercise testing results to help determine the extent of the problem and establish diagnoses. An overview of our approach to clinical care for Veterans with Airborne Hazard concerns is located in the article "WRIISC Expertise and Specialty Testing Capability for Airborne Hazard Exposures."

NJ WRIISC

New Study to Examine Cognitive Fatigue in Gulf War Illness Using fMRI

At the NJ WRIISC, our translational research continues to focus on the health concerns and well-being of Gulf War Veterans. Following deployment to the Gulf region, many Veterans experience profound mental fatigue (or decreased ability to think) that limits their capacity to perform normal daily activities. While mental fatigue has often been reported, it has proven difficult to determine a cause of this fatigue. An important breakthrough using new neuroimaging techniques is allowing us to better understand the brain and possible links to mental fatigue. Principal Investigator Glenn Wylie, DPhil of the NJ WRIISC and the Kessler Rehabilitation Center, is investigating mental fatigue using functional MRI (also known as fMRI) ("Examination of Cognitive Fatigue in Gulf War Illness using Functional Magnetic Resonance Imaging").

The overall objective of the study is to use neuroimaging technology to establish the areas of the brain that underlie mental fatigue in Veterans with Gulf War Illness (GWI). An eligible volunteer will need to make 2 visits; on the first visit he/she will complete paper and pencil tests that will measure different aspects of thinking, including fatigue. On the second visit, he/she will have an MRI done at Kessler Foundation (KF), in West Orange, NJ. During this MRI visit, participants will perform tasks while in the MRI scanner, which will allow us to find which brain areas underlie fatigue.

If you are a Veteran interested in participating in this study or have questions and would like more information about this study, please feel free to call NJ WRIISC at 1-800-248-8005 and ask about the "fMRI Study." 

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For comments or concerns regarding this newsletter, please contact us at:
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Do you want to participate in VA's Airborne Hazards and Open Burn Pit Registry?



Whether or not you are enrolled in VA, you can complete a health questionnaire on the Internet.

To learn more about the Registry, visit:



www.publichealth.va.gov/exposures/burnpits/action-plan.asp