

WRIISC Airborne Hazards Research

The WRIISC is unique in that in addition to our clinical services, we conduct research relevant to understanding mechanisms of action. Several research projects are currently underway that complement our clinical efforts related to the health effects of airborne hazards. These research studies involve many of the same tests implemented clinically – i.e. PFTs and CPETs – that are used to characterize the cardiorespiratory function of Veterans deployed to Iraq and Afghanistan with exposure to airborne hazards. We also target non-pulmonary systems to study cellular function in these Veterans as well.

Our studies evaluate:

- **AUTONOMIC FUNCTION** via beat-by-beat measurements of arterial blood pressure, cerebral blood flow, heart rate and respiration in response to physical stress such as orthostatic challenges.
- **VASCULAR ENDOTHELIAL FUNCTION** using noninvasive tests such as ultrasound assessment of flow-mediated dilation of peripheral arteries.
- **CELLULAR PHYSIOLOGY** in the contexts of mitochondrial bioenergetics, oxidative stress and hemorheology at rest and in response to exercise challenge.

Our research efforts combine clinical laboratory tests of cardiopulmonary, autonomic, and vascular function with molecular biology techniques to study cellular physiology to reach our goal of better understanding potential health effects associated with airborne hazards exposure in Veterans.

We Communicate Effectively with Veterans who have Exposure Concerns

HEALTH RISK COMMUNICATION is a paradigm of communication that emphasizes the importance of building trust through active listening and empathy, recognizing the relevance of perceptions of possible harm from exposures, and the uncertainty often inherent in determining the magnitude and extent of exposure, relationship between exposures and possible health effects, specific medical diagnosis, and prognosis.

We take the time to listen to the Veteran's concerns and engage in a clinically relevant discussion. We review with the Veteran the current gaps in clinical knowledge resulting in the current differences in scientific opinion, and in so doing create a rapport and gain the Veteran's trust. This fosters a positive therapeutic relationship with the Veteran, enhances the informed decision making process about appropriate next steps in the clinical management of the Veteran's health, and likely improves the Veteran's overall experience with us and satisfaction.



Working with Providers to Support Veteran Care

AFTER WE HAVE EVALUATED A VETERAN with airborne hazards exposure concerns, our team of specialists will:

- ▶ Document the visit in the CPRS along with any follow up recommendations we make.
- ▶ Mail a copy of our findings and recommendations to the Veteran.
- ▶ Be available to discuss with referring providers or their Patient Aligned Care Team (PACT) team members our results to best support follow up care.

For more information about the WRIISC clinical services or research programs, please contact us at **1-800-248-8005** or visit our website at www.WarRelatedIllness.va.gov. You can email your clinical-related question to wriisc.nj@va.gov.

We are here to help you and your patients with airborne hazards exposure concerns.

Airborne Hazards



Information for Providers

The WRIISC: Specialists in Airborne Hazards Exposure Evaluation

THE WAR RELATED ILLNESS AND INJURY STUDY CENTER (WRIISC) is a National Department of Veterans Affairs (VA) Post-Deployment Health Resource that offers a variety of state-of-the-art clinical services for Veterans with the most complex, difficult-to-diagnose or medically unexplained health concerns including those related to airborne hazards concerns. For more information about WRIISC programs and services, please visit: www.WarRelatedIllness.va.gov. There are three WRIISC locations: East Orange, NJ, Washington, DC, and Palo Alto, CA, all at VA Medical Centers.

Is your Veteran patient appropriate for a WRIISC referral?

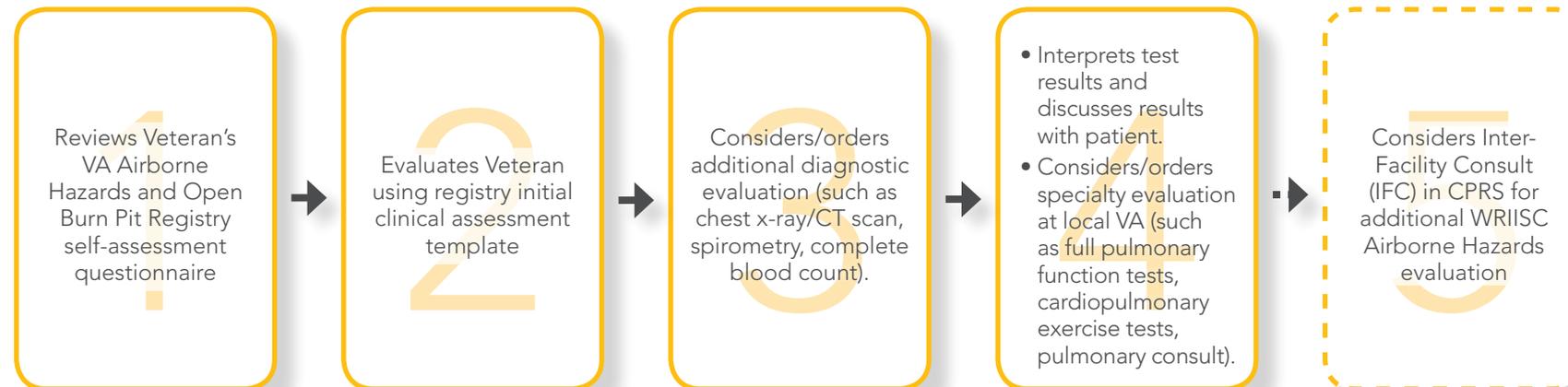
PROVIDERS MAY SEE VETERANS FOR A VARIETY OF RESPIRATORY SYMPTOMS or health concerns some of which may be related to airborne hazards exposure. The sources of potential airborne hazards exposure for Veterans would include:

- ▶ Combustion of human & non-human solid wastes
- ▶ Smoke from fires and explosions
- ▶ Dust and sand particles
- ▶ Industrial and ambient air pollution
- ▶ Air craft and automobile engine exhaust

If a Veteran comes to you for a follow up medical exam as a result of completing the Airborne Hazards Registry Self-Assessment, you should evaluate the Veteran using the **Airborne Hazards and Open Burn Pit Registry (registry) initial clinical assessment template** in the VA computerized medical record (CPRS) and complete all appropriate work ups, including specialty evaluation and diagnostic testing if appropriate and available. The WRIISC fact sheet located at the WRIISC website mentioned above and entitled, "Airborne Hazards: What Do Providers Need To Know?" contains detailed information on this topic.

Regardless of whether a veteran has completed the registry, if their symptoms remain complex or you need added support to fully evaluate their concerns, the WRIISC can provide additional expertise. An Inter-Facility Consult (IFC) in CPRS is required.

Your Role in Evaluation of Airborne Hazard Exposure:



What Specialty Testing for Airborne Hazards is available at the WRIISC?

DEPENDING ON THE INDIVIDUAL NEEDS OF A VETERAN and previous findings, the WRIISC clinical evaluations for airborne hazards concerns can include complete pulmonary function testing (PFT) and cardiopulmonary exercise testing (CPET).

PFT (pictured right) includes assessment of spirometry, lung volume, and lung diffusing capacity. Recent technologies are also available to evaluate respiratory mechanics (i.e. forced oscillation technique) and airway inflammation (i.e. exhaled breath nitric oxide). PFT may be performed prior to and following pharmacological (e.g. bronchodilator, methacholine) and/or physical (i.e. exercise) challenges in order to provoke symptoms to enhance sensitivity of testing.

In addition to PFT, CPET (shown right) is utilized to evaluate how well the lungs, heart, blood vessels, and muscles work together during an exercise challenge. CPET is of exceptional utility in the diagnosis of unexplained shortness of breath or fatigue during physical activity and enable simultaneous evaluation of pulmonary, cardiovascular, and musculoskeletal systems. These tests are further enhanced with the collection of inspired and expired gases, oxygen saturation monitoring, and arterial blood gas analysis. In addition, cardiac function is evaluated via electrocardiography and echocardiography.



PFT



CPET

The WRIISC can also discuss and evaluate post-deployment environmental exposure concerns in an **exposure-only evaluation**, which could determine any additional specific clinical testing for airborne hazards exposure. This is an alternative option for concerned Veterans when an in-person comprehensive evaluation at the WRIISC may not be warranted. A referral is also needed for this service. Exposure-only assessments are available over the telephone for eligible Veterans who are unable to travel to the WRIISC.