

Battling Environmental Threats to Combat Forces

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Today, threats to the Nation's safety and security have taken America's fighting forces far from the battlefields of the 20th century, not just in terms of geography, but in nearly every other context as well. In addition to a new kind of enemy, the new type of war in which America has been engaged in since 2001 has utilized a new defense strategy, a new force structure, and new capabilities never before employed in the history of warfare.

Yet sending our forces to fight in mountains of Afghanistan and deserts of Iraq have entailed a number of potentially hazardous environmental threats unrelated to the more deadly threats of combat. Among them is exposure to burn pit emissions that has raised fears of serious long-term effects for those deployed to locations with open burn pit operations.

In response to this environmental threat, the Department of Defense (DoD) undertook a series of scientific studies and assessments of the associated long-term risks to health.

Comprehensive analysis of the effects of exposure to burn pit smoke began in 2005 with routine air sampling at Joint Base Balad, the largest burn pit in theater. It continued with an environmental health

site assessment in 2006, and a burn pit screening health risk assessment (HRA) and addendum conducted at Joint Base Balad from 2007 to 2008. Those studies incorporated the results of hundreds of additional air samples collected around the base, and included smoke and other pollutants in the air at the time. Using U.S. Environmental Protection Agency risk assessment methodologies, the study then assumed worst case scenarios, presuming that everyone assigned to the base had been exposed to higher levels of identified contaminants 24 hours a day, seven days a week, for up to a year.

As with previous studies, the results of this assessment, later validated by the Defense Health Board, found the risk for cancer or other serious long-term health effects to be low. Still, concern among Service members and veterans who had deployed to bases with burn pit operations persisted.

Based on those concerns, and to validate the findings of the HRA, a new set of studies was ordered by the Acting Deputy Assistant Secretary of Defense for Force Health Protection and Readiness in October 2009. The difference between this study and previous surveillance was that, for the first time, these studies

included comprehensive electronic medical records and self-reported health outcomes data, some of which was controlled for health-related behaviors such as smoking and physical activity, and included members of the Reserve and National Guard. The studies followed the health status of individuals for up to three years after they had left military service.

Two highly respected military institutions were charged with conducting the study: the Armed Forces Health Surveillance Center (AFHSC), an acknowledged leader in documenting the nature, magnitude and distribution of threats to the health and readiness of our forces, and the Naval Health Research Center (NHRC), which manages and executes expeditionary operational medical research, development, testing and evaluation for the DoD.

The AFHSC conducted a retrospective cohort study to compare incidence rates of respiratory, circulatory, and cardiovascular diseases, ill-defined conditions, and sleep apnea among deployers and non-deployers; responses on post-deployment health assessment forms among individuals deployed to sites with burn pits and sites without; and the rates and proportions of medical encounters for respiratory outcomes

while assigned to four locations in Iraq and Afghanistan.

Some of the AFHSC studies further compared active Army and Air Force Service members deployed to those four locations as well as the Republic of Korea from January 2005 to June 2007, to an active component population based in the continental U.S. who had never deployed.

The NHRC conducted studies to evaluate birth outcomes of infants whose parents had been exposed to burn pit emissions before and during pregnancy; newly reported and recurring respiratory illness; chronic multisymptom illness (CMI); and newly reported lupus and rheumatoid arthritis. The studies included active duty, Reserve and National Guard members of all Services at three bases with burn pits – Joint Base Balad, Contingency Operating Base Speicher, and Camp Taji, Iraq.

For nearly all outcomes, the preliminary results of these studies showed no evidence, on a population-wide basis, of increased risk for serious long-term health effects as a result of exposure to burn pit smoke.

For all outcomes in the AFHSC studies, Service members deployed to locations in Iraq, Afghanistan and Korea had either similar or significantly lower incidence rates compared to those who had never deployed, with the exception of one slightly elevated outcome at Camp Arifjan, Kuwait, which had no burn pit. Comparisons of medical encounters in theater among the four locations, including one with a burn pit and two without, did show a higher percentage of respiratory-related encounters at one burn pit location – Joint Base Balad – but these effects did not persist upon redeployment.

The NHRC studies showed that possible burn pit exposure was not associated with pre-term birth or birth defects, increased risk for new or recurring respiratory outcomes, CMI, or newly reported

rheumatoid arthritis. The study did find a very small increase in the chance of birth defects among a subset of infants whose fathers were exposed more than 280 days prior to conception, and a statistically significant risk of newly reported lupus was associated with Joint Base Balad. Both elevations were so small they could have occurred by chance.

Because of limitations inherent in these and all studies that may prevent the detection of small elevations in the incidence of certain conditions, it is medically plausible that some personnel

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who have deployed to locations with burn pits may have developed chronic health conditions or experienced an aggravation or worsening of pre-existing conditions as a result of exposure to burn pit smoke.

In releasing the results of the study earlier this year, the DoD Director for Force Readiness and Health Assurance, Dr. R. Craig Postlewaite, said, "The preliminary findings of this report show no evidence, at this point in time, of serious health risks, on a population-wide basis, for Service members assigned to locations with burn pit operations, and no serious health impacts that can be attributed to burn pit exposure several years post-deployment. These findings should provide some reassurance to Service members and veterans who have been exposed to the smoke and are concerned about their long-term health.

"That said," Postlewaite continued, "medical surveillance of both deployed and redeployed Service members is ongoing and will continue for the full range of health outcomes. Environmental monitoring of deployment sites continues, as does exposure-related research by both the Department and the Services."

"And, it goes without saying, that all U.S. personnel will get the treatment they need and deserve for any adverse health effects, regardless of the cause," Postlewaite said.

What happens now? The DoD will continue to examine this issue and to validate these preliminary findings. On June 17, 2010, the report was sent to the Defense Health Board for scientific peer review. It will also be provided to the Institute of Medicine for possible inclusion in its study on the long-term health consequences of exposure to burn pit smoke. And, a pulmonary health working group, comprised of DoD and non-DoD clinicians and researchers, has been formed to recommend research regarding deployment respiratory disease concerns. In addition, efforts continue in theater to replace burn pits with incinerators whenever feasible.

For more than three years there has been intense interest in the potential health effects of burn pit smoke by veterans, the media, and Congress that initiated two investigations. Yet despite claims by some that DoD is doing little to address the concerns of past and present Service members, in fact, as this report demonstrates, the DoD is working tirelessly to scientifically investigate the effects of this particularly worrisome environmental threat to the health and well-being of its deployed forces.

Clearly, in this new century, our forces will continue to face environmental threats to their health and safety, but as this report demonstrates, the Department will continue to do all it can to protect and sustain their health and well being.

