



BURN PITS (TRASH AND HUMAN WASTE EXPOSURES)

A RESOURCE FOR VETERANS, SERVICE MEMBERS, AND THEIR FAMILIES

Exposure to burning trash and human waste, including feces, is a Veteran concern for those who have served overseas in countries like Iraq and Afghanistan.

Proper disposal of waste during deployment is essential to prevent health problems and protect service members. In certain situations, when sanitary and waste management facilities are unavailable, this waste may be burned in an open pit. Pits used for this purpose are referred to as "burn pits."

Since any particular trash burn is made up of several materials, it can result in different mixtures of chemicals released in the smoke. Because of this, it is difficult to quantify the levels of exposure to harmful chemicals that an individual service member may have had. A person's exposure is also dependent on how close an individual was to the burn pit, in which direction the smoke was blowing, and the length and frequency of their exposure. There is little actual testing data that has measured levels of possible toxins in individual service member's breathing environment(s) when burn pits were in use.

SHORT-TERM HEALTH EFFECTS

Many of the substances that may be released into the smoke coming from burning trash and waste are irritants and may cause short-term symptoms such as nausea, headaches and/or irritation of the eyes, respiratory tract, nose, and throat. This may result in burning, dry or tearing eyes, nasal congestion, sneezing, sore throat, cough, etc. For the majority of healthy service members, these symptoms tend to go away or resolve soon after the exposure ends. Service members with pre-existing asthma or a natural tendency for asthma, chronic lung problems, or allergies may have respiratory symptoms for a longer period of time and/or a worsening of their pre-existing symptoms and lung problems from these exposures. Some of these individuals may still have symptoms years after leaving the theater.

There are only limited scientific studies on breathing smoke from

burn pits. One recent study by Smith et al. (2009) found that soldiers who served in a land-based deployment had an increased risk for self-reported pulmonary symptoms (persistent or recurring cough or shortness of breath) in comparison to soldiers who were deployed to sea. This implies that exposures related to ground combat, including burn pits, need to be further studied.

LONG-TERM HEALTH EFFECTS

Exposures to high levels of specific, individual chemicals that may be present in burn pit smoke have been shown to cause long-term effects on the skin, respiratory system, eyes, liver, kidneys, central nervous system, cardiovascular system, reproductive system, peripheral nervous system, and gastrointestinal tract in some cases. Currently, there is not enough medical or scientific information on potential for long-term health effects in service members caused by exposures to smoke from burn pits.

In an attempt to improve our understanding of the possible long-term health effects from exposure to burn pit smoke, VA requested in November 2009, that the National Academy of Sciences' Institute of Medicine (IOM) conduct a study to determine the long-term health effects of exposure to burn pits in Iraq and Afghanistan. The IOM report was published in October 2011. The report highlighted findings on the potential for exposure to burn pit emissions at Joint Balad Base (JBB) and other US military bases in Iraq and Afghanistan and the potential health effects of that exposure. The report found that although some effects on lung function have been noted, research has not indicated that there are long-term adverse health effects from exposure to the burn pits. Based on these data, the IOM report concluded that pollutant levels at military bases were not higher than levels measured at other polluted sites worldwide. Given the





limited exposure data, the IOM report recommended further research to determine the potential health risk of long-term burn pit exposure on service members. The content of the IOM report can be accessed here through the VA Public Health Web page:

<http://www.publichealth.va.gov/exposures/burnpits/index.asp>

CONSTRUCTIVE BRONCHIOLITIS & SULFUR FIRES

Some recent studies (King et al., 2011) have identified a rare pulmonary condition known as constrictive bronchiolitis in small groups of soldiers who served in the recent conflicts and were exposed to a number of potentially hazardous materials in the air. It is not clear whether these studies are applicable to exposure to burn pits, but there are several groups of physicians, scientists and researchers, both within VA and DOD and outside of these agencies looking at this issue.

YOUR HEALTH

Based on the information available to date, Veterans who had high and/or frequent burn pit smoke exposure or who have ongoing respiratory symptoms and/or other medical conditions may require medical evaluation including a two-view chest X-ray and complete pulmonary function testing, pre- and post-bronchodilator administration. Veterans who had routine exposure to burn pit smoke and have no respiratory symptoms do not need such evaluations or follow up health monitoring.

VA continues to conduct research and consult with other investigators in order to determine the potential for health outcomes associated with burn pit exposure. For more information, visit:

<http://www.publichealth.va.gov/exposures/burnpits/health-effects-studies.asp>

Veterans with questions or health concerns about exposure to deployment-related smoke or any potentially

toxic substances should consult their VA primary care provider or local VA Environmental Health Coordinator. This is especially true if they are experiencing symptoms that they believe are related to these exposures. If additional information or further clinical evaluation is needed, VA primary care providers can consult with or refer these Veterans for an assessment by visiting our website at:

<http://www.warrelatedillness.va.gov/referral.asp>

The information contained in this sheet was obtained, in part, from the following sources:

REFERENCES:

- VA Office of Public Health
 - <http://www.publichealth.va.gov/exposures/burnpits/index.asp>
- Deployment Health and Family Readiness Library
 - <http://dhl.dhhq.health.mil/Product/RetrieveFile?prodId=313>
- US Army Center for Health Promotion and Preventative Medicine
 - <http://phc.amedd.army.mil/phc%20resource%20library/baladburnpit471208.pdf>
- Institute of Medicine
 - <http://www.iom.edu/Reports/2011/Long-Term-Health-Consequences-of-Exposure-to-Burn-Pits-in-Iraq-and-Afghanistan.aspx>
- King MS, Eisenberg R, Newman JH, et al. "Constrictive bronchiolitis in soldiers returning from Iraq and Afghanistan." *N Engl J Med.* 2011;365:222-30.
- Smith, B, Wong, C, Smith, TC, Bokyo, EK, Gackstetter, Ryan, M for the Millennium Cohort Study team. "Newly Reported Respiratory Symptoms and Conditions among Military Personnel Deployed to Iraq and Afghanistan: A Prospective Population-based Study." *Am J Epidemiol.* 2009;170 (11):1433-1442.

