



Epidemiological Studies of Health Outcomes Among Troops Deployed to Burn Pit Sites Report

October 2010

FACT SHEET

Purpose of the Study

- Based on the continuing concern of Service members about the effects of exposure to burn pit smoke, the Armed Forces Health Surveillance Center (AFHSC) and the DoD Center for Deployment Health Research (part of the Naval Health Research Center), conducted a number of epidemiologic studies to look for associations of illness or other health conditions among deployed US Service member populations who were assigned to locations with burn pits.
- The health conditions examined included respiratory symptoms and diseases, cardiovascular diseases, chronic multisymptom illness (CMI), lupus erythematosus, rheumatoid arthritis, sleep apnea, and birth outcomes for infants of parents who had deployed.

Key Findings

- The main preliminary finding was that, for nearly all health outcomes measured, the incidence for those health outcomes studied among personnel assigned to locations with documented burn pits and who had returned from deployment, was either lower than, or about the same as, those who had never deployed.
- Similar findings occurred in comparisons between those who had deployed near a documented burn pit and those who had deployed outside the area of a burn pit, with one exception: A small, but measurable, increase in the rate of signs, symptoms, and ill-defined conditions was noted for personnel deployed to a site (Arifjan, Kuwait) without a burn pit.
- For health outcomes measured in theater, Air Force members at Joint Base Balad had a higher proportion of respiratory encounters, although Army members at the same location and Service members at the other burn pit sites studied did not.
- In general, using deployment location as a proxy for burn pit smoke exposure at various times before and during pregnancy, and for differing durations, there was no association with an increase in birth defects or pre-term birth in infants of active-duty military personnel. A very small, but measurable increased risk of birth defects was seen, however, among infants of male Service members who were deployed to a burn pit region more than 280 days prior to their infant's date of conception.

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- For those who had deployed to Joint Base Balad, there was a higher risk of self-reported, newly diagnosed lupus following deployment, but it was not associated with proximity or length of time of possible exposure to smoke from a documented burn pit.

Study Strengths and Limitations

- Each of the studies had a number of strengths and some limitations. Depending on the individual studies, the strengths include:
 - The use of comprehensive electronic medical records;
 - The ability to control for health related behaviors such as smoking and physical activity;
 - The inclusion of Reserve and National Guard members;
 - The ability to follow individuals after they had left military service;
 - A large population size;
 - The robust statistical methods used for investigations.
- As with many epidemiological studies, limitations are also recognized. They include:
 - The lack of measures of individual exposure to smoke or hazardous chemicals, which is extremely difficult in the deployed setting;
 - The potential for exposure misclassification with regard to who was or was not exposed and to what extent;
 - The lack of information regarding job duties where additional exposures may have occurred; and
 - For some studies, a lack of information regarding smoking and other potential confounders.

Conclusions

- The overall preliminary findings indicate, at this time, no substantial or consistent health effects in personnel assigned to locations with burn pits at the bases examined, on a population-wide basis, compared to other deployers.
 - These findings are consistent with the earlier Joint Base Balad Burn Pit Health Risk Assessment accomplished in 2008 and with the Department's position over the past year.
 - Because of the likelihood of some exposure misclassification, and other limitations inherent to the data, the Department will continue to examine the possibility that there may be some Service members who may have developed chronic health conditions, or experienced aggravation or worsening of preexisting conditions, as a result of exposure to burn pit smoke.
 - While concern over exposure to burn pit smoke during deployment remains, the report offers reassurance that at this time and for the health outcomes and deployment locations studied, the health of deployers appear to be better or about the same for the conditions studied as other deployers, those who had never deployed, and those who had deployed to an area without a documented burn pit.
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Next Steps

- The Department of Defense will continue to work to identify any factors that place personnel at risk for smoke-related illness, eliminate burn pits in theater wherever feasible, and ensure all who experience any adverse health conditions, whatever the cause, receive the treatment they need and deserve.
 - US Central Command is working to reduce the amount of waste, maximize the use of incinerators, minimize exposure to burn pit smoke, and ultimately, reduce the number of burn pits in the theater of operations.
 - Currently, there are 42 burn pits remaining in Iraq. The plan calls for most to be closed by August, and all by December 2010.
 - There are 184 burn pit locations in Afghanistan, and a plan is in place to replace many with incinerators.
 - Section 317 of the 2010 NDAA prohibits the disposal of hazardous waste, medical waste, and solid waste containing plastic in an open-air burn pit during a contingency operation lasting longer than one year except when the Secretary determines that no alternative disposal method is feasible.
 - On March 30, 2010, Directive Type Memorandum 09-032, “Use of Open Air Burn Pits in Contingency Operations,” was issued. It prohibits the disposal of covered waste in open-air burn pits during contingency operations except when no alternative disposal method is feasible and limits the materials that can be burned.
 - Health surveillance of both deployed and returning Services members is ongoing and will continue for the full range of health outcomes and to identify any concerning trends.
 - Environmental monitoring will continue, as will exposure-related research by both the Department of Defense and the Military Services.
 - This preliminary report has been sent to the Defense Health Board for its review, and its findings will be used to improve subsequent studies.
 - The Institute of Medicine, under contract with the VA, is engaged in an 18-month study to examine the risks of inhaling burn pit smoke, and the DoD looks forward to its assessment and recommendations.
 - A Pulmonary Health Working Group, comprised of DoD and non-DoD clinicians and researchers, will recommend research regarding deployment respiratory disease concerns, including the need to medically assess respiratory function in deployed personnel.
 - The Department of Defense will continue to work with the Department of Veterans Affairs to identify any health conditions that may be linked to burn pit smoke exposures in their patient population.
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