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DEPARTMENT OF HEALTH & HUMAN SERVICES

National Institutes of Health
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June 9, 2011

To Email address: rustysilverwings@gmail.com

Dear Sirs:

We appreciate the opportunity to respond to your May 18 letter voicing your concerns about exposure to Agent Orange and dioxins in service personnel who flew and/or maintained Aircraft (C-123K's) used in Operation Ranch Hand during the Vietnam War. Major Wesley T. Carter and Lieutenant Colonels Paul Bailey and John Harris' letter provides a narrative describing the potential exposures of these service personnel. The letter accompanying the narrative seeks guidance for steps forward in evaluating the relationships between these potential exposures and adverse health effects. Please keep in mind that the NIH is not a regulatory authority and is not involved in regulatory decisions. The mission of the NIH is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce the burdens of illness and disability. While these research efforts can inform policy on issues of public health, the NIH does not make policy decisions.

Based on the narrative, directly relating these potential exposures to adverse health effects observed in service personnel is a challenge. According to the narrative, exposure is assumed based on wipe-tests demonstrating high dioxin concentrations in the C-123K's. While contact with the aircraft results in exposure to dioxins, the magnitude of these exposures is uncertain. The magnitude of this exposure is important in order to relate these exposures to potential adverse health effects. During the latter part of the 20th century and continuing to this day, dioxin exposure was ubiquitous in the general population. Dietary exposures represent approximately 95% of the dioxin exposure to the general population. Estimates of dietary exposures to dioxins in the general population during the 1970's-1990 are 1-4 pg/kg/d (Lorber, 2002). Because of these background exposures to dioxins, it is important to understand how much the occupational exposures contributed to dioxin body burdens in these Air Force personnel.

Human disease is a complex phenomenon; host, agent and environmental factors all influence the risk of developing a particular disease. It is challenging to attribute a disease to a single host, agent or environmental factor. For example, the concern over increased risk of prostate and breast cancer and cardiovascular disease are difficult to attribute to a single cause due to their high incidence in the general population. With respect to the Air Force personnel who flew and/or maintained the C-123K's, the agent is the dioxin/herbicide exposure and the host can be

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thought of as the individual with their family history which influences their risk for developing a disease. Environmental factors can be considered their personal habits including diet, smoking, pharmaceutical use, exercise, among other things. This perspective may highlight efforts that are more effective at clarifying the contribution of dioxin exposure to the potential health effects. For example, since the agent is dioxin, there are clear adverse health effects associated with high exposure to this class of chemicals, many of which are recognized as such by the Veterans Administration. Therefore, since the association is already acknowledged, a more fruitful effort may be to better understand and characterize exposure to these chemicals in Air Force personnel.

Regarding exposure, presence of a chemical in the environment does not necessarily mean that the chemical was absorbed. It may be useful to identify some of those Air Force personnel who worked the longest on the most contaminated plane and measure their blood dioxin levels. In doing so, it may be possible to determine if Air Force personnel working on the C-123K's have abnormally high dioxin blood concentrations. Comparisons can be made to dioxin blood concentrations in the general population found in the 4th National Report on Human Exposure to Environmental Chemicals by the CDC (website: <http://www.cdc.gov/exposurereport/pdf/FourthReport.pdf>). Since the wipe tests indicate that 2,3,7,8-tetrachlorodibenzo-p-dioxin makes up 85-98% of the dioxins present, it may be cost effective to measure only this congener and not all congeners in exposed personnel. By demonstrating high tissue concentrations, one could begin to argue more strongly that adverse health effects in this population may be due to dioxins. Without this information, the discussion focuses on possibilities and potential for exposures and associations with adverse health outcomes for diseases that have high incidence in the general population. As you are well aware, these discussions are less than satisfying.

Developing life-threatening disease is a traumatic event for those who are ill and their families. While the role of dioxin exposure in the development of these diseases is uncertain, treatment is the same whether there is dioxin exposure or not. Air Force personnel should work with their doctors to develop the most appropriate treatment regardless of the potential dioxin exposure. We hope that you find these comments helpful.

Sincerely,



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