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**Report/Article Title** Memorandum: To, Ron Hart, Chairman, Agent Orange Working Group (AOWG) Science Panel, From Director, Center for Environmental Health and Injury Control, regarding Discussion of Issues Related to Study of Female Vietnam Veterans, dated October 26, 1987

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**Memorandum**

Date . October 26, 1987

From Director  
Center for Environmental Health and Injury Control

Subject Discussion of Issues Related to Study of Female Vietnam Veterans

To Ron Hart, Chairman  
AOWG Science Panel

*Rec'd  
10/27/87  
CH*

*cc: J. Young*

The subject discussion was held on October 14, 1987, in Atlanta. The purpose was to obtain individual opinions and insights on issues related to the conduct of a health study of female Vietnam veterans. No consensus was sought nor were any agreements/decisions made. Attached to this memorandum is a list of the invited discussants. The Veterans Administration representatives did not attend. Dr. Peter Beach was unable to attend. The framework for this discussion was to talk about what is desirable (i.e., what people think should be done) and what is scientifically feasible (i.e., what can be done) with regard to a study of the health of female Vietnam veterans. Within this framework, two major areas were addressed: health issues and study design, the latter focusing on sample selection and measurement of exposure. The main points in each of these areas are summarized below:

**HEALTH ISSUES**

A broad range of health issues (outcomes) were raised that individuals considered important in a study of female veterans. This list included: general medical outcomes, post traumatic stress/psychologic outcomes, adverse reproductive outcomes, reproduction-related issues (e.g., fertility), parasitic/tropical diseases and their sequelae, socioeconomic factors, lifestyle factors (e.g., drugs and alcohol), and outcomes identified from the Vietnam Experience Study of male veterans. The areas which received the most attention were the post-traumatic stress/psychologic outcomes and reproductive health. Since the majority of women in the Armed Forces who served in Vietnam were nurses, stress was considered to be very important because of the nature of the work and the unique circumstances in Vietnam. The reproductive area was highlighted because of the gender-specific nature of this area of health as well as its link to stressful working conditions.

In addition to the psychological and reproductive areas, the other health issues mentioned at the beginning of this paragraph were also considered important by one or more individuals. The stressful conditions that female Vietnam veterans were exposed to (e.g., caring for casualties) were quite different from those experienced by male veterans, thus different health outcomes may be at issue. It was also pointed out even though women and men can be exposed to the same stimuli, they can respond differently and experience different health outcomes. Therefore, certain health areas should not automatically be excluded just because they are being examined in the male Vietnam Experience Study.

With regards to the feasibility aspect, the major concern raised was the difficulty in obtaining accurate information on reproductive histories and the magnitude of the effort required to validate self-reported outcomes. The importance of validation efforts in this and other areas was emphasized because of concerns related to the completeness and accuracy of self-reported events and the whole issue of possible reporting bias. While it was recognized that difficulties are inherent in validation efforts, these potential obstacles should not preclude any particular health area from being addressed if a study is conducted.

### STUDY DESIGN

Three possible study designs were identified--a descriptive study, a cohort study, and case-control studies. Case-control studies were quickly dismissed because of the limited number of female veterans with specific outcomes that would be identified in this type of study design. A cohort study was considered the best overall approach because it would provide a comparison of the health of female Vietnam veterans with other Vietnam-era female veterans and would also serve as a descriptive study of female veterans, a population whose health has never been systematically studied. The feasibility of a cohort study would be based on the resolution of issues discussed in the next section.

#### Selection of Vietnam and non-Vietnam veterans

The first issue discussed was how to identify female Vietnam and non-Vietnam veterans and the number of female veterans potentially available for a cohort study. There is no centralized file/register from which female veterans can be identified. The U.S. Army and Joint Services Environmental Support Group (ESG) has worked for the past several years and has identified the following (approximate) numbers of female Vietnam veterans: Army--5000; Air Force--700; Navy--400; Marines--36. The ESG has also been identifying non-Vietnam veteran controls for each of these groups and can identify sufficient numbers for the Air Force, Navy, and Marines. However, there is some concern at this time that the number of female Army veterans who did not serve in Vietnam will be less than the 5000 Vietnam veterans identified. The ESG will have more complete information in this area by the end of November. The ESG is doing this work for the Veterans Administration and the specific criteria and procedures used in identifying the Vietnam and non-Vietnam veterans could be made available upon request. The numbers reported above were believed to be accurate by others present, with the possible exception that more non-Vietnam Army veterans might be available.

Another issue related to the selection of Vietnam and non-Vietnam veterans is that the majority of female Vietnam veterans were Army veterans and the vast majority of these were nurses. Therefore, any study would essentially be one of Army nurses and it might be best scientifically to limit a cohort study to Army nurses. Several individuals, however, thought that female veterans of the other services should be included, if only in a descriptive sense. The decision whether or not to include women from all the branches of services was seen as a resource issue--if funds

permitted, then all groups should be included. An additional important study design issue related to the selection of Vietnam veterans is the length of time in the nursing profession prior to service in Vietnam. It appeared that more experienced nurses better handled the stressful conditions in Vietnam and, as a result, may have fewer stress-related health problems.

Individuals were concerned about the comparability of the Vietnam and non-Vietnam cohorts in terms of pre-service and post-service factors which might influence health. Certain types of nursing specialties (e.g., trauma and anesthesiology) were more likely to go to Vietnam than others (e.g., obstetrics/gynecology). In some specialty areas, all Army nurses during that period were sent to Vietnam. The general criteria for Vietnam service were volunteerism, good health, and nursing specialty. The criteria of "good health" was also applicable to Army nurses who served in other overseas areas. The post-Vietnam experiences of both Vietnam and non-Vietnam veterans also influence health and need to be considered in designing/conducting a study. If, for example, a greater proportion of Vietnam female veterans remained in nursing than non-Vietnam veterans, you might expect health differences due to different occupational experiences.

An issue related to the possible shortage of Army non-Vietnam veteran controls was whether Air Force controls could be used for Army cases. Conflicting information was provided on whether these groups would truly be comparable. In general, the issue of appropriate comparison groups is a key one and additional information is needed regarding pre-service, in-service, and post-service characteristics and experiences of these women.

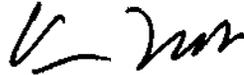
#### EXPOSURE

It was suggested that consideration be given to development of a stress index or scale based on factors such as number of casualties treated, number of rocket attacks, dates of service in Vietnam, length of duty, etc. Several individuals expressed concern about whether this would be scientifically meaningful or valid. Other individuals believe this study should be a Vietnam experience study and while various scales or indices of stress (or other factors) could be considered, they should not detract from the "experience" as the exposure of interest. Exposure to Agent Orange was not considered a relevant issue in a study of female Vietnam veterans.

In concluding this memorandum, I will make a couple of specific recommendations. The recommendations are mine and not those of the discussants. First, complete information should be obtained on ESG's current efforts in identifying female Vietnam and non-Vietnam veterans for the VA. Selection procedures, qualifying criteria, and the data abstracted from individual records should be detailed and reviewed to assist in decisions regarding the conduct of a female Vietnam veterans study. Second, consideration should be given to a pilot survey of Vietnam and non-Vietnam female veterans to find out more about their pre-service, in-service, and

post-service backgrounds. An example of the types of data needed is information on the fertility of Vietnam and non-Vietnam female veterans to help determine what reproductive outcomes are feasible to study. Both the data being compiled at ESG and the information obtained from a survey of female veterans are critical to determining if scientifically acceptable comparison groups can be identified for a female's veterans study. Once this issue has been resolved, the decision on what to study and how to proceed operationally can then be finalized. Lastly, the exposure of interest should be service in Vietnam and possibly stress. Exposure to herbicides, insecticides, and other chemicals and diseases specific to Vietnam would probably be impossible.

If you have any questions regarding this memorandum, please contact me.



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