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Vol. 1, No. 1

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Agent Orange Review

Information for Veterans Who Served in Vietnam

Veterans Administration Steps Up Agent Orange Activities

When the Veterans Administration became aware of concerns about Agent Orange in 1978, the agency took immediate steps in what has become a continuing search for answers.

The first step was an extensive effort to gather authoritative information on Agent Orange and other known phenoxy herbicides from scientific literature and other sources. This effort led to the establishment of special agency and interagency committees to share information and provide recommendations to the Administrator of Veterans Affairs and to provide a focus for developing Agent Orange policy.

In recognition of the need to monitor closely and coordinate VA's Agent Orange efforts, the agency's chief medical director appointed a special assistant in April 1980 to administer all Agent Orange activities within VA's Department of Medicine and Surgery. The special assistant serves as liaison with other federal and nonfederal agencies and institutions that are conducting research and working toward establishing scientific evidence about the effects of Agent Orange.

In February 1982, the Administrator of Veterans Affairs established the Agent Orange Research and Education Office in order to provide a single focal point for the entire agency and to monitor interagency and international activities related to the phenoxy herbicides and other defoliants used during the Vietnam conflict.

Agent Orange Registry

The VA has a continuing program for examining Vietnam veterans who are concerned about the possible health effects of Agent Orange. The findings of these examinations are entered into the Agent Orange Registry. Vietnam veterans are encouraged to request an examination at their nearest VA health-care facility. A veteran who participates will receive a comprehensive physical examination and be asked to complete a questionnaire about his service in Vietnam. Following the examination, the veteran will be advised of the results. The examination could help to detect any illness or injury the veteran may have, regardless of origin, and may provide a basis for follow-up.

The registry currently is coordinated by environmental physicians located at each of VA's 172 medical centers and 6 independent outpatient clinics.

Agent Orange Pamphlets

A mailing was made in June to veterans on the registry as of March 8, 1982. Registry participants received copies of two VA pamphlets on Agent Orange which covered VA Agent Orange activities and the provisions of Public Law 97-72, "Veterans' Health Care, Training and Small Business Loan Act of 1981." A letter also was included in the mailing to registry participants. Currently, a major effort is under way to update the addresses of all veterans on the registry.

VA efforts to resolve the complex health issues raised by Agent Orange also are progressing. For more information on Agent Orange studies, see p. 4.

The VA continues to cooperate with other government agencies and public institutions involved in Agent Orange research. The VA is closely monitoring the progress of a study of U.S. Air Force "Ranch Hand" personnel who were directly involved in herbicide spraying missions in Vietnam. In cooperation with the Department of Health & Human Services and the Department of Defense, the VA is jointly funding a birth defects study being conducted by the Centers for Disease Control in Atlanta.

A plan is now in effect to provide an information and education program for concerned Vietnam veterans and their families on matters and progress relating to Agent Orange.

Agent Orange Review — First Issue

Agent Orange Review is prepared by the VA Office of Public and Consumer Affairs. The Review will be published periodically throughout the year as part of VA's expanded program to provide information on Agent Orange to concerned veteran and other families.

This first issue contains some information that you may have already received concerning the medical care and treatment provisions of Public Law 97-72 and answers to commonly asked questions about Agent Orange. Future issues of the Review will contain updated information on Agent Orange-related matters, including Agent Orange studies.

If you have any questions about your Agent Orange examination, contact the environmental physician at the VA medical center where you had the examination.

If you have questions about VA benefits or Agent Orange, contact the VA facility nearest you. The phone number can be found in the white pages of your telephone book under U.S. Government listings.

Changes of address, along with mailing label, should be forwarded to the VA Data Processing Center (200/392), 1615 E. Woodward St., Austin, TX 78772, Attn: Agent Orange Clerk.

Questions and Answers About Agent Orange

Q. What is Agent Orange?

A. Agent Orange was a herbicide, or defoliant, used in Vietnam to kill unwanted vegetation that otherwise would have provided cover for the enemy. Agent Orange was a reddish-brown liquid made of two chemicals—2, 4-D and 2, 4, 5-T. Both chemicals have been used widely throughout the world since the 1940s by farmers, foresters and homeowners. The herbicide was called "Agent Orange" because it was shipped to Vietnam in orange-striped barrels.

Q. Why are people worried about Agent Orange?

A. Beginning in 1978, a concern was expressed that the veterans exposed to Agent Orange when it was used in Vietnam between 1965 and 1971 might be subject to delayed health effects from the exposure. These concerns were based on the fact that one of the chemicals — 2, 4, 5-T — contained minute traces of a toxic chemical, dioxin (TCDD). This chemical contaminated the herbicide during the manufacturing process. The contaminant dioxin is of concern because animal studies have shown it to be toxic to certain species. Like other toxic substances, dioxin has produced a number of serious conditions among laboratory animals.

Q. What is being done to determine whether Vietnam veterans really were affected by Agent Orange?

A. The VA took a number of steps which included consulting with sources of information on herbicides, providing instructions to VA hospitals and offices to examine veterans and process claims, setting up a system to capture and correlate information obtained during examination of veterans who reported health concerns and encouraging research proposals among VA's 5,000 medical researchers. A search of worldwide scientific literature on Agent Orange was completed with VA funding, and the Agency has contracted for the development of an epidemiological study to determine what effects veterans might have suffered from exposure to Agent Orange. VA also has asked other government agencies to use their resources and expertise to help find answers to the remaining scientific questions.

Q. What are other federal agencies doing?

A. Major efforts are under way by the Department of the Air Force and the Centers for Disease Control. The Air Force is conducting an epidemiological study of "Ranch Hand" personnel—the aircrews who handled and sprayed Agent Orange in Vietnam. The current health of this group is considered especially significant because its members were heavily exposed to the chemicals and are among the few service members whose exposure is fully documented. The Centers for Disease Control are pursuing a study to determine the relationship between military service in Vietnam and the incidence of birth defects. Other studies include short- and long-term follow-up on populations exposed to dioxin during industrial accidents.

Q. What should a veteran do if he is concerned about Agent Orange?

A. The veteran should contact the nearest VA medical center for an examination. An appointment can be arranged, generally within two to three weeks. The veteran is asked a series of questions relating to possible exposure to herbicides in Vietnam. A medical history is then taken; a physical examination is performed; and a series of base-line laboratory tests, such as a chest X-ray, urinalysis and blood tests, are conducted. Consultations with other physicians are requested if the examining physician thinks it is medically indicated. The veteran is informed of the results of the examination, verbally and in writing, and is given the opportunity to ask for an explanation and advice. Where medically indicated, arrangements are made for scheduling a follow-up examination or additional laboratory tests. Information gathered in the examination is documented in the veteran's permanent medical record. This information also is entered into the computerized VA Agent Orange Registry.

Q. Will the VA treat Vietnam veterans who have health problems that they believe may have been caused by exposure to Agent Orange?

A. Under Public Law 97-72, approved on November 3, 1981, the VA can treat eligible veterans for certain disabilities that may have been caused by exposure to Agent Orange. Guidelines have been issued to all VA medical centers in order to implement this legislation. Individual veterans should contact the nearest VA medical center to determine their eligibility.

Q. What kinds of health problems are being reported by veterans?

A. Veterans have reported a wide range of symptoms, many of which relate to skin problems. Most of the other problems are of a nonspecific nature, such as headache, loss of drive, irritability and change of personality. These general symptoms do not focus on any specific diseases or organ systems. The numerous research efforts being conducted both inside and outside the federal government should provide some definite answers as to whether or not health problems among veterans are the result of service in Vietnam.

Q. Has any evidence been found that medical problems were actually caused by exposure to Agent Orange?

A. At present, the best available scientific evidence fails to indicate that exposure to Agent Orange or other herbicides used in Vietnam has caused any long-term health problems for veterans or their children. One effect sometimes observed after dioxin exposure is a skin disorder, called chloracne, which in appearance resembles some common forms of acne. While some of the people exposed to dioxin in industrial accidents developed chloracne almost immediately, this reaction has not been firmly established among Vietnam veterans.

Q. What is the purpose of the VA Agent Orange Registry?

A. The registry represents VA efforts to identify all Vietnam veterans who are worried about the possible health effects of exposure to Agent Orange and to find out what types of medical problems they are experiencing. Veterans are provided a free physical examination and medical advice based on their current state of health. The registry serves as a mechanism to provide follow-up with these veterans should significant information develop.

Q. Will the Agent Orange Registry examination show whether a veteran has been or will be adversely affected by Agent Orange?

A. Because relatively little is known at present about the possible delayed effects of Agent Orange exposure on humans, the examination cannot establish a definite connection in an individual. Answers must await the results of on-going research. The examination will help to detect any illness or injury the veteran may have, regardless of origin, and may provide a basis for treatment. No characteristic symptoms or diseases have been noted among a significant number of the veterans undergoing registry examinations.

Q. Does Agent Orange exposure cause human birth defects?

A. There is no medical evidence to establish that exposure to Agent Orange has caused birth defects in the children of Vietnam veterans. Industrial workers exposed to the ingredients of Agent Orange have not fathered an increased proportion of children with birth defects. A study of male mice treated with Agent Orange revealed no effect on fertility nor on the rate of birth defects. However, some veterans have expressed concern about this possibility, and, therefore, the VA is providing funding for a major research effort in this area at the Centers for Disease Control.

Q. Why is the VA opposed to doing fat biopsies to check for the presence of TCDD (dioxin) in human tissue?

A. The test to determine if TCDD is present in body tissue is a highly complex and technically difficult process. First of all, it requires a surgical procedure to obtain enough fat for this chemical analysis. Second, there are only a few laboratories in the world that have the equipment and the technical expertise to conduct the analysis. Third, and probably most important, the VA has determined, based on a pilot study, that there is no good correlation between the presence of TCDD in body fat and known exposure to Agent Orange. In addition, there is no correlation between TCDD in body tissue and reported health problems. For these reasons, the VA at the present time does not believe that this procedure would be of any help to Vietnam veterans.

Q. Because the VA has no proof that Agent Orange does not cause problems, isn't it being overly bureaucratic by putting the burden of proof on veterans who have problems?

A. As a basis for compensating a veteran for permanent disabilities caused by military service, there must, in fact, be a disability or a symptom, not just a fear of one. There also must be a logical basis for a determination that a given disability had its inception during, or was aggravated by, the individual's military service.

Q. Is there a comprehensive source of scientific information about the herbicides used in Vietnam?

A. A review and an analysis of world literature on herbicides was completed in October 1981. The review was conducted by an independent organization under contract with the VA. Copies of the two-volume scientific document can be purchased as follows:

Volume 1: Analysis of Literature (Stock No. 051-000-00154-1), $9.00 each

Volume 2: Annotated Bibliography (Stock No. 051-000-00155-9), $9.50 each

Vendor: Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20401

VA Implements Provisions of Public Law 97-72

The VA has begun to carry out the medical care and treatment provisions of Public Law 97-72, the "Veterans' Health Care, Training and Small Business Loan Act of 1981."

Public Law 97-72 authorizes the Veterans Administration to "provide certain health care services to any veteran of the Vietnam Era (August 5, 1964 through May 7, 1975) who, while serving in Vietnam, may have been exposed to dioxin or to a toxic substance in a herbicide or defoliant used for military purposes. Health care services may not be provided, under this law, for the care of conditions which are found to have resulted from a cause other than exposure to these substances."

Types of Health Care

Health-care services authorized under the law are limited to hospital and nursing home care in VA facilities. Outpatient care may be provided at a VA facility:

- In order to prepare a veteran for hospitalization;
- In order to complete inpatient care that was initiated in a VA hospital; or
- In order to provide care that would make unnecessary the need for hospitalization.

These services will be provided without regard to the veteran's age, service-connected status or the ability of the veteran to defray the expenses of such care.

Veterans are furnished outpatient care under this authority within the limits of VA facilities' capacity to provide such care. Outpatient services may be provided on a fee-basis only in connection with post-hospital care and then only where VA or other government facilities lack the capability to provide the needed care or cannot do so economically because of geographical inaccessibility.

In providing outpatient care under this authority, VA is charged with assuring that veterans will be accorded priority ahead of other nonservice-connected veterans and equal to former POWs.

VA guidelines provide that a complete medical history, physical examination and appropriate diagnostic studies will be developed for each veteran who served in the Republic of Vietnam and who requests VA medical care. For those who have been examined within the past six months, only those procedures that are medically indicated by the current circumstances will be repeated. Where findings reveal a condition requiring treatment, the responsible staff physician must determine whether the condition resulted from a cause other than exposure to Agent Orange.

Health-Care Exceptions

Health-care services may not be provided under this law for the care of conditions that are found to have resulted from a cause other than the specified exposure. The physician will consider that the following types of conditions are *not* ordinarily considered to be due to such exposure:

- Congenital or developmental conditions, e.g., spina bifida, scoliosis;
- Conditions that are known to have pre-existed military service;
- Conditions resulting from trauma, e.g., deformity or limitation of motion of an extremity;
- Conditions having a specific and well-established etiology, e.g., tuberculosis, gout; and
- Common conditions having a well-recognized clinical course, e.g., inguinal hernia, acute appendicitis.

(See **PL 97-72**, *page 4)*

Agent Orange Research Update

New AO Studies Funded

The VA has launched ten new research projects concerning the health-related effects of Agent Orange. The projects are supported for up to five years with VA research funds in excess of $2 million.

The projects were selected from proposals submitted by individual investigators working in VA medical centers across the country. The projects primarily involve animal studies, but human tissue cultures will be analyzed in some of the experiments. Specific approaches range from behavioral observations of laboratory animals exposed to the defoliants used in Vietnam to biochemical studies of fat metabolism.

Vietnam Veteran Mortality Study

The VA is in the process of designing a large mortality study that will analyze and compare death rates and cause-of-death profiles between veterans with service in Vietnam and comparable veterans with no service in Vietnam. It is estimated that approximately 300,000 Vietnam and Vietnam-Era veterans have died since the start of the Vietnam conflict. This number includes approximately 52,000 combat deaths.

The mortality study will provide information that may prove useful primarily in suggesting areas for further scientific study.

The VA projects that it will take approximately two years to complete the study.

Birth Defects Study

In 1981, the Centers for Disease Control (CDC) initiated a study designed to determine if Vietnam veterans are at increased risk of having children with birth defects. Since 1968, CDC has maintained a registry of all babies born with defects in the greater metropolitan Atlanta area. Of the total 15,000 children on this registry, approximately 7,500 had significant anatomical defects at birth. The investigators will attempt to locate and interview the parents of all 7,500 of the children in this group. In addition, the parents of 3,000 matched control normal babies born during the same time period will be interviewed. Because the major objective of this study will be to determine whether an unusually high proportion of fathers of babies born with defects served in Vietnam, information will be gathered about Vietnam service as well as other factors that may be associated with the occurrence of birth defects. If the study demonstrates that a Vietnam veteran has an increased risk of fathering a child with a defect, an attempt may be made to determine if the increase is associated with Agent Orange exposure or with some other factor or factors. The study is scheduled to be completed by September 1983.

Identical Twins' Study

The VA recently funded the development of a study of identical twins. The proposed study would involve identical twin veterans — one of whom served in Vietnam and one who did not serve in Vietnam.

The study will be designed to investigate whether the current psychological and physical health of Vietnam veterans was adversely affected by their military experience in Vietnam. VA researchers at the St. Louis VA Medical Center have proposed the study and are developing the study protocol.

Once this is reviewed, some 450 pairs of identical twins will undergo physical examinations in late 1983. An initial report on the findings is expected by October 1984.

(PL 97-72, *from page 3*)

A physician may believe that a veteran requires care for any of these conditions and that these conditions present a complicating circumstance that make the provision of care under this authority appropriate. He may decide to provide such care following consultation with the facility chief of staff and the environmental physician.

PL 97-72 provides for health care only. A determination that a veteran is eligible for care under this law does not constitute a basis for service-connected disability or in any way affect determinations regarding service-connected disability.

Individual veterans should contact the nearest VA medical center to determine their eligibility. Any military records that the veteran has should be brought to the medical center in order to speed the process of eligibility and care and ensure a more complete medical history. Veterans who are not provided needed medical care under Public Law 97-72 may be furnished care if they are eligible under any other statutory authority.

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Agent Orange Review

Information for Veterans Who Served in Vietnam

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April 1983

Information for Veterans Who Served in Vietnam

VA Transfers Epidemiological Study to CDC in Atlanta

On January 14, 1983, VA and the Department of Health and Human Services signed an interagency agreement transferring to the Centers for Disease Control (CDC) a study on the possible health effects of Agent Orange exposure on Vietnam veterans.

VA had contracted with the School of Public Health of the University of California at Los Angeles in May 1981 to design the study, which was mandated by Public Law 96-151. In the fall of 1982, it was recommended to VA that the responsibility for conducting the study be transferred to CDC.

In announcing the transfer, Administrator Harry Walters hailed the agreement as a giant step forward in serving the interests of veterans. Said Walters, "I am confident CDC will proceed as fast as possible. The time frame can be dictated only by the realities of sound scientific research."

Walters added, "The transfer of the epidemiological study in no way diminishes the commitment of the Veterans Administration to provide clinical care to Vietnam veterans concerned about exposure to Agent Orange. Further, the agency will continue to conduct biomedical research in the area of possible long-term health effects related to herbicides."

The interagency agreement advances $3 million for FY '83 to CDC to conduct the study, as well as the preliminary study design and subsequent reviews.

VA will forward to Congress interim and final reports on the findings of the study as they are received from CDC.

VA Task Force Focuses on Chloracne Health Issue

At a VA Herbicide Advisory Committee meeting in late 1982, a member of VA's newly reorganized Chloracne Task Force called for an all-out-effort to locate Vietnam veterans who may be suffering from chloracne — a skin disease believed caused by exposure to dioxin, a contaminant found in Agent Orange.

Dr. A. Betty Fischmann, chairperson of the Task Force, said that the major focus of the Task Force is to resolve the chloracne health-care issue in the near future.

The reorganized Task Force, which consists of five members and a program analyst based at the Washington, D.C., VA Medical Center, held its first meeting in December 1982 during the annual meeting of the American Academy of Dermatology.

Dr. Fischmann reported on the status of Task Force activities at VA's Herbicide Advisory Committee meeting in February 1983. The Task Force has:

- Organized a nationwide network of dermatological consultants;
- Developed a standard questionnaire for dermatologic Agent Orange examinations, which is being reviewed;
- Developed criteria for diagnosing chloracne, which also are being reviewed; and
- Organized special examinations at private clinics for veterans with possible cases of chloracne.

The chloracne examinations at private clinics had been completed by January 1983. Of the 3,200 claims filed by Vietnam veterans for disability compensation for skin conditions, 14 of the 15 possible chloracne cases have been examined. Four additional cases have been located since January 1983, and examinations have been scheduled.

*(See **Chloracne**, page 4)*

In this issue:

Agent Orange Review is prepared by the Office of Public and Consumer Affairs. The Review will be published periodically throughout the year as part of VA's expanded program to provide information on Agent Orange to concerned veterans and their families.

This issue contains information on VA's Chloracne Task Force, the transfer of the epidemiological study from VA to the Centers for Disease Control, VA's Advisory Committee on Health Related Effects of Herbicides, the Air Force Ranch Hand Study and updates on other Agent Orange research activities.

For additional copies of the Review, write the VA Office of Public and Consumer Affairs (084), 810 Vermont Ave., N.W., Washington, D.C. 20420.

If you have new questions about your Agent Orange examination, contact the environmental physician at the VA medical center where your medical examination was.

If you have questions about VA benefits or Agent Orange, contact the VA regional office in your state. The phone number can be found in your telephone book under "U.S. Government" listings.

If you would like to be added to the mailing list to receive the Review, please send your name, complete address and social security number (if you are a veteran) to the VA Data Processing Center (200/392), 1615 E. Woodward St., Austin, TX 78772. Attn: Agent Orange Clerk. Changes of address should be forwarded to the same Austin address, *along with your mailing label.*

New VA Administrator Pledges Action on Agent Orange Issues

Before he was sworn in as VA's 12th administrator, Harry Walters testified before Congress and declared himself an advocate for America's veterans. He pledged to meet the special health-care needs of younger veterans, many who are combat disabled and some who may have been exposed to phenoxy herbicides.

On the Agent Orange issue, Walters said: "The questions related to Agent Orange exposure are extremely complex. The difficulty in resolving them has frustrated Members of Congress, the veterans' service organizations, those of us in the Executive Branch, and, most important, the veterans who are concerned as to how exposure may have affected their lives. These concerns are real, and VA must meet its responsibilities, whatever they may be."

Recently, Administrator Walters addressed VA's Herbicide Advisory Committee and reaffirmed his belief that VA has a special responsibility in helping to resolve the complex issues surrounding exposure to Agent Orange. He said: "I intend to commit the necessary resources and to give top priority to supporting and reviewing research that will determine, to the extent possible, the likely effects of exposure to Agent Orange, as well as the possible environmental hazards related to military service.

"We (the VA) have the additional responsibility to deal sensitively and compassionately with these deeply felt concerns.

"Pending the results of ongoing research, it is essential that we work together to provide appropriate medical care, under the provisions of Public Law 97-72 (the "Veterans' Health Care, Training and Small Business Loan Act of 1981"), to all those veterans who believe their health has been adversely affected by service-related environmental health hazards."

Harry Walters testifies before the Senate Committee on Veterans' Affairs at his confirmation hearing in December 1982.

Australia Releases Two Reports On Australian Vietnam Vets

Two reports on Australian forces who served in Vietnam have been issued. The first examines the possible effects of pesticides on their health and the second covers whether they are at an increased risk of having children with birth defects.

After evaluating evidence and reviewing claims made by the Vietnam Veterans Association of Australia, the Australian Senate's Standing Committee on Science and the Environment released its first report on the possible effects of pesticides on Australian Vietnam veterans.

The committee reached these conclusions:

- It is unlikely that the majority of Australian troops were directly or indirectly exposed to herbicides used by U.S. forces, namely Agent Orange and other compounds containing the phenoxy herbicides 2,4-D and 2,4,5-T. However, direct exposure to insecticides (such as malathion) used to control malaria was probable in the majority of cases.
- It is accepted that all Vietnam veterans would have been exposed to harmful chemicals *outside* of Vietnam. The report suggests that the additional burden of exposure to potential cancer-causing substances associated with a one-year-period of service in Vietnam is likely to have been relatively small.
- There is no convincing evidence, at present, that the rates of birth abnormalities, psychiatric disorders and mortality are excessive among Vietnam veterans. The committee does not rule out the possibility that excessive rates may appear in the future.
- It is highly improbable that birth defects in children of Vietnam veterans result from the veterans' exposure to pesticides while serving in Vietnam.
- There is insufficient evidence to support allegations that there is an increased mortality rate among Vietnam veterans because of cancer. Other causes of death (suicides and accidents resulting from psychiatric disorders) in Vietnam veterans may be excessive and, therefore, may justify further monitoring.

In a separate study, a team from the Commonwealth Institute of Health, University of Sydney, attempted to determine whether Vietnam-era Australian veterans were at an increased risk of fathering a malformed child.

In February 1983, the Australian government issued a report on the results of this study entitled "Case-Control Study of Congenital Anomalies and Vietnam Service (Birth Defects Study)." It is the first scientific study on the subject ever completed.

The study found that Australian veterans of the Vietnam conflict were *not* at increased risk of fathering a malformed child.

Three groups were included in the study: Vietnam veterans, contemporary Army personnel who did not serve in Vietnam and community members who did not serve in the Army at that time.

The analysis also showed that the risk of fathering a malformed child was no higher for either Vietnam veteran or Army non-Vietnam veteran fathers than for other Australian males and the risk was not different for National Service and Australian Regular Army Vietnam veterans.

State Agent Orange Groups Hold First National Meeting

Seventeen states have begun their own programs relating to the Agent Orange issue.

VA's Agent Orange Projects Office maintains an ongoing relationship with each state program, providing Agent Orange informational materials and other assistance.

Representatives from seven of the official state Agent Orange programs held the first national meeting on Agent Orange in the fall of 1982. Representatives agreed to share medical, scientific and outreach information to promote action on resolving the Agent Orange issue.

Representatives also attended the VA Advisory Committee on Health-Related Effects of Herbicides in February 1983 and a special meeting with Administrator Harry Walters.

Agent Orange Research Update

Air Force Health Study

The Air Force released preliminary findings from their study on Ranch Hand personnel who were involved in herbicide spraying missions in Vietnam from 1962 to 1971.

The three-part study — a mortality study, a morbidity study (diseases, including birth defects in offspring) and followup — was begun in 1980.

Although more extensive analyses and comparisons of the data remain to be done, preliminary findings show that the overall mortality rates of the Ranch Hand and comparison group have been very similar. Based on the 60 deaths identified in the Ranch Hand group, excluding 22 killed in action, no statistically significant differences in total death rates have been found between the Ranch Hand group and the comparison group.

Statistics for both groups were lower than for a similarly aged U.S. white male population. However, thus far, very few deaths have occurred in the study groups, and these deaths represent only a very early assessment of mortality. Further analyses will continue as the data are updated and periodically reassessed.

Face-to-face interviews of participants selected for the in-home questionnaire part of the study have been conducted by Louis Harris Associates.

The interviews, begun in October 1981, were completed in November 1982.

Of the original 2,486 subjects selected for the study, only one Ranch Hand and four comparison subjects could not be located. This location rate of 99.8 percent is very high for an epidemiological study. Interviews with current and former wives and next-of-kin of deceased individuals also took place.

Ninety-seven percent of the Ranch Hand subjects chose to participate in the face-to-face questionnaire.

The indepth physical examinations and psychological evaluations of the participants began in January 1982. The examinations were completed in mid-December 1982.

A mortality report is expected to be issued in May 1983, and preliminary reports on the data from the questionnaire and examinations are expected to be released in mid- or late summer.

Followup examinations will be administered to the study subjects at 3, 5, 10, 15 and 20 year points.

Soft-Tissue Sarcomas

VA's Agent Orange Projects Office is now in the process of researching data on the number of Vietnam-era veterans who have been diagnosed as having soft-tissue sarcomas (malignant tumors).

With support from VA's Data Processing Center in Austin and the use of patient treatment records, the Agent Orange Projects Office expects to obtain a count and a list of names of those veterans.

VA also is looking into data indicating the prevalence of soft-tissue sarcomas among adult males, ages 30 to 50. The National Cancer Institute and other sources are providing the data.

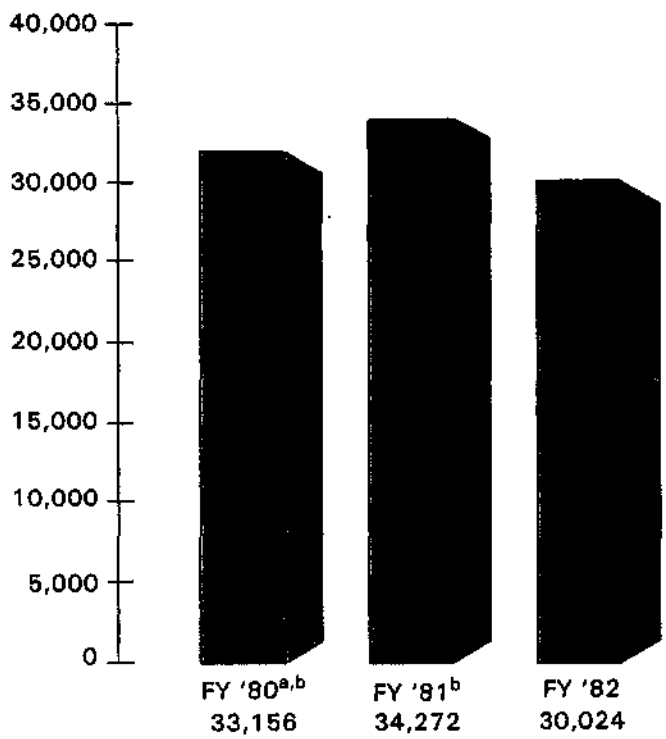
Several epidemiological studies conducted by Swedish scientists have reported evidence of a relationship between soft-tissue sarcomas and exposure to phenoxy herbicides and dioxin. Similar studies in New Zealand and Finland, however, show no such relationship.

The Swedish studies consisted of three investigations. The first involved 52 soft-tissue sarcoma patients who were matched with 208 controls without such tumors. Results indicated a five-fold increase in the risk of soft-tissue sarcomas in those workers exposed to phenoxy herbicides. In the second study, using the same technique as the first, 110 patients with soft-tissue sarcomas and 219 controls were matched. Forestry and agricultural workers had a risk five-times greater than that of the other workers. The third study concentrated on malignant lymphomas. Sixty patients with Hodgkin's disease and 105 with types of non-Hodgkin's lymphomas were matched with 335 controls. Results were similar to the findings of the other investigations.

New Zealand scientists conducted a study involving 102 males with soft-tissue sarcomas who appeared on the New Zealand Cancer Registry between 1976 and 1980 and 306 controls chosen from patients with other forms of cancer. The two groups were matched by age, year and occupation when added to the Cancer Registry. In spite of the fact that phenoxy herbicides have been used extensively for many years in New Zealand in agriculture and forestry, so far the study findings do not show an excess of soft-tissue sarcomas for those workers involved in these occupations.

In Finland, mortality data on 1,926 workers involved in dioxin-contained-herbicide spraying during 1955-1971 were studied from 1972 to 1980. Although exposure was rather low and of a short duration (but similar to that reported in the Swedish studies), no cases of death from soft-tissue sarcomas or lymphomas were found. Mortality figures (including deaths from natural causes and from all types of cancers) also were studied separately for subgroups of workers who were more heavily exposed. Results did not show an increased mortality rate for these workers.

AGENT ORANGE EXAMINATIONS



Cumulative total number of initial examinations as of September 30, 1982 (as illustrated by graph): 97,452; as of January 31, 1983: 106,149.

[a]Includes totals for FY '78 and FY '79.

[b]Because of changes in examination reporting procedures, actual totals prior to 5/81 are unavailable. Estimated figures have been used.

Advisory Committee Seeks Answers To Agent Orange Questions

VA's Advisory Committee on Health-Related Effects of Herbicides was formed in 1979 to resolve the complex issues surrounding the possible health effects of herbicides on Vietnam veterans.

The committee is made up of from 12 to 16 members. Currently, membership stands at 13. Membership includes scientists from within and outside the federal government and individuals from several veterans' groups. The committee is chaired by Dr. Barclay Shepard, acting director of VA's Agent Orange Projects Office.

Notice of the purpose, date, time and location of all meetings are published in advance in the "Federal Register." To ensure maximum public participation, time is set aside during all committee meetings for questions or comments from the audience.

During 1982, the committee discussed a wide range of subjects related to the entire Agent Orange issue. A number of ongoing, planned or potential efforts were reviewed and discussed in 1982, including VA activities (Agent Orange Registry, identical twins' study, mortality study, in-house research studies, monograph series, Chloracne Task Force, public information efforts), activities of other federal agencies (Air Force health study, Centers for Disease Control birth defects study, Armed Forces Epidemiological Board, Armed Forces Institute of Pathology Agent Orange Registry), international efforts (Australian government activities and International Dioxin Symposium), state government initiatives, veterans' service organization activities and new research efforts.

The committee held its 15th quarterly meeting and first of 1983 on February 24th. Among the topics discussed were Chloracne Task Force activities, the National Institute for Occupational Safety and Health's Dioxin Registry and mortality study, and Australia's birth defects study (see related articles in this issue of the "Review").

At the February 24th meeting, the committee decided to establish two subcommittees — one to deal with epidemiology and biostatistics and one to deal with the delivery of services to veterans, including addressing matters of particular concern to Vietnam veterans and sharing Agent Orange-related information with them.

The committee's next meeting is scheduled for May 1983.

Dr. A. Betty Fischmann, chairperson of the Chloracne Task Force, reports to the Herbicide Advisory Committee on the special examinations given to veterans with possible cases of chloracne.

(Chloracne, *from page 1*)

Reports on eight examinations have been received from the clinics showing one veteran with a possible case of chloracne who will be examined further and another veteran who worked at a chemical arsenal and whose acne flared after working with halogenated hydrocarbons.

The Task Force also has nearly completed a pilot study analysis of the Washington VA Medical Center Agent Orange Registry examinations for dermatologic diseases to locate possible chloracne cases. Two of the 906 veterans examined had possible cases of chloracne. The Task Force has proposed an ongoing review of current Agent Orange Registry examinations.

The Task Force also plans to serve as a resource in the development of a monograph on chloracne.

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Agent Orange Review

Information for Veterans Who Served in Vietnam

Veterans Administration

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June 1983

Agent Orange Review

Information for Veterans Who Served in Vietnam

VA Reports on Medical Care For Vietnam Veterans

In recent testimony before a congressional subcommittee, VA Chief Medical Director Donald Custis reported on the medical care and treatment being provided for veterans under Public Law 97-72, the "Veterans' Health Care, Training and Small Business Loan Act of 1981."

Approximately 9,400 Vietnam veterans were admitted for inpatient care under this law during the period from February 1982 to February 1983. During this same period, approximately 369,000 Vietnam veterans made outpatient visits to VA health-care facilities.

More than 106,000 veterans have received initial Agent Orange examinations under the Agent Orange Registry program, which was begun in 1978. In addition, 24,500 follow-up examinations have been provided.

Public Law 97-72 authorizes VA to provide certain health-care services to any veteran of the Vietnam era who — while serving in Vietnam — may have been exposed to dioxin or to a toxic substance in a herbicide or defoliant used for military purposes.

VA is continuing to examine and treat Vietnam veterans in the Agent Orange Registry program and under Public Law 97-72. Any veterans who are concerned about possible adverse health effects of exposure to Agent Orange or who believe they are eligible for medical care under PL 97-72 should contact the nearest VA medical center or outpatient clinic.

Herbicide Advisory Committee Holds Meeting in May

VA's Advisory Committee on Health-Related Effects of Herbicides held its 16th quarterly meeting on May 20, 1983.

Reports on recent VA Agent Orange-related activities were presented to the committee before the newly established subcommittees held their first meetings.

The Subcommittee on Veterans' Education and Information — chaired by Fredrick Mullen, Sr., claims consultant, Paralyzed Veterans of America — heard reports on current and planned VA public information efforts. Subcommittee members also discussed Agent Orange issues of particular concern to Vietnam veterans.

Reports on VA's soft-tissue sarcoma study, the Australian birth defects study and VA's mortality study were discussed by the Subcommittee on Epidemiology and Biostatistics. The subcommittee is chaired by Dr. Richard Hodder, deputy director of the Division of Medicine at Walter Reed Army Institute of Research in Washington, D.C.

The full committee was briefed by the two subcommittees before opening the meeting to questions from the audience.

About the Review

This issue of the "Agent Orange Review" contains information on:

- Medical care and treatment under Public Law 97-72,
- The recent Herbicide Advisory Committee meeting, and
- Updates on several research activities.

The "Review" is prepared by VA's Office of Public and Consumer Affairs and is published periodically throughout the year as part of VA's expanded program to provide information on Agent Orange to concerned veterans and their families.

For additional copies of this issue, write VA's Office of Public and Consumer Affairs (064), 810 Vermont Ave. NW., Washington, DC 20420.

If you would like to be added to the mailing list to receive the "Review," please send your name, complete address and social security number (if you are a veteran) to the VA Data Processing Center (200/392), 1615 E. Woodward St., Austin, TX 78772. Attn: Agent Orange Clerk. Changes of address should be forwarded to the same Austin address, *along with your mailing label.*

If you have any questions about your Agent Orange examination, contact the environmental physician at the VA medical center where you had the examination.

If you have questions about VA benefits or Agent Orange, contact the VA facility nearest you. The phone number can be found in your telephone book under "U.S. Government" listings.

Agent Orange Research Update

NIOSH Dioxin Registry

The National Institute for Occupational Safety and Health (NIOSH), the research arm of the Occupational Safety and Health Administration, is compiling a registry of industrial workers who have been exposed to dioxin.

Workers exposed during the industrial production of chemicals with TCDD as a by-product or those exposed in industrial accidents since the late 1940s will be included in the registry. NIOSH plans to include 6,000 workers in the study. As of May 1, 1983, 4,000 workers had been added. The remaining 2,000 are expected to be included by December 1983.

The registry will be used to compare mortality rates of exposed workers with national mortality rates.

Fourteen production sites have been identified, and information has been obtained at all but two sites.

Collection and analysis of all data is expected to be completed by March 1985. NIOSH expects to issue a report for public comment in mid-1985, with a final report available in the fall of 1985.

The health of workers on the registry will be evaluated at 5-year intervals.

VA Mortality Studies

The VA mortality studies, initiated in mid-1982, are designed to analyze and compare death rates and cause of death of veterans with Vietnam service and comparable veterans with no service in Vietnam.

The studies use existing VA computer records to identify a group of approximately 60,000 deceased veterans who served during the Vietnam era (1964-1975). Cause-of-death data will be obtained from death certificates, and histories of military service will be obtained from military records.

As part of the mortality studies, an independent validation of the VA computer records of veterans' deaths will be undertaken by the National Academy of Sciences.

The gathering of data is well underway. A pilot study of coding has begun involving 2,000 of the computer records. Data collection should be completed by December 1984.

VA Literature Review

VA has awarded a contract for preparation of an updated comprehensive review and scientific analysis of the literature covering studies of the effects of herbicide exposure on humans.

The review will be based on an exhaustive compilation of the world's literature on the subject. More than 500 publications are expected to be reviewed.

The review will update the previous two-volume set entitled "Review of Literature on Herbicides, Including Phenoxy Herbicides and Associated Dioxins," which was published in 1981.

In addition to an analysis of the scientific literature that has appeared since the 1981 report, the updated review will focus on a number of more recent studies that pertain to herbicide exposure and health problems in humans.

The literature update and assessment is expected to be published in January 1984.

Vietnam Experience Twin Study

During January 1983, the Vietnam Experience Twin Study was placed in VA's Cooperative Studies Program, assuring support and assistance from VA's research community.

The proposed study will involve some 500 pairs of identical twin veterans — one who served in Vietnam during the period of herbicide spraying and one who did not serve in Southeast Asia.

The study will attempt to determine whether the current psychological and physical health of Vietnam veterans was adversely affected by the Vietnam experience. Subjects will be given a battery of psychological, physiological and biochemical tests.

Methods for selecting, finding and recruiting the twins are currently being explored.

The twin study also will include a pilot effort to validate the proposed physical and psychological tests on a series of identical and fraternal twins who will not be part of the main study.

The researchers include an anthropologist/epidemiologist, a Board-certified internist and a clinical psychologist.

The study design is expected to be completed by October 1983. Study results are not expected for two to three years.

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Information for Veterans Who Served in Vietnam

White House AO Group Oversees Federal Studies

In 1979, the White House established the Interagency Work Group and Science Panel to study the possible long-term health effects of herbicides. In 1981, the group was redesignated the Agent Orange Working Group.

Membership includes representatives from the Department of Health and Human Services, which is the lead agency; White House Office of Policy Development; White House Office of Science and Technology Policy; Office of Management and Budget; Council of Economic Advisors; Department of State; Department of Agriculture; Department of Labor; Veterans Administration; Environmental Protection Agency; and ACTION.

The Agent Orange Working Group is responsible for overseeing federal research projects on Agent Orange and for distributing study findings to the public.

John Svahn, undersecretary of the Department of Health and Human Services, was recently named to head the group.

The group is part of the Cabinet Council on Human Resources.

Congressional Hearings Held On AO Compensation Bills

During April and July of this year, the House Veterans' Affairs Committee's Subcommittee on Compensation, Pension and Insurance held hearings on H.R. 1961 — the Vietnam Veterans Agent Orange Relief Act.

The bill would provide presumption of service connection for certain diseases among Vietnam veterans that may be linked to Agent Orange exposure. Under the bill, veterans would be eligible for compensation if they have one of three diseases:

- cancer of some soft-tissue organs such as tendons, fat and muscles;
- porphyria cutanea tarda, a condition that affects the liver and skin; and
- chloracne, a skin disorder that may be severe.

During the April hearings, witnesses stated that although some studies suggest a link between Agent Orange exposure and long-term illness, the medical community as a whole does not support that contention.

VA witnesses, including Administrator Harry Walters, VA Chief Medical Director Donald Custis and Chief Benefits Director Dorothy Starbuck, cited a wide range of research currently seeking medical conclusions to the complex Agent Orange issue.

Administrator Walters said: "I have an obligation to safeguard this nation's compensation program for service-disabled veterans and the survivors of those who gave their lives for their country.

About the "Review"

"Agent Orange Review" is prepared by VA's Office of Public and Consumer Affairs. The "Review" is published periodically throughout the year as part of VA's expanded program to provide information on Agent Orange to concerned veterans and their families.

This issue contains information on:

- Congressional hearings on Agent Orange presumptive compensation bills;
- White House Agent Orange Working Group; and
- An update on Agent Orange studies, including a table on studies in progress.

For additional copies of this issue, write VA's Office of Public and Consumer Affairs (064), 810 Vermont Ave. NW, Washington, DC 20420.

If you have any questions about your Agent Orange examination, contact the environmental physician at the VA medical center where you had the examination.

If you have questions about VA benefits or Agent Orange, contact the VA facility nearest you. The phone number can be found in your telephone book under "U.S. Government listings."

If you would like to be added to the mailing list to receive the "Review," please send your name, complete address and Social Security number. If you are a veteran, to the VA Data Processing Center (200/392), 1615 E. Woodward St., Austin, TX 78772, Attn: Agent Orange Clerk. Changes of address should be forwarded to the same Austin address along with your mailing label.

The existence of a causal connection between disabilities and military service to the nation is the fundamental precept of the compensation system. Should H.R. 1961 become law, the basic premise of the program would be fundamentally changed and its continued viability jeopardized."

Walters added that if a consensus of the medical community finds with reasonable medical certainty that Agent Orange exposure causes disabilities, he will ensure that veterans are fairly compensated for these disabilities.

The American Legion, Veterans of Foreign Wars, Vietnam Veterans of America and other groups expressed their support for enactment of H.R. 1961. In testimony during the April hearing, representatives of some of these groups said that sufficient evidence exists to connect the three medical disorders to herbicide exposure.

The Disabled American Veterans and the Paralyzed Veterans of America (PVA), however, opposed the bill.

(See **Hearings**, *page 4)*

Agent Orange Research Update

Air Force Health Study

The Air Force presented to a congressional committee additional data on the mortality portion of their study on Ranch Hand personnel who were involved in herbicide spraying missions in Vietnam.

As of September 1, 1982, there were 67 documented deaths in the Ranch Hand group. The causes of death include: 22 killed in action; 18 accidental; 2 suicides; 1 homicide; 3 malignant tumors; 1 endocrine, nutritional, metabolic and immunity disorder; 14 circulatory diseases; and 5 digestive system diseases.

For this same period, there were 235 deaths among the comparison subjects. The large number of deaths among the comparison group is a result of the study design's one-to-five ratio for Ranch Hand personnel to comparison subject. The causes of death for the comparison group include: 91 accidental; 12 suicides; 3 homicides; 34 malignant tumors; 2 tumors (malignancy uncertain); 1 endocrine, nutritional, metabolic and immunity disorder; 68 circulatory diseases; 11 digestive system diseases; 3 infectious and parasitic diseases; 1 nervous system and sensory organ disorder; 4 respiratory diseases; 2 genito-urinary system conditions; and 2 ill-defined conditions.

No statistically significant differences in the death rates were found between the Ranch Hand and the comparison group.

The overall survival pattern of the Ranch Hand and the comparison group was contrasted to the vital statistics for the 1978 U.S. white male population. Both the Ranch Hand and comparison group had a significantly lower mortality rate than U.S. white males of the same age. This is an epidemiological phenomenon called the "healthy worker effect." This effect is due, in part, to the selection of healthy individuals for entry into the Armed Forces as well as the availability of health care throughout their careers and retirement.

The mortality analysis will be an ongoing process. Additional data on the mortality phase of the study will be issued periodically.

Reports on data obtained from the questionnaires and physical examinations are now expected to be released to the public in the fall of 1983.

NIOSH Birth Defects Study

In November 1979, the National Institute for Occupational Safety and Health (NIOSH) was asked by employees working for the Long Island Railroad to conduct a Health Hazard Evaluation.

The employees were maintenance workers who came in contact with 2,4,5-trichlorophenoxy-acetic acid (2,4,5-T), a herbicide contaminated with dioxin that was used for weed control along the railroad tracks. The workers — members of Teamsters' Union Local 808 — were concerned that there may have been an excess number of birth defects among their children and that 2,4,5-T was the cause.

As a result of the investigation, NIOSH concluded that there was no excess of major birth defects present in the Long Island Railroad workers' children.

Approximately 800 Long Island Railroad employees work on track maintenance and could have had contact with a variety of herbicides used for weed control, including 2,4,5-T. Each worker was potentially exposed to several chemical agents.

NIOSH began an investigation to determine whether there was such an excess of birth defects among the workers' children and whether the cause could be attributed to herbicides.

NIOSH obtained a list of 170 children born to union members from 1973 to 1979. These dates were chosen because spraying for weed control with 2,4,5-T had occurred in 1974 through 1976. Other herbicides were used before then, as well as during 2,4,5-T spraying, and for a three-year period afterward.

NIOSH also obtained medical insurance claims for the children of these workers, and the claims were reviewed by a physician.

All problems that could have been congenitally related and that were diagnosed during the infant's first year of life were extracted.

From this total list of birth defects, all "major" defects — as defined by the Centers for Disease Control and the Perinatal Collaborative Project — were identified.

Comparative data for the total number of major birth defects and for all other defects that occurred more than once in the study population were obtained. With this information, NIOSH attempted to determine if an excess of any particular problem existed.

Forty-two of the children had at least one non-infectious health problem during the first year of life, as noted on an insurance claim. Three were classified as "major" birth defects.

The remainder were medically classified as "minor" and are not recognized as congenital problems.

NCI Soft-Tissue Sarcoma Study

The National Cancer Institute is currently conducting a case-control study to determine whether there is an association between herbicide exposure and the incidence of soft-tissue sarcomas (a group of malignant tumors) and lymphomas (certain tumors that are usually malignant).

The study is being conducted in Kansas because of the agricultural practices among farmers who apply phenoxy herbicides to wheat fields without applying insecticides. Cases are being obtained through the Kansas Tumor Registry. Cases and controls will be matched by age, sex and county of residence.

Data collection should be completed by October 1983. A report on study findings is expected to be available in 1984.

Additional studies are being conducted in Minnesota and Iowa where farmers generally apply insecticides to corn and other crops at the same time they apply herbicides. A similar case-control method is being used in these areas to compare pesticide exposures in general between leukemia and lymphoma cases and suitable controls.

Although information will be obtained on herbicide use, researchers expect that it may be impossible to separate any likely associations between exposure to insecticides and exposure to herbicides.

Results of the Minnesota and Iowa studies may be available in 1984.

Dioxins and Furans in Adipose Tissue

VA conducted a small feasibility study in 1979-1980 to determine whether levels of dioxin in adipose tissue (or fat) of U.S. males could be measured. Three groups of adult males took part in the study:

- Twenty Vietnam veterans who volunteered for the study and who claimed to have health problems they believed were related to Agent Orange exposure;
- Three Air Force officers who had recently been heavily exposed to dioxin in connection with laboratory experiments; and
- Ten veterans who volunteered for the study and who had no Vietnam service or known exposure to herbicides.

The study showed that it was possible to detect and measure dioxin in adipose tissue removed from some of the Vietnam veterans as well as some of the non-Vietnam veterans. The study also showed, however, that there was no clear relationship between dioxin levels and Vietnam service, Agent Orange exposure or the

(See **Research**, *page 4)*

AGENT ORANGE STUDIES IN PROGRESS

STUDY	AGENCY	DESCRIPTION	PROJECTED COMPLETION DATE[a]
Vietnam Veteran Mortality Study	Veterans Administration	To compare mortality patterns and specific causes of death between those veterans who served in Vietnam and those veterans without Vietnam service	Late 1984
Vietnam Veteran Identical Twin Study	Veterans Administration	To compare mental and physical health status of identical twin veterans, one who served in Vietnam and one who did not	1986
Survey of Patient Treatment File	Veterans Administration	To identify morbidity patterns among Vietnam veterans from VA inpatient files	Initial 1983
Retrospective Study of Dioxins and Furans in Adipose Tissue	Veterans Administration	To devise a method for determining levels of dioxins and furans in adipose tissue of Vietnam-era veterans from samples in EPA's Survey of Human Adipose Tissue, to identify Vietnam veterans among the tissue samples and to analyze samples	1985
Case-Control Study of Soft-Tissue Sarcoma	Veterans Administration	To determine whether Vietnam service, Agent Orange exposure and other factors increase the risk of soft-tissue sarcoma	1985
Epidemiological Study of Ground Troops Exposed to Agent Orange	Department of Health & Human Services, Centers for Disease Control	To evaluate possible long-term health effects of Agent Orange exposure on ground troops in Vietnam and to assess possible health effects of Vietnam service; 30,000 veterans expected to participate	1987
Birth Defects and Military Service in Vietnam	Department of Health & Human Services, Centers for Disease Control	To determine possible association between Vietnam service and subsequent fathering of congenitally malformed children; based on Birth Defects Registry in Atlanta area which includes families of approx. 5,400 case babies and 3,000 control babies	Early 1984
Soft-Tissue Sarcoma Investigation	National Institute for Occupational Safety & Health	To study tissues from seven cases of soft-tissue sarcoma in U.S. (4 who had been exposed to dioxin and 3 who may have been) in order to identify patterns of cancer that may be unique among those exposed to dioxin	Indefinite
Investigation of Lukemia in Madison County, Ky.	National Institute for Occupational Safety & Health	To determine possible association between cases of leukemia and exposure to wood ammunition boxes treated with hexadioxins	Fall 1983
Dioxin Registry	National Insititute for Occupational Safety & Health	To analyze causes of death among workers at 12 production sites where dioxin-containing products were manufactured	1985
International Registry of Persons Exposed to Phenoxy Acid Herbicides & Contaminants	National Institute of Environmental Health Sciences, with International Agency for Research on Cancer	To establish an international registry of workers in some 20 plants where phenoxy acid herbicides were manufactured; mortality study planned when enough workers have been added to registry	Indefinite
Case-Control Study of Lymphoma and Soft-Tissue Sarcoma	National Cancer Institute	To compare herbicide exposure among cases of soft-tissue sarcoma and lymphoma with controls of the same age, sex and Kansas county of residence	1984
Air Force Health Study	Department of Defense	To compare mortality and morbidity of Air Force personnel involved in Agent Orange spraying in Vietnam with a group of Air Force personnel who were not exposed to the herbicide	Baseline 1983 Complete 1999
Agent Orange Registry of Vietnam Veteran Biopsy Tissue	Armed Forces Institute of Pathology	To determine disease patterns in biopsy tissue from Vietnam veterans; 1,200 specimens thus far show no unusual patterns, especially of cancer	Indefinite

[a]*Note: Dates listed are expected completion dates only. These dates may change as a result of unforeseen delays in locating individuals or collecting data, for example.*

VA Monograph Series Underway

VA has initiated a series of monographs designed to provide useful scientific information on environmental factors that have or may have had an impact on the health of military personnel serving in Vietnam.

The subjects that will be covered in the series for fiscal year 1983 include birth defects, genetic screening and counseling; human exposure to herbicides; Agent Blue (cacodylic acid); and chloracne.

The monographs will be authored by internationally recognized experts and will be a source of valuable scientific information to VA environmental physicians, researchers and other members of the scientific community.

The four monographs are expected to be published and available for distribution in late 1984.

(Hearings, *from page 1)*

PVA's representative testified that although they support compensation for diseases and injuries incurred while serving the United States, the presumption of service-connected disabilities "must be related to sound, reasonable medical evidence that such a connection exists." PVA asserted that the diseases listed in H.R. 1961 "do not meet this test."

In June, the Senate Committee on Veterans' Affairs held two days of hearings on Agent Orange-related matters.

During the first session, the committee heard testimony on the current status of federal Agent Orange research projects, the current state of knowledge on the possible health effects of Agent Orange exposure and a report on treatment for Vietnam veterans provided under Public Law 97-72 — the Veterans' Health Care, Training and Small Business Loan Act of 1981.

At the second session, testimony was presented on legislation before the committee:

- S. 374 — a bill that would provide presumption of service connection for the occurrence of certain diseases in veterans exposed to phenoxy herbicides while in Vietnam;
- S. 786 — a bill that would establish a service connection presumption for certain diseases caused by exposure to herbicides or other environmental hazards or conditions in veterans who served in Southeast Asia during the Vietnam era; and
- S. 991 — a bill that would require regulations providing for the resolution of Veterans Administration benefit claims based on certain exposures to herbicides containing dioxin, to ionizing radiation from detonations of nuclear devices and to certain other hazardous substances.

(Research, *from page 2)*

current health status of the veterans in the study. Nothing at the time was known about dioxin levels in the general U.S. population.

Since the feasibility study was completed, VA and the Environmental Protection Agency (EPA) have entered into an interagency agreement to study the levels of dioxin in adipose tissue from a selected group of men in the Vietnam-era age bracket.

EPA has been collecting fat samples for its National Human Adipose Tissue Study since 1970. These samples from the general population were analyzed for residues of selected pesticides and toxic chemicals.

Additional samples are still available for analysis, including tissue samples of 555 males born between 1937 and 1952. Many had served in the military during the Vietnam era and some had served in Vietnam when Agent Orange was sprayed.

The VA study — referred to as a Retrospective Study of Dioxins and Furans in Adipose Tissue — will use the samples from these 555 men and will attempt to measure dioxin levels in the samples. The study should establish data on dioxin levels in the U.S. male population and should indicate whether military service, especially in Vietnam, has had an effect on dioxin levels in adipose tissue.

The study will be conducted in three phases.

In Phase I, the names and social security numbers of the 555 males will be obtained. Work has already begun on gathering the information in order to determine military status.

Phase II will be the development of methods for determining levels of dioxins and furans in adipose tissue. A method for analyzing the tissue was reviewed by 29 representatives of the scientific community (government, academic and private sector) in April 1983.

Phase III will involve the analysis of the adipose tissue and preparation of the final report.

Phases I and II should be completed within calendar year 1983. The final report should be available in 1985.

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Agent Orange and Its Use In Vietnam

Agent Orange was a herbicide used in Vietnam to defoliate trees and remove cover for the enemy.

Shipped in orange-striped barrels, Agent Orange was a reddish-brown liquid containing two herbicides: 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) and 2,4-dichlorophenoxyacetic acid (2,4-D).

One of the herbicides — 2,4,5-T — was contaminated in the manufacturing process with 2,3,7,8-tetrachlorodibenzo-p-dioxin, also known as TCDD or, more popularly, as dioxin.

The history of herbicides for military use dates to World War II. During the early part of the war, interest arose in chemicals that could be used for crop destruction. Two chemicals were developed as a result of those early efforts — 2,4-D and 2,4,5-T. Although neither chemical was used in World War II, the value of their use in weed and brush control programs was recognized. Hence, both chemicals have been used widely throughout the world since the 1940s by farmers, foresters and homeowners.

Various chemical herbicides were sprayed in Vietnam at different times — during different years as well as different seasons because of the variety of vegetation and environmental conditions.

Agent Orange spraying missions in Vietnam were conducted from March 1965 through June 1970.

Dioxin is of concern because animal studies have shown it to be toxic to certain species. Its possible health effects on humans are the focus of numerous federal, state and private-sector studies.

SPECIAL ISSUE

"Agent Orange Review" is prepared by VA's Office of Public and Consumer Affairs. The "Review" is published periodically throughout the year as part of VA's expanded program to provide information on Agent Orange to concerned veterans and their families.

This special issue inaugurates the second year of publication. For those newly added to our mailing list, this issue includes some information covered in previous issues. Also covered is new information or updated material. The subjects include:

- the properties of Agent Orange and its use in Vietnam,
- Agent Orange research, including a table of some of the research related to Agent Orange and the Vietnam experience,
- VA's Agent Orange Registry and examination,
- veterans' entitlements under Public Law 97-72,
- procedures for filing claims possibly related to Agent Orange exposure, and
- sources of Agent Orange information.

For additional copies of this issue, write VA's Office of Public and Consumer Affairs (064), 810 Vermont Ave. NW, Washington, DC 20420. See pg. 4 of this issue to find out how to get on the mailing list for the "Review."

VA's Agent Orange Registry And Examination

The Agent Orange Registry represents VA's efforts to identify Vietnam veterans who are concerned about the possible health effects of Agent Orange exposure. Registry data also are used in reviewing the types of medical problems these veterans are experiencing.

Veterans who want to receive an Agent Orange examination should contact the nearest VA medical center or outpatient clinic and request an appointment for an examination. An appointment can be arranged, generally, within two to three weeks.

Eligible veterans currently receiving treatment in VA medical centers and outpatient clinics also are provided the opportunity to participate in the Agent Orange Registry and to receive a thorough examination.

Information gathered in the examination is documented in the veterans' permanent medical record. This information also is entered into the computerized VA Agent Orange Registry data bank. The examination in and of itself does not constitute "filing a claim."

The Agent Orange Registry examination includes a complete medical history and a complete physical examination. Veterans are asked a series of questions concerning military service and possible exposure to herbicides in Vietnam, health complaints and evidence of birth defects in their children.

Veterans participating in the Agent Orange Registry are given the following baseline laboratory studies:

- complete blood count,
- urinalysis,

(See Registry, page 2)

Health-Care Services Under Public Law 97-72

In order to provide concerned, eligible veterans with appropriate medical care and treatment for illnesses or disabilities possibly related to Agent Orange exposure, Public Law 97-72 — the Veterans' Health Care, Training and Small Business Loan Act of 1981 — was signed on Nov. 3, 1981. PL 97-72 authorizes VA to provide certain health-care services to any veteran of the Vietnam era (August 5, 1964-May 7, 1975) who, while serving in Vietnam, may have been exposed to dioxin or to a toxic substance in a herbicide or defoliant used for military purposes. Health-care services may not be provided under this law for the care of conditions that are found to have resulted from a cause other than exposure to these substances.

Types of Health Care

Health-care services authorized are limited to hospital and nursing home care in VA facilities. Outpatient care may be provided at a VA facility:

- in order to prepare a veteran for hospitalization,
- in order to complete inpatient care that was initiated in a VA hospital or
- in order to provide care that would make unnecessary the need for hospitalization.

These services will be provided without regard to the veteran's age, service-connected status or the ability of the veteran to defray the expenses of such care.

Veterans are furnished outpatient care under this authority within the limits of VA facilities' capacity to provide such care. Outpatient services may be provided on a fee-basis only in connection with post-hospital care and then only where VA or other government facilities lack the capability to provide the needed care or cannot do so economically because of geographical inaccessibility.

In providing outpatient care under this law, VA is charged with assuring that veterans will be accorded priority ahead of other nonservice-connected veterans and equal to former POWs.

VA guidelines provide that a complete medical history, physical examination and appropriate diagnostic studies be developed for each veteran who served in Vietnam and who requests VA medical care. For those who have been examined within the prior six months, only those procedures that are medically indicated by the current circumstances will be repeated. If findings reveal a condition requiring treatment, the responsible staff physician must determine whether the condition resulted from a cause other than the exposure to Agent Orange.

Health-Care Exceptions

Health-care services may not be provided under this law for the care of conditions that are found to have resulted from a cause other than the specified exposure. The physician will consider that the following types of conditions are not ordinarily considered to be due to such exposure:

- congenital or developmental conditions (conditions that a veteran was born with or are hereditary);
- conditions that the veteran had before;
- conditions resulting from an injury;
- conditions having a specific and well-established cause, e.g., tuberculosis, gout; and
- common, well-understood conditions such as inguinal hernia or acute appendicitis.

A physician may believe that a veteran requires care for any of these conditions and presents a complicating circumstance that makes the provision of care under this authority appropriate. He or she may decide to provide it following consultation with the facility chief of staff and the environmental physician.

PL 97-72 provides for health care only. A determination that a veteran is eligible for care under this law does not constitute a basis for service-connected disability or in any way affect determinations regarding service-connected disability.

Individual veterans should contact the nearest VA medical center to determine their eligibility. Any military records that the veteran has should be brought to the medical center in order to speed the process of eligibility and care and ensure a more complete medical history. Veterans who are not provided needed medical care under Public Law 97-72 may be furnished care if they are eligible under any other statutory authority.

Federal Agent Orange Research Projects

More than 60 federally sponsored research efforts currently are being conducted by VA, the Department of Defense, the Department of Health and Human Services and other federal agencies. See pg. 3 of this issue for a table of some of these research efforts related to Agent Orange and the Vietnam experience.

These federal studies are coordinated by the White House Agent Orange Working Group, which oversees the projects and distributes study findings to the public.

The American Legion and twenty state Agent Orange Commissions or programs also are conducting research and outreach activities on the possible health effects of Agent Orange exposure.

(Registry, *from page 1*)

- routine lab tests and
- chest X-ray if one has not been taken within the past six months.

Additional diagnostic studies are performed and consultations obtained, if so indicated by the examination and laboratory findings.

The medical center's environmental physician discusses with the veteran examination and test results available at the time the examination is completed. During the interview, veterans can discuss any health concerns they have as these concerns relate to herbicide exposure.

Following the examination and review of the examination records by the environmental physician, followup letters that explain the examination and lab results are sent to each veteran.

Veterans are encouraged to schedule followup examinations so VA can obtain additional information on any possible long-term health effects of Agent Orange exposure.

EXAMPLES OF AGENT ORANGE STUDIES IN PROGRESS

ACTIVITY	AGENCY	DESCRIPTION	PROJECTED COMPLETION DATE[a]
Vietnam Veteran Mortality Study	Veterans Administration	To compare mortality patterns and specific causes of death between those veterans who served in Vietnam and those veterans without Vietnam service	Early 1985
Vietnam Veteran Identical Twin Study	Veterans Administration	To compare mental and physical health status of identical twin veterans, one who served in Vietnam and one who did not	1987
Survey of Patient Treatment File	Veterans Administration	To identify morbidity patterns among Vietnam veterans from VA inpatient files	Indefinite
Retrospective Study of Dioxins and Furans in Adipose Tissue	Veterans Administration	To devise a method for determining levels of dioxins and furans in adipose tissue of Vietnam-era veterans from samples in EPA's Survey of Human Adipose Tissue, to identify Vietnam veterans among the tissue samples and to analyze samples	1985
Case-Control Study of Soft-Tissue Sarcoma	Veterans Administration & Armed Forces Institute of Pathology	To determine whether Vietnam service, Agent Orange exposure and other factors increase the risk of soft-tissue sarcoma	1985
Epidemiological Study of Ground Troops Exposed to Agent Orange	Department of Health & Human Services, Centers for Disease Control	To evaluate possible long-term health effects of Agent Orange exposure on ground troops in Vietnam and to assess possible health effects of Vietnam service; 30,000 veterans expected to participate	1988
Birth Defects and Military Service in Vietnam	Department of Health & Human Services, Centers for Disease Control	To determine possible association between Vietnam service and subsequent fathering of congenitally malformed children; based on Birth Defects Registry in Atlanta area which includes families of approx. 5,400 case babies and 3,000 control babies	Early 1984
Soft-tissue Sarcoma Investigation	National Institute for Occupational Safety & Health	To study tissues from seven cases of soft-tissue sarcoma in U.S. (4 who had been exposed to dioxin and 3 who may have been) in order to identify patterns of cancer that may be unique among those exposed to dioxin	Completed
Investigation of Leukemia in Madison County, Ky.	National Institute for Occupational Safety & Health	To determine possible association between cases of leukemia and exposure to wood ammunition boxes treated with hexadioxins	Fall 1983
Dioxin Registry	National Institute for Occupational Safety & Health	To analyze causes of death among workers at 12 production sites where dioxin-containing products were manufactured	1985
International Registry of Persons Exposed to Phenoxy Acid Herbicides & Contaminants	National Institute of Environmental Health Sciences, with International Agency for Research on Cancer	To establish an international registry of workers in some 20 plants where phenoxy acid herbicides were manufactured; mortality study planned when enough workers have been added to registry	Indefinite
Case-Control Study of Lymphoma and Soft-Tissue Sarcoma	National Cancer Institute	To compare herbicide exposure among cases of soft-tissue sarcoma and lymphoma with controls of the same age, sex and Kansas county of residence	1984
Air Force Health Study	Department of Defense	To compare mortality and morbidity of Air Force personnel involved in Agent Orange spraying in Vietnam with a group of Air Force personnel who were not exposed to the herbicide	Baseline Mortality 1983 Initial Morbidity Early 1984 Complete Followup 1999
AFIP Registry of Vietnam Veteran Biopsy Tissue	Armed Forces Institute of Pathology	To determine disease patterns in biopsy tissue from Vietnam veterans; 1,200 specimens thus far show no unusual patterns, especially of cancer	Indefinite

[a]*Note: Dates listed are expected completion dates only. These dates may change as a result of unforeseen delays in locating individuals or collecting data, for example.*

Procedures for Filing Claims

Veterans who believe they have health problems that may be related to Agent Orange exposure should file a claim for disability compensation with the VA regional office. VA form 21-526 (JUL 1982), Veteran's Application for Compensation or Pension, is used for filing disability claims possibly related to Agent Orange exposure.

For information or assistance, veterans can call or visit a VA medical center, regional office or other VA facility. Check the telephone directory under U.S. Government, Veterans Administration. Toll-free telephone service is available in all 50 states.

Local representatives of various veterans' organizations and the Red Cross also have information and application forms available and will assist veterans in filing claims.

Agent Orange Information

Veterans or other interested individuals who would like to be added to VA's mailing list to receive the "Agent Orange Review" and other Agent Orange informational materials should send their name, complete address and social security number (if a veteran) to the VA Data Processing Center (200/392), 1615 E. Woodward St., Austin, TX 78772, Attn: Agent Orange Clerk.

A review and analysis of world literature on herbicides was conducted by an independent organization under contract with VA. Copies of the two-volume scientific document can be purchased from the U.S. Government Printing Office, Washington, DC 20401. The titles, order numbers and costs are: "Volume 1: Analysis of Literature," Stock No. 051-000-00154-1, $9.00 each; "Volume 2: Annotated Bibliography," Stock No. 051-000-00155-9, $9.50 each.

Administrator Pledges Action On Agent Orange Issue

In a special videotape distributed to all VA facilities, Administrator Harry Walters called on VA employees to deal sensitively and compassionately with veterans' concerns over Agent Orange and to ensure that veterans are aware of the services VA provides: participation in the Agent Orange Registry, medical care for problems that may be related to Agent Orange exposure and assistance in filing claims that could be linked to Agent Orange exposure.

Walters, who declared himself an advocate of America's veterans when he became administrator, has pledged to meet the special health-care needs of younger veterans, many who are combat-disabled and some who may have been exposed to phenoxy herbicides.

On the Agent Orange issue, Walters said: "The questions related to Agent Orange exposure are extremely complex. The difficulty in resolving them has frustrated Members of Congress, the veterans' service organizations, those of us in the Executive Branch and, most important, the veterans who are concerned as to how exposure may have affected their lives. These concerns are real, and VA must meet its responsibilities, whatever they may be."

At a VA Herbicide Advisory Committee meeting, Walters reaffirmed his belief that VA has a special responsibility in helping to resolve the complex issues surrounding exposure to Agent Orange. Walters stated that he intends to commit the necessary resources and to give top priority to supporting and reviewing research that will determine, to the extent possible, the likely effects of Agent Orange exposure, as well as the possible environmental hazards related to military service.

N06-83-4

Agent Orange Review

Information for Veterans Who Served in Vietnam

November 1983

SPECIAL ISSUE

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Vol. 3, No. 1

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The study is an epidemiological investigation of the possible adverse health effects of herbicide exposure of Air Force personnel who were involved in herbicide spraying missions in Vietnam (Operation Ranch Hand).

The study did not identify statistical differences between the Ranch Hand group and the comparison group for illnesses commonly attributed to dioxin exposure. In addition, the study does not support, *at this time*, a cause-and-effect relationship between herbicide exposure and adverse health in the Ranch Hand group.

Both the Ranch Hand group and the comparison group were found to be in good health for their ages.

Data from the Ranch Hand group (1,045) and the original comparison group (773) who completed the physical examinations were the primary focus of the report. Most of the data were obtained from interviews and physical examinations of the Ranch Hand group and the comparison group.

The study assessed general physical health; malignancies; and fertility/reproductive, neurological, psychological, hepatic (liver), immunologic, dermatologic, cardiovascular, hematologic, pulmonary, renal and endocrine systems.

Analysis of the data showed numerous medical findings, most of a minor or undetermined nature that will require detailed followup. Some of the findings are listed below.

CANCER

- no statistical differences between the Ranch Hand group and the comparison group for malignant or benign systemic tumors;
- no cases of soft-tissue sarcoma among the Ranch Handers and one in the comparison group;
- no cases of digestive cancers in the Ranch Hand group;
- significantly more nonmelanotic skin cancer in the Ranch Hand group; however, no adjustments have been made for sunlight exposure which is the major cause of these cancers;
- no uncommon cancers or cancers in unusual sites or at an unusual age among Ranch Handers.

DERMATOLOGY

- no cases of chloracne in either group.

(See **Ranch Hand**, *page 4)*

About the "Review"

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(See **AO Bill**, *page 4)*

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VA's Advisory Committee on Health-Related Effects of Herbicides met in Washington, D.C., on March 6, 1984.

The full committee heard reports on a number of Agent Orange-related activities, including VA and Australian government projects, the morbidity portion of the Air Force (Ranch Hand) Health Study, and the epidemiology study and birth defects study being conducted by the Centers for Disease Control.

The Subcommittee on Veterans' Education and Information heard reports on plans for Agent Orange videotapes and other informational efforts. In response to one of the subcommittee's recommendations, the order of production of the videotapes has been changed to provide first for a film directed to intake personnel at VA medical centers and regional offices. The subcommittee will review all scripts prior to production.

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The committee is made up of from 12 to 16 members. Membership includes scientists from within and outside the government and individuals from veterans' groups. Current members are:

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George T. Estry
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Veterans of Foreign Wars

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Carolyn H. Lingeman, M.D.
National Toxicology Program
National Institutes of Health

Marion Moses, M.D.
National Farm Workers Health Group

Joseph Mulinare, M.D.
Chronic Disease Division
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National Service and Legislative Headquarters
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The scope of the updated review covers published literature available since the original report was completed in October 1981. The literature deals with health effects of exposure to phenoxy herbicides and impurities, cacodylic acid (Agent Blue) and picloram.

Included in the bibliography are documents covering studies of animals exposed to these substances. Also included are human studies that deal with occupational exposure, environmental exposure and Vietnam veterans.

The literature review update is expected to be available in late spring of this year. Order information will be included in the next issue of the "Agent Orange Review."

VA's Advisory Committee on Health-Related Effects of Herbicides has recommended that a lay-language summary of the literature review be published. VA has plans to prepare and publish a summary at some future date.

Agent Orange Registry Update

The Agent Orange Registry was initiated by VA in mid-1978 in response to Vietnam veterans' concerns that they may have been exposed to herbicides which might be causing a variety of ill effects. A VA circular, dated September 14, 1978, established the framework of the Registry.

A special Data Analysis Task Force was formed in June 1980 when it became obvious that the Registry's data input procedures needed improvement. The Task Force recommended a number of changes during 1981 and, in August 1982, another VA circular directed an updating of the names and addresses for the veterans listed in the Registry. This circular was followed by a March 1, 1983, circular that completely revised the reporting process in order to improve the coding of personal and medical information, thereby permitting easier retrieval of data.

Registry records consist of two components: the medical record maintained at the VA medical center where the veteran was examined and a computerized extract from that record. The veteran's medical record includes the full medical history, physical examination, laboratory reports and other clinical findings. The computerized extract, better called the "register," includes the veteran's name, address, the examining center, some information about the veteran's military service, an estimate of herbicide exposure and elements of the findings at the time of the physical examination. The computerized register constitutes an index to this nationwide set of medical records.

Purpose of Registry

The principle purpose for which the Agent Orange Registry program was designed remains unchanged. It is a process that serves all veterans who are worried about the possible adverse health effects of their exposure to herbicides while serving in Vietnam. It provides the veteran an opportunity to receive a complete health evaluation and answers to his or her questions concerning the current state of knowledge regarding the relationship between herbicide exposure and subsequent health problems. Following completion of the examination, the veteran is given the results of the physical exam and laboratory studies. This information is provided to the veteran in a face-to-face discussion with a physician familiar with the health aspects of the Agent Orange issue and through a followup letter summarizing the results of the examination.

The Registry serves an important second purpose in that it enables VA to provide veterans current information as it develops regarding their concerns. In addition, it would permit VA to contact veterans for further testing in the event that continuing research efforts should make this action advisable.

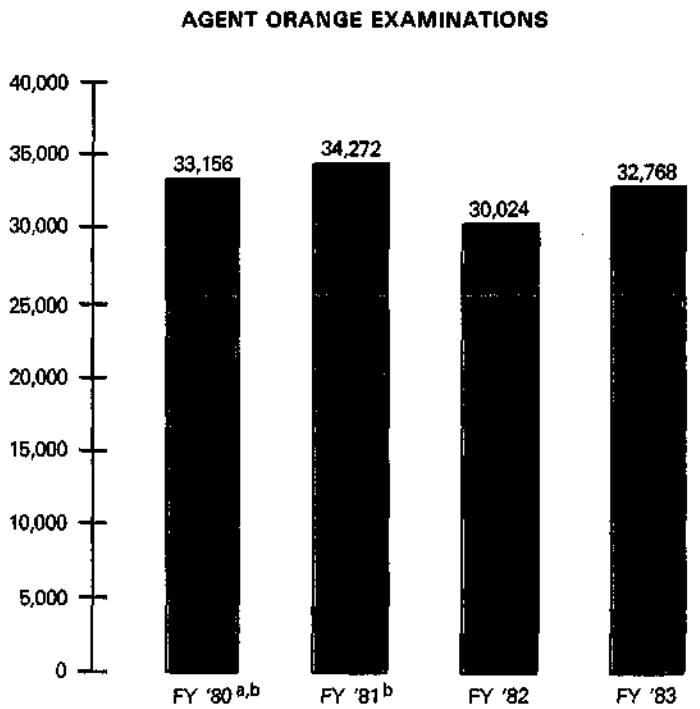
The Registry serves yet another purpose, namely, to provide a means of detecting clues or suggestions of specific health problems in the event that unexpected or unusual trends show up in this group of veterans. Such clues could then form the basis for the design and conduct of specific epidemiological studies.

Because of the self-selected nature of the Registry participants, this group of veterans cannot, with any scientific validity, be viewed as being representational of Vietnam veterans as a whole. The health-related information contained in the data base, therefore, cannot be used as the basis for a controlled scientific study. The information can, however, be used to detect suggested health trends, as noted above, and can provide some indications as to the characteristics of the group itself. For example, it is possible to show the numbers in each branch of military service, the period(s) of service in Vietnam, the kinds of symptoms the veterans are experiencing and some of the results of the physical examinations. From this type of information, it is possible to develop the relative frequency of certain health factors. However, since participation in the Registry program is entirely voluntary, statistically valid comparisons cannot be made directly between this group of veterans and other groups of veterans or nonveterans.

Participation in the Registry

The Agent Orange Registry remains VA's most effective means of identifying concerned Vietnam veterans. Any eligible Vietnam veteran expressing a concern relating to exposure to herbicides is encouraged to participate in the Registry program. The veteran is asked personal and identifying information; military information, including branch of service and dates of service in Vietnam; and the circumstances of exposure to Agent Orange. In addition, past medical history is obtained and documented. The veteran is then provided a complete physical examination and several base-line laboratory studies. Appropriate additional tests and consultations are obtained when medically indicated by the veteran's physical condition or past medical history. (See the November '83 "Agent Orange Review" for a more detailed description of the registry examination.)

As of December 31, 1983, VA had completed 130,220 initial Agent Orange Registry examinations. The new code sheet was used for approximately 13,600. In addition, 31,471 followup examinations have been performed. (See graph on p. 3 for fiscal year '80 through '83 totals.)



Cumulative total number of initial examinations as of December 31, 1983: 130,220.

[a] Includes totals for FY '78 and FY '79.

[b] Because of changes in examination reporting procedures, actual totals prior to 5/81 are unavailable. Estimated figures have been used.

(Ranch Hand, *from page 1)*

FERTILITY/REPRODUCTIVE

Because these results are based largely on self-reports and must be verified by reviews of complete medical records and birth certificates, the findings are preliminary until verification is completed.

- no significant differences in fertility, infertility, miscarriages, still births or live births;
- minor birth abnormalities (rashes, birth marks) among Ranch Hand offspring;
- a greater number of neonatal deaths (age 1 through 28 days) and physical handicaps among Ranch Hand offspring.

NEUROLOGICAL

- no substantive group differences in an assessment of the cranial nerves, peripheral nerves and central nervous system functioning among Ranch Handers.

LIVER

- no cases of porphyria cutanea tarda (a condition that affects the liver and skin) in either group;
- several minor lab test differences but none of clinical significance; more test results were similar between both groups;
- no differences in frequency of liver disease.

CARDIOVASCULAR

- no differences between the groups for blood pressure, electrocardiograms and heart sounds;
- significant differences in peripheral leg pulses among Ranch Hand group, although cardiovascular findings in both groups are significantly related to age and smoking, as well as to a history of heart disease.

PSYCHOLOGICAL

- no group differences in IQ and performance tests;
- High school-educated Ranch Handers self-reported more symptoms in the areas of fear, anger and anxiety.

OTHER

- no significant differences in immunology, hematology, renal, pulmonary or endocrine areas.

Further physical examinations and questionnaires will be administered at 3 (1985), 5, 10, 15 and 20 year points.

The mortality portion of the Air Force Health Study, released last year, showed no statistical differences in the death rates between the Ranch Hand and the comparison group.

(AO Bill, *from page 1)*

The compromise bill was approved by voice vote.

The bill would provide a disability or death allowance for Vietnam veterans who suffer from one of the following:

- soft-tissue sarcoma, if occurring within 20 years of the veteran's departure from Southeast Asia;
- porphyria cutanea tarda (a condition that affects the liver and skin), if occurring within one year of the veteran's date of departure from Southeast Asia; and
- chloracne, if occurring within one year of the veteran's date of departure from Southeast Asia.

A "sunset" clause would require that the provisions of the bill expire one year after the first report on the Centers for Disease Control's epidemiological study is submitted.

A disability allowance also would be payable for leukemia, polycythemia vera (a chronic bone marrow disease) or thyroid cancer suffered by veterans within 20 years of the date of their participation in either atomic weapons testing or in the post-World War II occupation of Hiroshima and Nagasaki.

Hearings on H.R. 1961 were held in April and July of last year before the House Veterans' Affairs Committee's Subcommittee on Compensation, Pension and Insurance.

The House-passed measure is currently awaiting Senate action.

NO6-84-1

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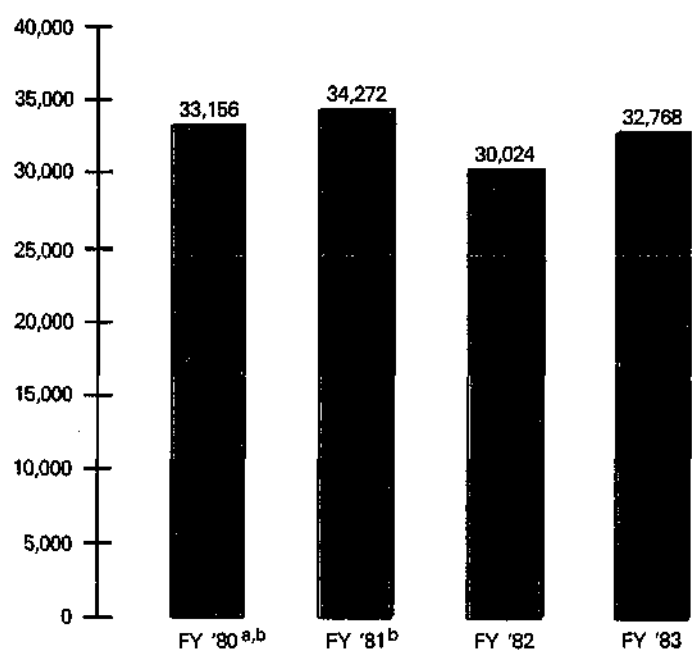
AGENT ORANGE EXAMINATIONS



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[a] Includes totals for FY '78 and FY '79.

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(Ranch Hand, *from page 1)*

FERTILITY/REPRODUCTIVE

Because these results are based largely on self-reports and must be verified by reviews of complete medical records and birth certificates, the findings are preliminary until verification is completed.

- no significant differences in fertility, infertility, miscarriages, still births or live births;
- minor birth abnormalities (rashes, birth marks) among Ranch Hand offspring;
- a greater number of neonatal deaths (age 1 through 28 days) and physical handicaps among Ranch Hand offspring.

NEUROLOGICAL

- no substantive group differences in an assessment of the cranial nerves, peripheral nerves and central nervous system functioning among Ranch Handers.

LIVER

- no cases of porphyria cutanea tarda (a condition that affects the liver and skin) in either group;
- several minor lab test differences but none of clinical significance; more test results were similar between both groups;
- no differences in frequency of liver disease.

CARDIOVASCULAR

- no differences between the groups for blood pressure, electrocardiograms and heart sounds;
- significant differences in peripheral leg pulses among Ranch Hand group, although cardiovascular findings in both groups are significantly related to age and smoking, as well as to a history of heart disease.

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- no group differences in IQ and performance tests;
- High school-educated Ranch Handers self-reported more symptoms in the areas of fear, anger and anxiety.

OTHER

- no significant differences in immunology, hematology, renal, pulmonary or endocrine areas.

Further physical examinations and questionnaires will be administered at 3 (1985), 5, 10, 15 and 20 year points.

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(AO Bill, *from page 1)*

The compromise bill was approved by voice vote.

The bill would provide a disability or death allowance for Vietnam veterans who suffer from one of the following:

- soft-tissue sarcoma, if occurring within 20 years of the veteran's departure from Southeast Asia;
- porphyria cutanea tarda (a condition that affects the liver and skin), if occurring within one year of the veteran's date of departure from Southeast Asia; and
- chloracne, if occurring within one year of the veteran's date of departure from Southeast Asia.

A "sunset" clause would require that the provisions of the bill expire one year after the first report on the Centers for Disease Control's epidemiological study is submitted.

A disability allowance also would be payable for leukemia, polycythemia vera (a chronic bone marrow disease) or thyroid cancer suffered by veterans within 20 years of the date of their participation in either atomic weapons testing or in the post-World War II occupation of Hiroshima and Nagasaki.

Hearings on H.R. 1961 were held in April and July of last year before the House Veterans' Affairs Committee's Subcommittee on Compensation, Pension and Insurance.

The House-passed measure is currently awaiting Senate action.

NO6-84-1

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Vol. 3, No. 1

Agent Orange Review

April 1984

Information for Veterans Who Served in Vietnam

Air Force Releases Phase II Of Ranch Hand Study

The Air Force released the first morbidity report (diseases, including birth defects in offspring) of its Ranch Hand Study on February 24, 1984.

The study is an epidemiological investigation of the possible adverse health effects of herbicide exposure of Air Force personnel who were involved in herbicide spraying missions in Vietnam (Operation Ranch Hand).

The study did not identify statistical differences between the Ranch Hand group and the comparison group for illnesses commonly attributed to dioxin exposure. In addition, the study does not support, *at this time*, a cause-and-effect relationship between herbicide exposure and adverse health in the Ranch Hand group.

Both the Ranch Hand group and the comparison group were found to be in good health for their ages.

Data from the Ranch Hand group (1,045) and the original comparison group (773) who completed the physical examinations were the primary focus of the report. Most of the data were obtained from interviews and physical examinations of the Ranch Hand group and the comparison group.

The study assessed general physical health; malignancies; and fertility/reproductive, neurological, psychological, hepatic (liver), immunologic, dermatologic, cardiovascular, hematologic, pulmonary, renal and endocrine systems.

Analysis of the data showed numerous medical findings, most of a minor or undetermined nature that will require detailed followup. Some of the findings are listed below.

CANCER

- no statistical differences between the Ranch Hand group and the comparison group for malignant or benign systemic tumors;
- no cases of soft-tissue sarcoma among the Ranch Handers and one in the comparison group;
- no cases of digestive cancers in the Ranch Hand group;
- significantly more nonmelanotic skin cancer in the Ranch Hand group; however, no adjustments have been made for sunlight exposure which is the major cause of these cancers;
- no uncommon cancers or cancers in unusual sites or at an unusual age among Ranch Handers.

DERMATOLOGY

- no cases of chloracne in either group.

(See **Ranch Hand**, *page 4)*

About the "Review"...

"Agent Orange Review" is prepared by VA's Office of Public and Consumer Affairs. The "Review" is published periodically throughout the year as part of VA's expanded program to provide information on Agent Orange to concerned veterans and their families.

This issue contains information on:

- the first morbidity report of the Air Force Health Study;
- the most recent meeting of VA's Advisory Committee on Health-Related Effects of Herbicides;
- the Agent Orange compensation bill; and
- an update on VA's Agent Orange Registry.

For additional copies of this issue, write VA's Office of Public and Consumer Affairs (064), 810 Vermont Ave. NW., Washington, DC 20420.

If you have any questions about your Agent Orange examination, contact the environmental physician at the VA medical center where you had the examination.

If you have questions about VA benefits or Agent Orange, contact the VA facility nearest you. The phone number can be found in your telephone book under "U.S. Government" listings.

If you would like to be added to the mailing list to receive the "Review," please send your name, complete address and social security number (if you are a veteran) to the VA Data Processing Center (200/392), 1615 E. Woodward St., Austin, TX 78772, Attn: Agent Orange Clerk. Changes of address should be forwarded to the same Austin address, *along with your mailing label.*

Compromise Agent Orange Bill Passes House of Representatives

On January 30, 1984, the House of Representatives passed H.R. 1961, the Agent Orange and Atomic Veterans Relief Act. The bill would provide a disability or death allowance for Vietnam veterans with certain health problems that might be linked to Agent Orange or radiation exposure.

Reported in the August '83 "Agent Orange Review" as the Vietnam Veterans Agent Orange Relief Act, the bill was later amended to include the allowance for veterans who participated in atomic weapons testing or in the post-World War II occupation of Hiroshima and Nagasaki.

(See **AO Bill**, *page 4)*

VA's Herbicide Advisory Committee Holds 19th Quarterly Meeting

VA's Advisory Committee on Health-Related Effects of Herbicides met in Washington, D.C., on March 6, 1984.

The full committee heard reports on a number of Agent Orange-related activities, including VA and Australian government projects, the morbidity portion of the Air Force (Ranch Hand) Health Study, and the epidemiology study and birth defects study being conducted by the Centers for Disease Control.

The Subcommittee on Veterans' Education and Information heard reports on plans for Agent Orange videotapes and other informational efforts. In response to one of the subcommittee's recommendations, the order of production of the videotapes has been changed to provide first for a film directed to intake personnel at VA medical centers and regional offices. The subcommittee will review all scripts prior to production.

Reports on VA's review of soft-tissue sarcoma cases in VA hospital records, the Michigan soft-tissue sarcoma study, and more detailed information on CDC's epidemiological study and the Australian government's morbidity study were presented to the Subcommittee on Epidemiology and Biostatistics.

The committee is made up of from 12 to 16 members. Membership includes scientists from within and outside the government and individuals from veterans' groups. Current members are:

Barclay M. Shepard, M.D., Chairman
VA's Agent Orange Projects Office

George R. Anderson, M.D.
Occupational Medicine and Toxicology
Texas Department of Health

Donald Barnes, M.D.
Senior Science Advisor
Office of the Assistant Administrator for Pesticides and Toxic Substances
Environmental Protection Agency

Irving B. Brick, M.D.
Senior Medical Consultant
National Veterans Affairs and Rehabilitation Commission
The American Legion

George T. Estry
Appeals Consultant
Veterans of Foreign Wars

Jon R. Furst
National Chairman
National Veterans Task Force on Agent Orange

Richard A. Hodder, M.D., M.P.H.
Col., Medical Corps, U.S. Army
Deputy Director, Division of Medicine
Walter Reed Army Institute of Research

Carolyn H. Lingeman, M.D.
National Toxicology Program
National Institutes of Health

Marion Moses, M.D.
National Farm Workers Health Group

Joseph Mulinare, M.D.
Chronic Disease Division
Centers for Disease Control

Dr. John Matthews, representing Australia's Royal Commission on the Use and Effects of Chemical Agents on Australian Personnel in Vietnam, briefs VA's Herbicide Advisory Committee on the commission's activities.

Fredrick Mullen, Sr.
Claims Consultant
Paralyzed Veterans of America

Sheldon D. Murphy, Ph.D., Chairman
Department of Environmental Health
University of Washington

Charles A. Thompson
Administrative Assistant
National Service and Legislative Headquarters
Disabled American Veterans

Noel C. Woosley
National Service Director
AMVETS

Herbicide Literature Review Update Nears Completion

An updated review and analysis of world literature on the health effects of phenoxy herbicides has been completed by an independent organization under contract with VA.

The scope of the updated review covers published literature available since the original report was completed in October 1981. The literature deals with health effects of exposure to phenoxy herbicides and impurities, cacodylic acid (Agent Blue) and picloram.

Included in the bibliography are documents covering studies of animals exposed to these substances. Also included are human studies that deal with occupational exposure, environmental exposure and Vietnam veterans.

The literature review update is expected to be available in late spring of this year. Order information will be included in the next issue of the "Agent Orange Review."

VA's Advisory Committee on Health-Related Effects of Herbicides has recommended that a lay-language summary of the literature review be published. VA has plans to prepare and publish a summary at some future date.

Agent Orange Registry Update

The Agent Orange Registry was initiated by VA in mid-1978 in response to Vietnam veterans' concerns that they may have been exposed to herbicides which might be causing a variety of ill effects. A VA circular, dated September 14, 1978, established the framework of the Registry.

A special Data Analysis Task Force was formed in June 1980 when it became obvious that the Registry's data input procedures needed improvement. The Task Force recommended a number of changes during 1981 and, in August 1982, another VA circular directed an updating of the names and addresses for the veterans listed in the Registry. This circular was followed by a March 1, 1983, circular that completely revised the reporting process in order to improve the coding of personal and medical information, thereby permitting easier retrieval of data.

Registry records consist of two components: the medical record maintained at the VA medical center where the veteran was examined and a computerized extract from that record. The veteran's medical record includes the full medical history, physical examination, laboratory reports and other clinical findings. The computerized extract, better called the "register," includes the veteran's name, address, the examining center, some information about the veteran's military service, an estimate of herbicide exposure and elements of the findings at the time of the physical examination. The computerized register constitutes an index to this nationwide set of medical records.

Purpose of Registry

The principle purpose for which the Agent Orange Registry program was designed remains unchanged. It is a process that serves all veterans who are worried about the possible adverse health effects of their exposure to herbicides while serving in Vietnam. It provides the veteran an opportunity to receive a complete health evaluation and answers to his or her questions concerning the current state of knowledge regarding the relationship between herbicide exposure and subsequent health problems. Following completion of the examination, the veteran is given the results of the physical exam and laboratory studies. This information is provided to the veteran in a face-to-face discussion with a physician familiar with the health aspects of the Agent Orange issue and through a followup letter summarizing the results of the examination.

The Registry serves an important second purpose in that it enables VA to provide veterans current information as it develops regarding their concerns. In addition, it would permit VA to contact veterans for further testing in the event that continuing research efforts should make this action advisable.

The Registry serves yet another purpose, namely, to provide a means of detecting clues or suggestions of specific health problems in the event that unexpected or unusual trends show up in this group of veterans. Such clues could then form the basis for the design and conduct of specific epidemiological studies.

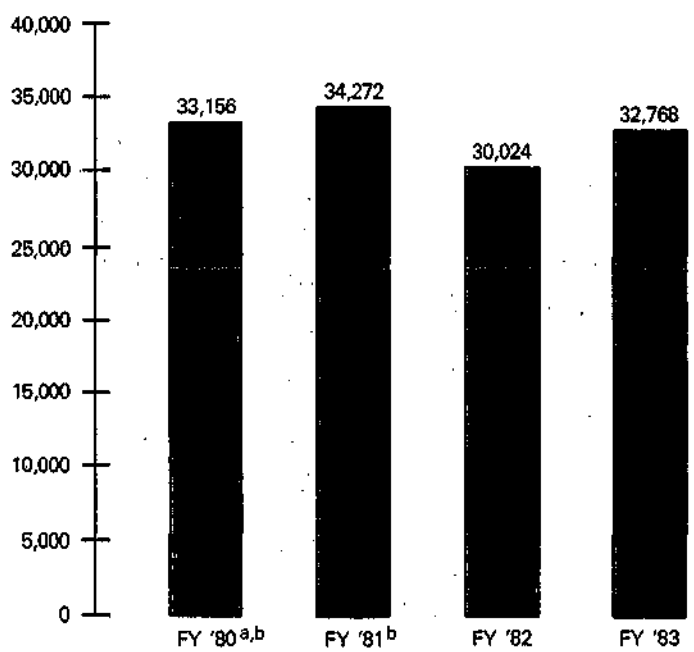
Because of the self-selected nature of the Registry participants, this group of veterans cannot, with any scientific validity, be viewed as being representational of Vietnam veterans as a whole. The health-related information contained in the data base, therefore, cannot be used as the basis for a controlled scientific study. The information can, however, be used to detect suggested health trends, as noted above, and can provide some indications as to the characteristics of the group itself. For example, it is possible to show the numbers in each branch of military service, the period(s) of service in Vietnam, the kinds of symptoms the veterans are experiencing and some of the results of the physical examinations. From this type of information, it is possible to develop the relative frequency of certain health factors. However, since participation in the Registry program is entirely voluntary, statistically valid comparisons cannot be made directly between this group of veterans and other groups of veterans or nonveterans.

Participation in the Registry

The Agent Orange Registry remains VA's most effective means of identifying concerned Vietnam veterans. Any eligible Vietnam veteran expressing a concern relating to exposure to herbicides is encouraged to participate in the Registry program. The veteran is asked personal and identifying information; military information, including branch of service and dates of service in Vietnam; and the circumstances of exposure to Agent Orange. In addition, past medical history is obtained and documented. The veteran is then provided a complete physical examination and several base-line laboratory studies. Appropriate additional tests and consultations are obtained when medically indicated by the veteran's physical condition or past medical history. (See the November '83 "Agent Orange Review" for a more detailed description of the registry examination.)

As of December 31, 1983, VA had completed 130,220 initial Agent Orange Registry examinations. The new code sheet was used for approximately 13,600. In addition, 31,471 followup examinations have been performed. (See graph on p. 3 for fiscal year '80 through '83 totals.)

AGENT ORANGE EXAMINATIONS



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February 1985

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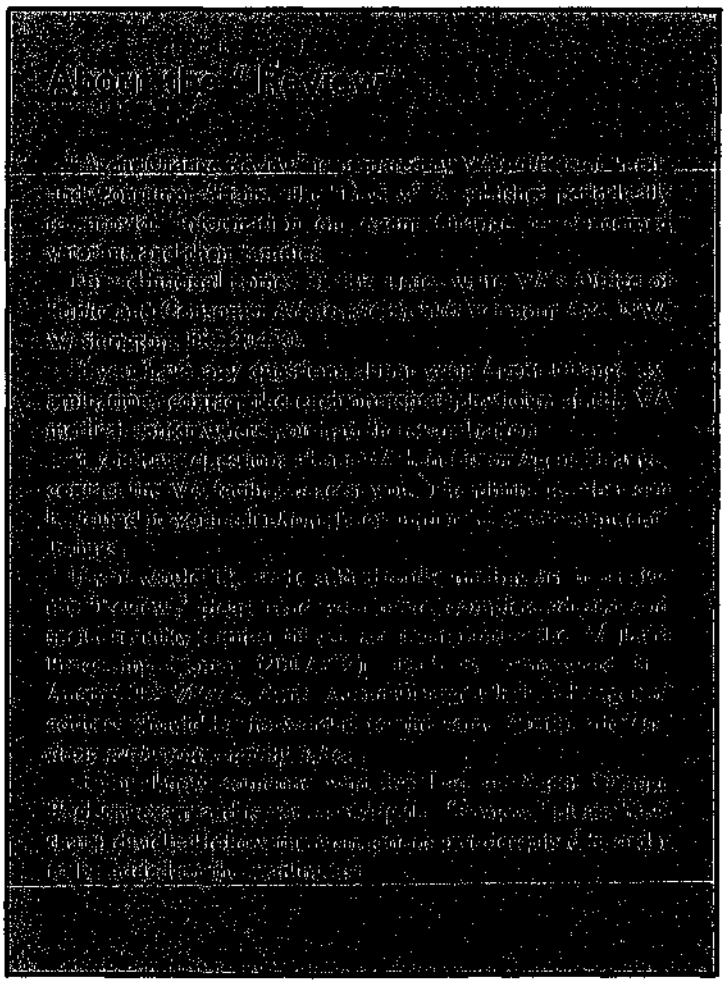
AGENT ORANGE HIGHLIGHTS

- **BIRTH DEFECTS STUDY** On October 3, 1984, representatives of the Centers for Disease Control testified on the results of the Birth Defects Study before the Veterans' Affairs Committee's Subcommittee on Hospitals and Health Care, United States House of Representatives. For more information on CDC's Birth Defects Study, see the October 1984 issue of the "Agent Orange Review."
- **COMPENSATION ACT** President Reagan signed Public Law 98-542, the "Veterans Dioxin and Radiation Exposure Compensation Standards Act," on October 24, 1984. For additional information on this law, see story on page one of this issue of the "Agent Orange Review."
- **VA AO POLICY COMMITTEE** VA's Agent Orange Policy Coordinating Committee, chaired by Deputy Administrator Everett Alvarez, Jr., met on October 2, 1984. Committee members and participants gave updates on current agency Agent Orange activities. The committee coordinates and monitors all agency Agent Orange efforts and recommends specific Agent Orange-related policies to the Administrator of Veterans Affairs.
- **LEGION OF MERIT AWARD** On December 5, 1984, Lt. Col. Alvin L. Young, USAF, was presented with the Legion of Merit Award for his contributions to VA's Agent Orange-related efforts. The Legion of Merit Award is the military's highest noncombat-related award and is given to individuals of the Armed Forces who have made substantial or unique contributions toward accomplishment of assigned missions.
- **AMERICAN LEGION/COLUMBIA U STUDY** The American Legion and Columbia University study of Vietnam-Era veterans is nearly completed. This joint research project looks at problems facing Vietnam veterans, such as Post-Traumatic Stress Disorder, exposure to Agent Orange, other health-related matters and the socio-economic impact of military service on those veterans who served during the Vietnam war. A preliminary report of the findings is scheduled for release in 1985.
- **NEW JERSEY STUDY** The New Jersey Agent Orange Commission is sponsoring a study of Vietnam veterans to determine if Agent Orange is responsible for their medical problems. Thirty veterans, divided into two groups — those heavily exposed to Agent Orange and a control group of those who were not — were chosen from among 2,000 volunteers from across the country to participate in this study.
- **AGENT ORANGE INFORMATION CONFERENCE** The VA's Agent Orange Projects Office is planning an Agent Orange Information Meeting. The meeting has been tentatively scheduled for August 1985. Further details will be provided as plans are finalized.



Agent Orange Comp Bill Signed by President

In early October 1984, the House of Representatives and the Senate passed the "Veterans' Dioxin and Radiation Exposure Compensation Standards Act." The President signed the bill into law on October 24, 1984.

This legislation is intended to assure compensation to veterans and their survivors for disabilities or deaths related by *sound scientific and medical evidence* to dioxin or radiation exposure.

The law requires VA to develop regulations containing specific guidelines and standards as to how exposure is to be established

(See **Comp Bill,** *page 2)*

AO Working Group Marks Fifth Year

The Agent Orange Working Group of the Cabinet Council on Human Resources, established by the White House, marked its fifth anniversary in December.

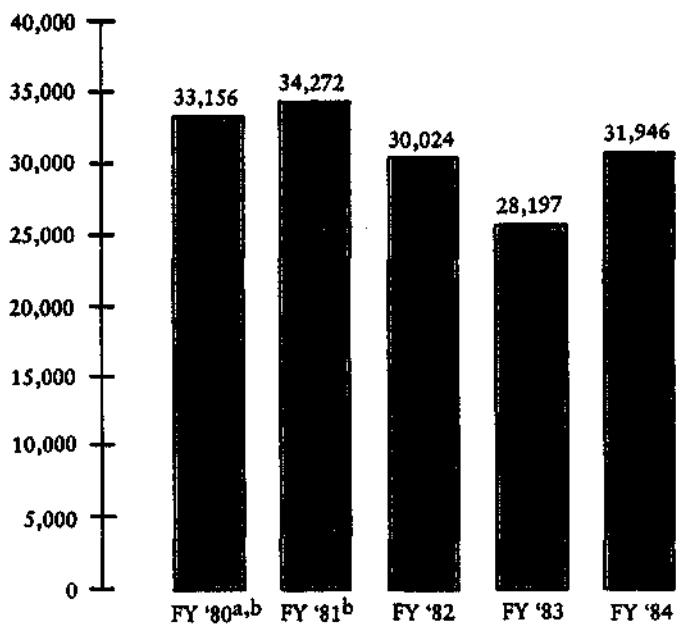
The group oversees federal government research activities designed to determine if exposure to phenoxy herbicides is linked to long-term health problems.

This interagency working group assures that the federal government conducts comprehensive research that considers the exposure of Vietnam veterans to Agent Orange and identifies appropriate agencies to conduct this research. All relevant research findings are made available to the public, Congress, and the Veterans Administration's Advisory Committee on Health-Related Effects of Herbicides.

The working group is composed of three panels. The science panel deals with the planning and review of research; the resources panel deals with identifying the funding, staff and necessary information needed to meet the research goals and is chaired by a representative of the Office of Management and Budget; and the public and congressional affairs panel oversees the dissemination of information on research activities.

The Secretary of Health and Human Services recently appointed a new chairman, Charles Baker, Undersecretary of that Department. The Department of Health and Human Services is the lead agency of the group.

AGENT ORANGE EXAMINATIONS



Cumulative total number of initial examinations as of September 30, 1984: 157,595

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(Comp Bill, *from page 1*)

and which diseases are to be regarded as service-connected if suffered by:

- veterans who may have been exposed to Agent Orange while serving in Vietnam and
- veterans who were exposed to radiation as a result of atomic weapons testing or in the occupation of Hiroshima and Nagasaki after World War II.

The diseases for which these regulations must be developed are chloracne, porphyria cutanea tarda (a liver and skin disease) and soft-tissue sarcoma if suffered by Vietnam veterans; and malignancies of the thyroid, female breast, lung, bone, liver and skin, most types of leukemia and polycythemia vera (a blood disorder) if suffered by veterans exposed to ionizing radiation.

VA is required to publish final regulations within 300 days of the signing of the bill, which allows for a public comment period.

Additional rules also must be developed for any other diseases for which sound scientific or medical evidence is found linking these diseases with exposure to Agent Orange or ionizing radiation.

The regulations also are to include specific guidelines governing the evaluation of the findings of scientific studies relating to the possible health effects of dioxin exposure and radiation exposure.

Study results must be statistically significant, withstand peer review and must be capable of being replicated in other investigations.

The legislation also requires that a panel be established—a Veteran's Advisory Committee on Environmental Hazards. The Committee will consist of 15 members:

- Three who are experts on the health effects of dioxin exposure;
- Three who are experts on the health effects of ionizing radiation exposure;
- Five who are experts on the health effects of dioxin and radiation in exposed populations;
- Four individuals from the general public, including one disabled veteran with a demonstrated interest and experience in relating veterans' concerns on these issues.

None of the medical or scientific experts may be active duty members of the Armed Forces, VA or Defense Department employees, and not more than three may be employees of the federal government.

In addition to serving on the Committee, the expert members will form a Scientific Council, which will be subdivided into an eight-member panel to deal with the health effects of dioxin exposure and an eight-member panel to evaluate the health effects of ionizing radiation exposure.

The Council will report on findings and evaluations of scientific studies to the Committee and to the Administrator of Veterans Affairs.

The bill also authorizes interim payments (until September 30, 1986), at disability compensation rates, to veterans disabled by chloracne or porphyria cutanea tarda if suffered by veterans within one year of their departure from Vietnam.

The Veterans Administration has received recommendations for members of the advisory committee from professional organizations and service organizations. VA hopes to establish the committee in early 1985. The committee will participate in developing the regulations, which are expected to be published in the Federal Register in final form by late August or early September.

Agent Orange Research Update

VA Soft-Tissue Sarcoma Study

The Veterans Administration, in collaboration with the Armed Forces Institute of Pathology (AFIP), is conducting an independent epidemiological study to determine whether Vietnam veterans are at increased risk of developing soft-tissue sarcomas (a group of malignant tumors).

In this case-control study, individuals with soft-tissue sarcomas are compared with individuals without soft-tissue sarcomas, with respect to Vietnam service, possible Agent Orange exposure and other possible risk factors.

Cases are drawn from the AFIP Soft-Tissue Sarcoma Registry. One-third to one-fourth of the soft-tissue sarcomas occurring in the United States are sent to AFIP for review. Controls are selected from the patient logs of the pathologists referring the cases.

The study is conducted in two phases. Phase I of the study will investigate whether service in Vietnam during 1965-1971 increased the risk of developing soft-tissue sarcoma. Providing that an acceptable way of ranking individual veterans' exposure to Agent Orange is developed by the Army's Environmental Support Group, an attempt will be made to determine a trend in the odds of developing soft-tissue sarcoma with an increasing probability of exposure to Agent Orange. In addition, the study of the progress of the disease and the location of the soft-tissue sarcoma will be compared among Vietnam veterans, non-Vietnam veterans and nonveterans.

Military service of the cases and the controls will be determined through cross-checking VA records, the National Personnel Records Center files in St. Louis and the military personnel records center files of each branch of the service.

Phase II of the study will investigate other environmental risk factors for the development of soft-tissue sarcoma based on information obtained from interviews with the study subjects or their next of kin. Information on risk factors, such as occupational or nonoccupational exposure to phenoxy herbicides, radiation, asbestos, arsenic and vinyl chloride, will be obtained from the interviews and analyzed individually and jointly.

The design for the study has been reviewed by various scientific groups—the Agent Orange Working Group's science panel, VA's Advisory Committee on Health-Related Effects of Herbicides and the Armed Forces Epidemiological Board.

The selection of subjects for the study has already begun. A contract for tracing and conducting interviews was awarded in October 1984. The Office of Management and Budget approved the study questionnaire in December 1984.

Data collection is expected to be completed by December 1985, and the final report is expected in June 1986.

Patient Treatment File Cancer Study

In collaboration with the Armed Forces Institute of Pathology, VA is planning to conduct an evaluation of tissues from malignant neoplasms among Vietnam-Era veterans who are treated in VA medical centers.

Several reports have been published suggesting that exposure to phenoxy herbicides may contribute to a higher risk of developing soft-tissue sarcoma, lymphoma (certain tumors that are usually malignant), nasal cancer and possibly liver cancer.

In general, it takes more than a decade for cancer to manifest itself if it is caused by environmental chemicals. It has been more than a decade since the last U.S. troops were exposed to defoliants in Vietnam and approximately 20 years since the first massive spraying of Agent Orange occurred. The timing, therefore, is appropriate for evaluating cancer problems in Vietnam veterans.

Approximately 5,000 cancer cases among Vietnam-Era veterans treated in VA medical centers during the last three years will be selected for this study. The Armed Forces Institute of Pathology will make a pathology diagnosis without knowing Vietnam service status of cases. The Army Environmental Support Group will determine military service status and the likelihood of Agent Orange exposure for each case without knowing the diagnosis.

VA's Agent Orange Projects Office will coordinate this effort, as well as analyze data once all the information is collected.

The study will serve as a built-in quality control program for VA's Pathology Service by systematically comparing diagnoses made by the VA pathologists with those of the experts at the Armed Forces Institute of Pathology.

Patient Treatment File Reviews

In a parallel effort to the VA-AFIP Soft-Tissue Sarcoma Study, VA's Agent Orange Projects Office is reviewing the soft-tissue sarcoma cases in VA's Patient Treatment File (fiscal years 1969-1983) for Vietnam-Era veterans.

The study, in collaboration with VA's Pathology Service and AFIP, will compare the anatomical site, history of the disease's progress and frequency of soft-tissue sarcoma between Vietnam veterans and non-Vietnam veterans.

A total of 418 patients with a diagnosis of malignant neoplasm (abnormal growths, such as tumors or cysts) of connective and other soft tissue were identified in the Patient Treatment File between 1969 and 1982. A review of the pathology reports for these cases was made by a VA pathologist.

Information on military service — Vietnam and non-Vietnam — was obtained through the National Personnel Records Center in St. Louis. Thirty-six percent of the soft-tissue cases served in Vietnam. In the entire Patient Treatment File, however, 41 percent of the Vietnam-Era patients served in Vietnam. These data suggest that for Vietnam-Era veterans treated in VA medical centers, the frequency of soft-tissue sarcoma among veterans who served in Vietnam is not greater than among those veterans who did not serve in Vietnam.

In Phase II of this review of the Patient Treatment File, the tissue specimens from these cases will be examined by an expert pathologist from AFIP to confirm the original diagnosis.

The final report on the review is expected in May 1985.

Symposium on Dioxins Held

The Fourth International Symposium on Chlorinated Dioxins and Related Compounds was held in Ottawa, Canada, on October 16-18, 1984.

This annual gathering of dioxin/furan research specialists includes industry, government, and university representatives. The symposium provides a forum for participant interaction and exchange of information on current advances in the different fields of dioxin/furan research.

The three-day program included a presentation on the status and results of federal epidemiological studies of populations exposed to TCDD (dioxin) by Dr. Han K. Kang of VA's Agent Orange Projects Office. The presentation included a brief description of the 15 ongoing studies being conducted by agencies of the United States Government. Dr. Kang covered the studies in progress, their available results and timetables for their completion. Special emphasis was placed on VA's studies of mortality, soft-tissue cancers, dioxin residues in human adipose tissues, and other ongoing health surveillance of Vietnam veterans. Additional Agent Orange Projects Office staff also attended.

A fifth symposium is planned for September 1985 in Bayreuth, West Germany.

Australia Issues Mortality Report On Vietnam Veterans

The Australian Commonwealth Institute of Health has issued a report indicating that Australian Vietnam veterans are not dying at a faster rate than contemporary Army personnel who did not serve in Vietnam or from diseases that have been suggested are linked with phenoxy herbicides.

The report, a three-part retrospective study, assessed the possible effects of Vietnam service on mortality rates, specifically, whether death rates among Vietnam veterans were higher than among a comparable group of non-Vietnam veterans.

The population studied — 46,166 subjects — included all former Australian National Servicemen from the Vietnam Era, except those who enlisted after February 1971, those who served for less than 90 days, those who died during service within two years of enlistment, and those who died from combat injuries received in Vietnam.

The study population was divided into two groups: 19,209 Vietnam Era veterans and 26,957 non-Vietnam veterans.

The Australian Department of Defence (Army Office) provided the identities of the study subjects and data relating to their Army service. Data included age and year of enlistment, and — for Vietnam veterans — dates of Vietnam duty.

A manual and computerized search of death and other registers identified whether the study subjects were dead or alive.

Using death records and medical certificates, the cause of death was coded by the Australian Bureau of Statistics. The causes of death were confirmed by a panel of physicians, and the cancer deaths were confirmed by pathological examinations of tissue slides.

Mortality among the study subjects was examined, comparing such variables as pre-enlistment characteristics, discharge characteristics and — for Vietnam veterans — Vietnam service characteristics. For these comparisons, the analysis was restricted to 19,205 Vietnam veterans and 25,677 former National Servicemen who did not serve in Vietnam but who had more than 12 months of Army service. These subjects were followed from the end of their National Service duty until Jan. 1, 1982.

There were 260 deaths among Vietnam veterans and 263 deaths among the non-Vietnam veterans during this period. Three-fourths of the deaths in both groups were attributed to external causes, such as accidents, suicides and murders.

Among the findings:

- The death rate among study subjects was statistically significantly lower than expected for Australian males, taking into account age and year of service. This finding applied both to Vietnam veteran and non-Vietnam veteran groups. Similar observations of low mortality in comparison to the general population have been made of World War I and World War II veterans. These low death rates have been attributed to the high standard of health required of enlistees.
- There was no statistically significant difference in the death rates from cancer between Vietnam veterans and non-Vietnam veterans. In addition, there was no statistically significant difference in the death rates from soft-tissue sarcoma or non-Hodgkin's lymphoma.
- The number of deaths from major categories of causes of death among the study population was not statistically significantly greater than that expected from the estimated Australian general population death rates.
- An excess in mortality observed among Vietnam veterans compared with non-Vietnam veterans within the Royal Australian Engineers and not among other Army Corps groupings was due to deaths from external causes, mainly car and other accidents.
- There was no evidence of an excess of deaths among Vietnam veterans from causes that would be unusual in this group of males. If such evidence had been present, it might have suggested that some deaths of Vietnam veterans might have been caused by exposure to a specific toxic substance.

Earlier studies of Australian Vietnam veterans, released in 1983, had similar findings. One study, coordinated by the Australian Senate's Standing Committee on Science and the Environment, found no evidence of excessive rates of psychiatric disorders or mortality among Australian Vietnam veterans or birth defects among their children. In a separate study by the Commonwealth Institute of Health in Sydney, researchers found that Australian Vietnam veterans were not at an increased risk of fathering children with birth defects. See the April 1983 issue of the "Agent Orange Review" for a more detailed discussion of the study results.

NO6-85-01

Agent Orange Review

Information for Veterans Who Served in Vietnam

February 1985

Veterans Administration

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Austin, TX 78772

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Vol. 4, No. 3

Agent Orange Review

October 1984

Information for Veterans Who Served in Vietnam

CDC Releases Findings Of Birth Defects Study

The Centers for Disease Control in Atlanta released a major new study showing that there was no evidence to support the position that Vietnam veterans have had a greater risk than other men of fathering babies with major birth defects.

A full report on the study was released on August 17, in conjunction with the publication of an article on the methodology, results and conclusions of the study in the "Journal of the American Medical Association."

The study was designed to determine if veterans who served in the military in Vietnam have been at increased risk of fathering babies with major structural birth defects.

A primary reason for the study was the concerns expressed by some Vietnam veterans that they may have suffered from a variety of ailments as a result of their military service in Vietnam and may have an increased risk of fathering babies with birth defects.

Selection of Cases and Controls

The case-control study was based on the experiences of parents of selected babies born in the metropolitan Atlanta area during the years 1968 through 1980.

The babies in the case group were those with serious structural congenital birth defects registered by the Metropolitan Atlanta Congenital Defects Program. A serious birth defect was defined as one that could be associated with premature death, cause substantial handicap, or require surgery or extensive medical care. The number eligible for this group was 7,133.

Control group babies — babies born without defects — were selected from among the 323,421 babies born in the same Atlanta area during 1968 through 1980. The control group babies were matched to babies in the case group according to the frequency of matches for race, year of birth and hospital of birth. The number of control group babies was 4,246.

About the "Review"

"Agent Orange Review" is prepared by VA's Office of Public and Consumer Affairs. The "Review" is published periodically to provide information on Agent Orange to concerned veterans and their families.

This issue contains information on:

- the Centers for Disease Control's birth defects study;
- health care services under Public Law 97-72; and
- other Agent Orange-related research.

For additional copies of this issue, write VA's Office of Public and Consumer Affairs (063), 810 Vermont Ave. NW, Washington, DC 20420.

If you have any questions about your Agent Orange examination, contact the environmental physician at the VA medical center where you had the examination.

If you have questions about VA benefits or Agent Orange, contact the VA facility nearest you. The phone number can be found in your telephone book under "U.S. Government" listings.

If you would like to be added to the mailing list to receive the "Review," please send your name, complete address and social security number (if you are a veteran) to the VA Data Processing Center (200/3921), 1615 E. Woodward St., Austin, TX 78772, Attn: Agent Orange Clerk. Changes of address should be forwarded to the same Austin address, *along with your mailing label.*

If you know someone who has had an Agent Orange Registry exam and is not receiving the "Review," please have that individual follow the instructions just described in order to be added to the mailing list.

Information about the families of babies in the case and control groups was gathered during interviews in 1982 and 1983 with the babies' mothers and fathers.

Questions about reproductive history and a variety of exposures (occupation, chronic diseases, drugs) were asked. Special emphasis

(see **Study**, *page 2)*

(Study, *from page 1*)

was placed on obtaining a history of the father's military service.

For purposes of the study, a veteran was defined as a father who had served in the U.S. military at any time in his life. A Vietnam veteran was defined as a father who had served in the U.S. military in Vietnam before the conception of his baby. Each Vietnam veteran was asked if he believed he had been exposed to Agent Orange.

The Army Agent Orange Task Force also gave most Vietnam veterans a graded score reflecting their estimated opportunities for exposure to Agent Orange (the Exposure Opportunity Index). Two separate exposure opportunity scores were assigned, based on information from the veterans themselves and information on occupation, location and dates recorded in military records.

The accuracy of Vietnam veterans' self-reports of Agent Orange exposure is unknown, as is the accuracy of the exposure index. The records of troop movements and herbicide use available today were maintained for military use and not for the purpose of estimating exposure for scientific studies.

Analysis of Data

The birth defects affecting the case babies were categorized into 96 groups — by international diagnostic codes and combinations of these codes. One group combined all types of birth defects.

For each of the 96 groups, four hypotheses were tested:

1. Veteran Status — to determine whether the risks of all veterans (not just Vietnam veterans) of fathering babies with birth defects were different from those of nonveterans;
2. Vietnam Veteran Status — to determine whether the risk of Vietnam veterans was different from that of other men (this was the primary purpose of the study);
3. Agent Orange Exposure Opportunity Index — to determine whether the risk of fathering a baby with birth defects was related to the exposure opportunity index; and
4. Self-Reports of Agent Orange Exposure — to determine whether Vietnam veterans who said they believed they had been exposed to Agent Orange were at a different risk than other men.

Three additional issues related to Vietnam military service also were evaluated:

1. Vietnam Veteran Birth Defect Syndrome — to determine whether fathers of babies with particular combinations of birth defects were more frequently Vietnam veterans than were the fathers of control group babies;
2. Vietnam Veterans' Risks of Fathering Several Affected Babies — to determine whether Vietnam veterans have had an increased risk of fathering more than one baby with birth defects; and
3. Malaria and Anti-Malaria Medicine — to determine whether Vietnam veteran fathers had contracted malaria in Vietnam or if they had taken medicine for preventing malaria.

Study Results

Over all, 69.9 percent of eligible mothers and 56.3 percent of eligible fathers completed interviews. An additional one percent or so of the mothers and fathers partially completed interviews to the point that it was possible to obtain the father's military history.

Four hundred and twenty-eight fathers of the case group babies were Vietnam veterans and 268 fathers of the control group babies were Vietnam veterans. The non-Vietnam veteran case group fathers numbered 4,387; the non-Vietnam veteran control group fathers numbered 2,699.

Estimates of the risk of veterans' (excluding Vietnam veterans) fathering babies with all types of birth defects combined is presented in Table 1. Their risk is compared to that of men who never served in the Armed Forces. The non-Vietnam veterans have only 94 chances of fathering babies with birth defects for every 100 chances by nonveterans.

Table 1.—Risks of Non-Vietnam Veterans' Fathering Babies with Birth Defects (all types combined), Compared to Nonveteran Fathers

Group	Non-Vietnam Veteran Fathers	Nonveteran Fathers
Babies with Birth Defects	1,659 (38%)	2,727 (62%)
Babies without Birth Defects	1,047 (39%)	1,652 (61%)

Estimates of the risk of Vietnam veterans' fathering babies with birth defects is presented in Table 2. Their risk was compared to that of non-Vietnam veterans and nonveterans. The Vietnam veterans have only 97 chances of having babies with birth defects for every 100 chances by the non-Vietnam veteran and nonveteran fathers. Vietnam veterans, therefore, have no greater chance of fathering babies with birth defects than other fathers.

Table 2.—Risks of Vietnam Veterans' Fathering Babies with Birth Defects (all types combined), Compared with All Other Fathers

Group	Vietnam Veteran Fathers	All Other Fathers[a]
Babies with Birth Defects	428 (9%)	4,387 (91%)
Babies without Birth Defects	268 (9%)	2,699 (91%)

[a]Includes non-Vietnam veterans and nonveterans.

With few exceptions, the same type of finding applied to Vietnam veterans' risks for the remaining 95 groups of birth defects. The same overall pattern applied to the tests of hypotheses regard-

Agent Orange Research Update

Dioxins and Furans in Adipose Tissue

VA and the Environmental Protection Agency (EPA) entered into an interagency agreement to study the levels of dioxin in adipose tissue (or fat) from a selected group of men in the Vietnam-Era age bracket.

EPA has been collecting fat samples for its National Human Adipose Study since 1970. The samples are obtained from the bodies of persons who have died of injuries or diseases that cause death within a relatively short period of time. These samples from the general population were analyzed for residues of selected pesticides and toxic chemicals.

Additional samples are still available for analysis, including tissue samples of more than 500 men born between 1937 and 1952. Many had served in the military during the Vietnam Era, and some had served in Vietnam when Agent Orange was sprayed.

Five hundred and twenty-eight specimens have been determined to be eligible, based on age and sex, and are available in EPA's archive samplings. Four hundred and ninety-four specimens of that total have been identified by social security number and name. Eighty of these have been identified as veterans using VA files.

A list of 494 names and/or social security numbers will be sent to the National Personnel Records Center to determine veteran status and if they served in Vietnam. EPA expects that between 30 and 50 of these specimens would be those of Vietnam veterans.

The Department of Defense may assist VA in determining the likelihood of Agent Orange exposure of those who served in Vietnam.

Through individual contract laboratories, VA will measure dioxin levels in samples from the identified Vietnam veterans and compare the results with the dioxin content in the samples taken from other men.

The study should establish data on dioxin levels in the U.S. male population and should indicate whether military service, especially in Vietnam, has had an effect on dioxin levels in fat tissue.

Vietnam Veteran Mortality Study

VA is conducting a Vietnam veteran mortality study to compare the mortality patterns and specific causes of death between veterans who served in Vietnam and veterans without Vietnam service.

It is estimated that approximately 300,000 Vietnam and Vietnam-Era veterans have died since the start of the Vietnam conflict. This number includes approximately 52,000 combat deaths.

VA has used computer records to identify a group of approximately 75,000 deceased veterans who served during the Vietnam Era (1964-1975). Cause-of-death data have been obtained from death certificates, and histories of military service have been obtained from military records.

VA recently received approval from the National Center for Health Statistics to use the National Death Index. This information will assist VA in developing a death certificate-search mechanism for veterans whose records cannot be found by other methods.

The Social Security Administration has agreed to search its records to verify the vital status of untraced veterans for the study and to assist in determining their place of death.

Various VA departments and offices are providing assistance in the death certificate search.

All fifty states have indicated their willingness to search their records and locate veterans' death certificates, if needed.

The mortality study will determine whether Vietnam veterans have died from unusual diseases or as a result of specific causes — such as suicide or cancer — in higher than expected proportions.

VA projects that the study will be completed in 1985.

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ing the Agent Orange Exposure Opportunity Index and those regarding Vietnam veterans' self-reports of Agent Orange exposure.

The exceptions to this general pattern are: the estimated risks of fathering babies with spina bifida (a defect in the bony encasement of the spinal cord); cleft lip, with or without cleft palate; and defects in the categories of "other neoplasms" (abnormal growths, such as tumors and cysts) were higher for veterans and for Vietnam veterans who had higher Agent Orange Exposure Opportunity Index scores. In addition, the estimated risks of fathering babies born with sex organ defects were higher for Vietnam veterans who stated that they had contracted malaria while in Vietnam. Vietnam veterans in general had significantly lower estimated risks of fathering babies with complex cardiovascular defects.

Assessing Vietnam veterans' risks associated with Agent Orange exposure is difficult, and the available methods for estimated exposure are imperfect. Thus, it is unknown whether the few positive associations in the study reflect true effects of exposure or are chance occurrences.

Conclusions

The conclusion that Vietnam veterans in general do not appear to have been at increased risk suggests that if effects have been caused by exposure, those effects are small and are limited to select groups of veterans, and/or are limited to rare types of defects.

The conclusion that Vietnam veterans in general have not fathered babies with all types of birth defects combined, at higher rates than other men, is based on relatively strong evidence. This study did not identify the causes of the birth defects in the babies of Vietnam veterans nor in the babies of men who did not serve in Vietnam. The causes of the vast majority of birth defects remain unknown.

Two or three percent of the babies born to Vietnam veterans in the future will have serious birth defects, just as will a similar proportion of babies born to other men. The discovery of the causes of these defects, discovery that may make prevention possible in the future, will depend on other research.

Health Care for Veterans Continues Under Public Law 97-72

Public Law 97-72 — the Veterans' Health Care, Training and Small Business Loan Act of 1981 — authorized VA to provide concerned, eligible veterans with appropriate medical care and treatment for illnesses or disabilities possibly related to Agent Orange exposure.

Since Public Law 97-72 was signed in November 1981, VA has provided hospital care or nursing home care, as well as outpatient care, which is designed to prepare a veteran for hospital care, provide post-hospitalization followup care or prevent hospitalization.

Such health care services are provided without regard to the veteran's age, service-connected status or the veteran's inability to defray the costs of such care elsewhere.

More than 20,000 inpatient admissions and more than one million outpatient visits have occurred for the treatment of illnesses or disabilities possibly related to Agent Orange exposure. These statistics represent numbers of admissions and outpatient visits, not the actual number of veterans receiving treatment.

Based on average use rates, it is estimated that in fiscal year 1982, approximately 6,000 veterans were hospitalized and approximately 62,000 were seen as outpatients. In fiscal year 1983, approximately 6,900 veterans were hospitalized and 73,000 were seen as outpatients. These two groups — inpatients and outpatients — may include some of the same individuals.

Only limited data are available for the current fiscal year, but the information to date suggests that the level of inpatient admissions will be reduced, while the number of outpatient visits will be somewhat higher than that experienced during fiscal years 1982 and 1983.

The following set of figures reflects the cumulative totals of inpatient and outpatient care provided under PL 97-72:

Fiscal Year	Inpatient Admissions	Outpatient Visits
1982	9,400	369,000
1983	10,900	432,000
1984 (7/31/84)	3,100	363,700

Health care services authorized by Public Law 97-72 are provided to any veteran of the Vietnam Era (August 5, 1964-May 7, 1975) who, while serving in Vietnam, may have been exposed to dioxin or to a toxic substance in a herbicide or defoliant used for military purposes. Health care services may not be provided under this law for the care of conditions that are found to have resulted from a cause other than exposure to these substances. However, veterans who are not provided needed medical care under Public Law 97-72 may be furnished care if they are eligible under any other legislation.

NO6-84-3

Agent Orange Review

Information for Veterans Who Served in Vietnam

October 1984

Veterans Administration

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Vol. 5, No. 1

Agent Orange Review

March 1986

Information for Veterans Who Served in Vietnam

AGENT ORANGE HIGHLIGHTS

• **DIOXIN REGULATION** The final rule governing the adjudication of disability compensation claims based on exposure to dioxin was published in the Federal Register August 26, 1985. See article on page 2 of this issue.

• **AGENT ORANGE EXAMS** Some VA medical centers are holding special Agent Orange clinics during weekend and evening hours to meet the number of requests for Agent Orange examinations. As of October 31, 1985, 205,478 initial Agent Orange examinations had been performed. See chart on page 2 for a comparison of the number of exams performed since the Agent Orange Registry Examination program began.

• **LOUISIANA REGISTRY** The Louisiana State Legislature voted to set up a registry for the families of Vietnam-Era military personnel who potentially were exposed to Agent Orange.

• **INDIANA ADVISORY COMMITTEE** The Indiana State Legislature has established an Agent Orange Advisory Committee which will hold public hearings throughout the state and submit a recommendation to the legislature on Agent Orange research.

• **WASHINGTON AGENT ORANGE PROJECT** Washington State Department of Veterans Affairs is providing information to veterans on the locations of herbicide spraying missions in Vietnam. Veterans are encouraged to get an Agent Orange examination and are sent a self-help guide, explaining about herbicides and giving addresses and phone numbers of the state's VA medical centers, Vietnam Veteran Outreach Centers (Vet Centers), service organizations and the Department's field offices.

• **LITERATURE REVIEW** Volumes V and VI of the herbicide literature review series has been published. For information on ordering the publications, see page 4 of this issue.

• **TEXAS AGENT ORANGE PROGRAM** The Texas State Legislature decided not to continue funding of the State's Agent Orange Program. The Program was officially closed on October 31, 1985. The University of Texas System Health Science Centers, which conducted clinical studies within the state, is expected to publish a final report on their findings some time in 1986.

About the "Review" . . .

"Agent Orange Review" is prepared by VA's Office of Public and Consumer Affairs. The "Review" is published periodically to provide information on the studies being conducted by the Centers for Disease Control and other federal agencies, as well as information on VA services to Vietnam veterans.

For additional copies of this issue, write VA's Office of Public and Consumer Affairs (003B), 810 Vermont Ave., NW, Washington, DC 20420.

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Ranch Hand Study Update Released by Air Force

The Air Force released in November 1985 the third mortality report on Ranch Hand personnel who were involved in herbicide spraying missions in Vietnam.

As was the case in the first and second reports, released in June 1983 and February 1985, the analyses did not reveal any statistically significant differences in mortality between the exposed group and the comparison groups.

(see Study, page 4)

VA Publishes Regulations On Dioxin and Radiation

The Veterans Administration issued a final regulation on August 26, 1985, concerning the adjudication of disability compensation claims based upon disabilities or deaths of certain veterans who, while in military service, were exposed to herbicides containing dioxin or to ionizing radiation.

The rule was required under the "Veterans' Dioxin and Radiation Exposure Compensation Standards Act," which was signed into law on October 24, 1984. (See February 1985 issue of "Agent Orange Review" for more detailed information on this legislation.)

The regulation applies to claims based on dioxin exposure during service in Vietnam; ionizing radiation exposure in connection with atmospheric testing of nuclear weapons; and radiation exposure during the occupation of Hiroshima or Nagasaki at the end of World War II.

The regulation requires that VA adjudicators grant the benefit of reasonable doubt to claimants when there is a balance of positive and negative evidence that neither proves nor disproves such a claim. The rule also contains criteria for denying claims if evidence shows that the illness was caused by the veteran's own misconduct or was not service-related.

Specifically, the rule recognizes that only chloracne (a skin disease) is connected with dioxin exposure. VA will acknowledge service connection if chloracne is manifested within three months of the veteran's latest departure from Vietnam. The rule further states that sound scientific and medical evidence does not establish a cause-and-effect relationship between dioxin exposure and porphyria cutanea tarda (PCT) and soft-tissue sarcomas.

The final rule also provides that interim disability or death benefits are payable to Vietnam veterans (or their survivors) who suffer from PCT or chloracne if manifested within one year after the veteran's most recent departure from Vietnam. These interim benefits may not be paid for any period prior to October 1, 1984, nor for any period after September 30, 1986.

Further, the VA Administrator is allowed to address claims for other diseases when evidence supports that the condition is related to in-service exposure.

In addition, the rule provides that the VA Administrator shall publish periodic evaluations of scientific or medical studies regarding the adverse effects of dioxin. The effective date of the regulation was September 25, 1985, except part of the regulation regarding the payment of interim benefits, which was effective October 1, 1984.

VA's AO Research Section Relocates

In September 1985, VA's Agent Orange Projects Office's Research Section was renamed the Office of Environmental Epidemiology (OEE) and moved to the Armed Forces Institute of Pathology (AFIP), located at Walter Reed Army Medical Center in Washington, D.C.

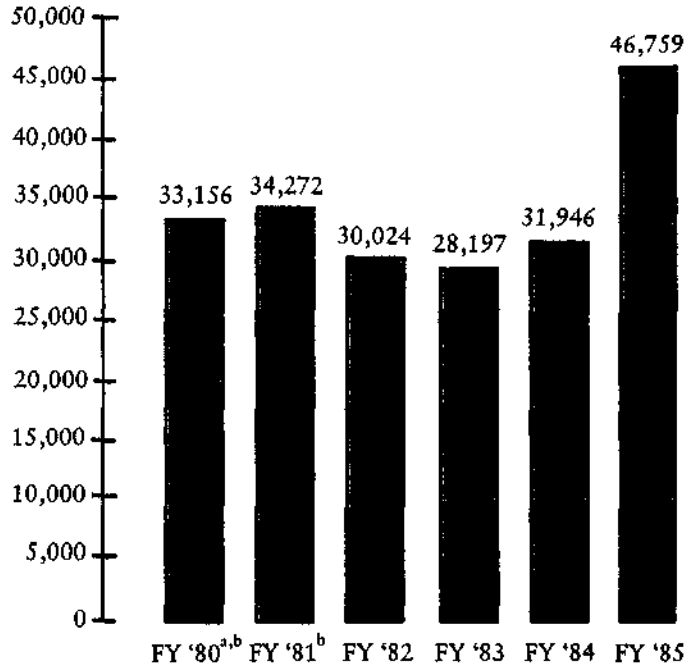
The relocation occurred under terms of an interagency agreement between VA and AFIP. OEE will continue to conduct VA-initiated research and, when mutually agreed upon, will provide support to AFIP.

Dr. Han K. Kang, former chief of the Agent Orange Research Section, has been named director of OEE.

The new address and telephone number are as follows:

VA Office of Environmental Epidemiology
Armed Forces Institute of Pathology
Washington, DC 20306-6000
202-576-0366

AGENT ORANGE REGISTRY EXAMINATIONS



Cumulative total number of initial examinations as of September 30, 1985: 204,354

[a] *Includes totals for fiscal years '78 and '79.*

[b] *Because of changes in examination reporting procedures, actual totals prior to 5/81 are unavailable. Estimated figures have been used.*

New Advisory Committee Met Twice in 1985

The Veterans' Advisory Committee on Environmental Hazards, established to counsel VA on the results of studies dealing with the health effects of dioxin and radiation exposure, has held two meetings since members were appointed last year.

The committee includes medical and scientific experts on the health effects of exposure to dioxin and ionizing radiation, as well as members of the general public, including one disabled veteran. The number of members in each category is determined by law.

The expert members of the committee formed a Scientific Council that is subdivided into a panel to evaluate studies dealing with the health effects of dioxin exposure, and another to evaluate studies dealing with the health effects of ionizing radiation exposure.

The council is reviewing study findings to determine if sound scientific or medical evidence exists indicating a connection between various health problems and exposure. The council will be reporting to the full committee and the Administrator of Veterans Affairs.

The committee also has assisted VA in developing regulations dealing with veterans' disability compensation claims related to dioxin and radiation exposure.

Agent Orange Research Update

New York State Mortality Study

New York State has released the findings of a study comparing causes of death among Vietnam veterans and veterans with no Vietnam service. The findings revealed no significant statistical differences between the two groups.

Investigators collected data on men who had died in New York State (excluding New York City) during 1965-67 and 1970-80 who were between the ages of 18 and 29 during 1965 through 1971. (The years 1968 and 1969 were excluded, however, because veteran status was not noted on death certificates.) Men for whom data were collected would have been eligible for military service during the Vietnam Conflict. In this group of men, 22,494 deaths occurred. Of that number, 4,558 were Vietnam-Era veterans.

Investigators conducted interviews with a random sample of next-of-kin, and various data sources were used to match cause of death information and Vietnam service.

Final data contained information on 1,496 New York State Vietnam-Era veterans, 555 of whom served in Vietnam. Investigators compiled statistics on Vietnam experience and 26 causes of death. Comparisons were made between the two groups of veterans, with adjustments for age, race and education.

Investigators acknowledged that the comparison between veterans with Vietnam service and veterans with no service in Vietnam is limited by the small sample size and lack of information on herbicide exposure and confounding factors, such as the relationship between cigarette smoking and lung cancer. In addition, because certain diseases that may be related to dioxin exposure have lengthy latency periods, investigators determined that further study is necessary.

NCI-Sponsored Cancer Study

In March 1983, the Battelle Human Affairs Research Center in Seattle began a study to evaluate the incidence of cancer in relation to past exposure to phenoxy herbicides and other dioxin-contaminated chemicals.

Funded by the National Cancer Institute, the case-control study is being conducted in collaboration with the Fred Hutchinson Cancer Research Center, also in Seattle.

The primary focus of the study is soft-tissue sarcomas and non-Hodgkin's lymphomas. The study will concentrate on 13 counties in western Washington State where phenoxy herbicides were used for forestry management, weed and brush control, public lands and maintenance programs, and for which cancer incidence data for the population are available.

The study is concerned with occupational exposure only. One hundred thousand people — or 3.5 percent of the population in Washington State — hold jobs where prolonged exposure to dioxin-containing chemicals occurs.

The study is a retrospective study, evaluating the incidence of cancer with respect to possible past exposure to phenoxy herbicides and other substances containing dioxin. The frequency of exposure among both cases and controls also will be assessed.

Cases are being selected from the Cancer Center's Cancer Surveillance System, a population-based tumor registry.

Two hundred soft-tissue sarcoma cases and 500 non-Hodgkin's lymphoma cases, ages 20 to 79, for the years 1981-1984 were identified from the tumor registry.

Controls (750) were matched to cases by age and vital statistics. The controls were selected from the same geographical area as the cases.

Intensive interviews were conducted that included questions on job history, residential history, military service, diseases and medication history, general health information and other personal data.

Researchers will evaluate the relationship of health effects to dose and duration of exposure, determine the latency period for dioxin-related effects, the interaction of other risk factors and any disease complications.

Forty job titles of work activities will be identified and the daily dose calculated for each type. The exposure will be classified as high, medium and low.

Additional risk factors also will be assessed, such as infectious diseases (polio), parasitic diseases (malaria), possible modifiers of immunity (blood transfusions), exposure to other chemicals, drug use and other factors such as diet and smoking.

Data from the questionnaires currently are being tabulated. Researchers began analyzing the data in mid-1985. The study is expected to be completed in 1986.

New York State Soft-Tissue Sarcoma Study

New York State has released the findings of a study of Vietnam veterans and soft-tissue sarcomas (malignant tumors) in which no association was found between the disease and Vietnam service.

The study attempted to determine whether men of draft age who developed soft-tissue sarcomas in later life were more likely to have served in Vietnam than an age-matched control group.

Researchers used the New York State Cancer Registry to identify all living and deceased men with soft-tissue sarcomas diagnosed from 1962 through 1980 who were between the ages of 18 and 29 during 1962 through 1981. The search identified 310 eligible cases.

Interviews were conducted with 281 men or their relatives.

A live control group was selected and matched for each case (by birth, sex and zip code of residence).

Medical records and hospital pathology information were collected for all cases, and specimens were obtained for a subset of 108 cases.

A pathologist reviewed the specimens without knowing the military service status of the cases.

All diagnoses were classified according to the World Health Organization classification system for soft-tissue sarcomas.

Agent Orange Conference Held

More than 95 adjudication officers, environmental physicians and dermatologists attended the third Continuing Education Conference on Agent Orange, held in Washington, D.C., in August 1985.

The three-day conference provided updated information on Agent Orange related-issues, with a special emphasis on the development, diagnosis, treatment and prognosis of chloracne. Reports were presented by members of the Chloracne Task Force, and VA investigators gave progress reports on their research activities.

Additional presentations were made by representatives of the Centers for Disease Control, the Armed Forces Institute of Pathology, various universities and the Air Force.

Policy and future plans for dealing with Agent Orange issues also were discussed.

Other items on the conference agenda included Agent Orange examinations, reports on other non-VA Agent Orange-related studies, and Agent Orange litigation.

VA Updates Series On AO Literature

VA has published volumes V and VI in its series of reviews of Agent Orange literature.

The indepth review and analyses of worldwide scientific literature on the health effects of Agent Orange and other phenoxy herbicides was conducted by an independent organization under contract with the VA.

Volumes I and II of the literature review were published in 1981. Volumes III and IV, which covered published and unpublished literature since the original 1981 reports, were published in April 1984.

Volumes I and II were mandated by Public Law 96-151. VA has continued to publish subsequent volumes because of their contribution to assembling what is perhaps the largest body of references on herbicides in existence.

Lay-language summaries of all six volumes of the literature review also have been published.

The complete series and the lay-language summaries are on file at all VA medical center libraries.

Following is a complete listing of the literature review series. Volumes I through VI can be ordered from the Superintendent of Documents, Government Printing Office, Washington, DC 20402.

Volume I, Analysis of Literature, stock no. 051-000-00154-1, $9.00

Volume II, Annotated Bibliography, stock no. 051-000-00155-9, $9.50

Volume III, Analysis of Recent Literature on Health Effects, stock no. 051-000-0164-8, $9.50

Volume IV, Annotated Bibliography of Recent Literature on Health Effects, stock no. 051-000-0165-6, $3.25

Volume V, Analysis of Recent Literature on Health Effects, stock no. 051-000-00-173-7, $6.00

Volume VI, Annotated Bibliography of Recent Literature on Health Effects, stock no. 051-000-00-173-5, $2.75

(Study, *from page 1*)

As of December 1984, 55 Ranch Hand personnel and 285 comparison subjects had died. The number of deaths were determined, using Air Force, VA, Social Security Administration and Internal Revenue Service sources, as well as personal contacts. Death certificates were obtained on all subjects.

Data were analyzed to compare the death experiences in the Ranch Hand population with the comparison group. In addition, death experience in these groups was compared to the 1978 U.S. White Male Mortality Experience, the 1978 Department of Defense Nondisability Retired Life Table, the mortality experience of the West Point Class of 1956, U.S. Air Force active duty personnel and the active U.S. Civil Service population.

Ranch Hand officers, comparison group officers and comparison enlisted men are living significantly longer than expected.

A herbicide/dioxin exposure index was applied to the data, and no relationship between exposure and mortality experience was identified.

Analysis of data showed no increased Ranch Hand mortality for accidents, suicide, homicide, malignancy or circulatory system disease. No unusual patterns of malignancy were observed in either the Ranch Hand group or comparison groups — a finding that would be expected from the small number of deaths to date.

A similar pattern was found when data were compared with the Defense Department retired population. All groups had mortality experience similar to the civil service population.

As was expected, all groups in this study had an increased mortality rate when compared to the Air Force population currently on active duty. This finding is due to the fact that individuals in the active duty population who develop severe chronic disease are medically retired. Both Ranch Hand and comparison group officers had mortality patterns similar to the West Point group.

The first (baseline) morbidity report of the Air Force Ranch Hand Study, released in February 1984, did not identify statistical differences between the Ranch Hand group and the comparison groups for illnesses commonly attributed to dioxin exposure.

Both the mortality and morbidity portions of the Air Force Ranch Hand Study will be updated over a 20-year period.

N 003-86-1

Agent Orange Review

Information for Veterans Who Served in Vietnam

March 1986

Veterans Administration

Data Processing Center
ANC (392)
1615 E. Woodward St.
Austin, TX 78772

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Veterans
Administration
VA 601

Vol. 5, No. 1

March 1986

Agent Orange Review

Information for Veterans Who Served in Vietnam

AGENT ORANGE HIGHLIGHTS

• **DIOXIN REGULATION** The final rule governing the adjudication of disability compensation claims based on exposure to dioxin was published in the Federal Register August 26, 1985. See article on page 2 of this issue.

• **AGENT ORANGE EXAMS** Some VA medical centers are holding special Agent Orange clinics during weekend and evening hours to meet the number of requests for Agent Orange examinations. As of October 31, 1985, 205,478 initial Agent Orange examinations had been performed. See chart on page 2 for a comparison of the number of exams performed since the Agent Orange Registry Examination program began.

• **LOUISIANA REGISTRY** The Louisiana State Legislature voted to set up a registry for the families of Vietnam-Era military personnel who potentially were exposed to Agent Orange.

• **INDIANA ADVISORY COMMITTEE** The Indiana State Legislature has established an Agent Orange Advisory Committee which will hold public hearings throughout the state and submit a recommendation to the legislature on Agent Orange research.

• **WASHINGTON AGENT ORANGE PROJECT** Washington State Department of Veterans Affairs is providing information to veterans on the locations of herbicide spraying missions in Vietnam. Veterans are encouraged to get an Agent Orange examination and are sent a self-help guide, explaining about herbicides and giving addresses and phone numbers of the state's VA medical centers, Vietnam Veteran Outreach Centers (Vet Centers), service organizations and the Department's field offices.

• **LITERATURE REVIEW** Volumes V and VI of the herbicide literature review series has been published. For information on ordering the publications, see page 4 of this issue.

• **TEXAS AGENT ORANGE PROGRAM** The Texas State Legislature decided not to continue funding of the State's Agent Orange Program. The Program was officially closed on October 31, 1985. The University of Texas System Health Science Centers, which conducted clinical studies within the state, is expected to publish a final report on their findings some time in 1986.

About the "Review"

"Agent Orange Review" is prepared by VA's Office of Public and Consumer Affairs. The "Review" is published periodically to provide information on the studies being conducted by the Centers for Disease Control and other federal agencies, as well as information on VA services to Vietnam veterans.

For additional copies of this issue, write VA's Office of Public and Consumer Affairs (003E), 810 Vermont Ave., NW, Washington, DC 20420.

If you have any questions about your Agent Orange examination, contact the environmental physician at the VA medical center where you had the examination.

If you have questions about VA benefits, contact the VA facility nearest you. The phone number can be found in your telephone book under "U.S. Government" listings.

If you would like to be added to the mailing list to receive the "Review," please send your name, complete address and social security number (if you are a veteran) to the VA Data Processing Center (200/392), 1615 E. Woodward St., Austin, TX 78772, Attn: Agent Orange Clerk. Changes of address should be forwarded to the same Austin address, *along with your mailing label.*

If you know someone who has had an Agent Orange Registry exam and is not receiving the "Review," please have that individual follow the instructions just described in order to be added to the mailing list.

Ranch Hand Study Update Released by Air Force

The Air Force released in November 1985 the third mortality report on Ranch Hand personnel who were involved in herbicide spraying missions in Vietnam.

As was the case in the first and second reports, released in June 1983 and February 1985, the analyses did not reveal any statistically significant differences in mortality between the exposed group and the comparison groups.

(see Study, page 4)

VA Publishes Regulations On Dioxin and Radiation

The Veterans Administration issued a final regulation on August 26, 1985, concerning the adjudication of disability compensation claims based upon disabilities or deaths of certain veterans who, while in military service, were exposed to herbicides containing dioxin or to ionizing radiation.

The rule was required under the "Veterans' Dioxin and Radiation Exposure Compensation Standards Act," which was signed into law on October 24, 1984. (See February 1985 issue of "Agent Orange Review" for more detailed information on this legislation.)

The regulation applies to claims based on dioxin exposure during service in Vietnam; ionizing radiation exposure in connection with atmospheric testing of nuclear weapons; and radiation exposure during the occupation of Hiroshima or Nagasaki at the end of World War II.

The regulation requires that VA adjudicators grant the benefit of reasonable doubt to claimants when there is a balance of positive and negative evidence that neither proves nor disproves such a claim. The rule also contains criteria for denying claims if evidence shows that the illness was caused by the veteran's own misconduct or was not service-related.

Specifically, the rule recognizes that only chloracne (a skin disease) is connected with dioxin exposure. VA will acknowledge service connection if chloracne is manifested within three months of the veteran's latest departure from Vietnam. The rule further states that sound scientific and medical evidence does not establish a cause-and-effect relationship between dioxin exposure and porphyria cutanea tarda (PCT) and soft-tissue sarcomas.

The final rule also provides that interim disability or death benefits are payable to Vietnam veterans (or their survivors) who suffer from PCT or chloracne if manifested within one year after the veteran's most recent departure from Vietnam. These interim benefits may not be paid for any period prior to October 1, 1984, nor for any period after September 30, 1986.

Further, the VA Administrator is allowed to address claims for other diseases when evidence supports that the condition is related to in-service exposure.

In addition, the rule provides that the VA Administrator shall publish periodic evaluations of scientific or medical studies regarding the adverse effects of dioxin. The effective date of the regulation was September 25, 1985, except part of the regulation regarding the payment of interim benefits, which was effective October 1, 1984.

VA's AO Research Section Relocates

In September 1985, VA's Agent Orange Projects Office's Research Section was renamed the Office of Environmental Epidemiology (OEE) and moved to the Armed Forces Institute of Pathology (AFIP), located at Walter Reed Army Medical Center in Washington, D.C.

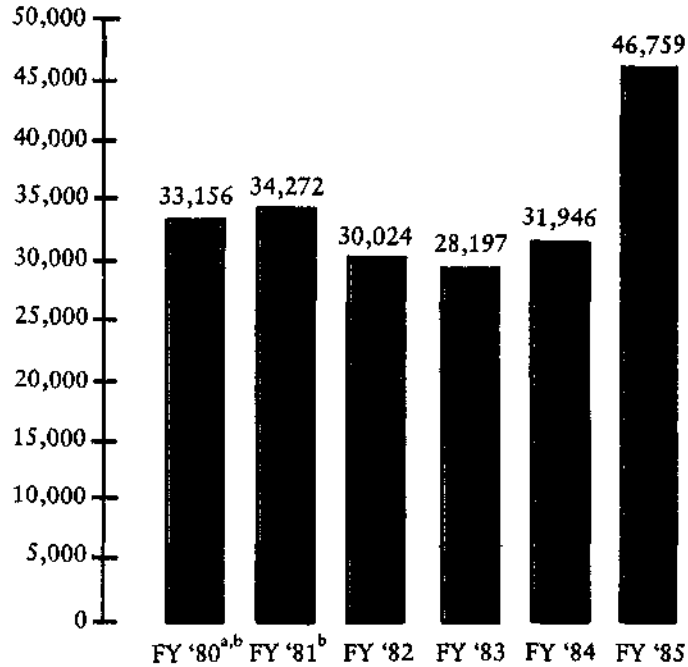
The relocation occurred under terms of an interagency agreement between VA and AFIP. OEE will continue to conduct VA-initiated research and, when mutually agreed upon, will provide support to AFIP.

Dr. Han K. Kang, former chief of the Agent Orange Research Section, has been named director of OEE.

The new address and telephone number are as follows:

VA Office of Environmental Epidemiology
Armed Forces Institute of Pathology
Washington, DC 20306-6000
202-576-0366

AGENT ORANGE REGISTRY EXAMINATIONS



Cumulative total number of initial examinations as of September 30, 1985: 204,354

[a] *Includes totals for fiscal years '78 and '79.*

[b] *Because of changes in examination reporting procedures, actual totals prior to 5/81 are unavailable. Estimated figures have been used.*

New Advisory Committee Met Twice in 1985

The Veterans' Advisory Committee on Environmental Hazards, established to counsel VA on the results of studies dealing with the health effects of dioxin and radiation exposure, has held two meetings since members were appointed last year.

The committee includes medical and scientific experts on the health effects of exposure to dioxin and ionizing radiation, as well as members of the general public, including one disabled veteran. The number of members in each category is determined by law.

The expert members of the committee formed a Scientific Council that is subdivided into a panel to evaluate studies dealing with the health effects of dioxin exposure, and another to evaluate studies dealing with the health effects of ionizing radiation exposure.

The council is reviewing study findings to determine if sound scientific or medical evidence exists indicating a connection between various health problems and exposure. The council will be reporting to the full committee and the Administrator of Veterans Affairs.

The committee also has assisted VA in developing regulations dealing with veterans' disability compensation claims related to dioxin and radiation exposure.

Agent Orange Research Update

New York State Mortality Study

New York State has released the findings of a study comparing causes of death among Vietnam veterans and veterans with no Vietnam service. The findings revealed no significant statistical differences between the two groups.

Investigators collected data on men who had died in New York State (excluding New York City) during 1965-67 and 1970-80 who were between the ages of 18 and 29 during 1965 through 1971. (The years 1968 and 1969 were excluded, however, because veteran status was not noted on death certificates.) Men for whom data were collected would have been eligible for military service during the Vietnam Conflict. In this group of men, 22,494 deaths occurred. Of that number, 4,558 were Vietnam-Era veterans.

Investigators conducted interviews with a random sample of next-of-kin, and various data sources were used to match cause of death information and Vietnam service.

Final data contained information on 1,496 New York State Vietnam-Era veterans, 555 of whom served in Vietnam. Investigators compiled statistics on Vietnam experience and 26 causes of death. Comparisons were made between the two groups of veterans, with adjustments for age, race and education.

Investigators acknowledged that the comparison between veterans with Vietnam service and veterans with no service in Vietnam is limited by the small sample size and lack of information on herbicide exposure and confounding factors, such as the relationship between cigarette smoking and lung cancer. In addition, because certain diseases that may be related to dioxin exposure have lengthy latency periods, investigators determined that further study is necessary.

NCI-Sponsored Cancer Study

In March 1983, the Battelle Human Affairs Research Center in Seattle began a study to evaluate the incidence of cancer in relation to past exposure to phenoxy herbicides and other dioxin-contaminated chemicals.

Funded by the National Cancer Institute, the case-control study is being conducted in collaboration with the Fred Hutchinson Cancer Research Center, also in Seattle.

The primary focus of the study is soft-tissue sarcomas and non-Hodgkin's lymphomas. The study will concentrate on 13 counties in western Washington State where phenoxy herbicides were used for forestry management, weed and brush control, public lands and maintenance programs, and for which cancer incidence data for the population are available.

The study is concerned with occupational exposure only. One hundred thousand people — or 3.5 percent of the population in Washington State — hold jobs where prolonged exposure to dioxin-containing chemicals occurs.

The study is a retrospective study, evaluating the incidence of cancer with respect to possible past exposure to phenoxy herbicides and other substances containing dioxin. The frequency of exposure among both cases and controls also will be assessed.

Cases are being selected from the Cancer Center's Cancer Surveillance System, a population-based tumor registry.

Two hundred soft-tissue sarcoma cases and 500 non-Hodgkin's lymphoma cases, ages 20 to 79, for the years 1981-1984 were identified from the tumor registry.

Controls (750) were matched to cases by age and vital statistics. The controls were selected from the same geographical area as the cases.

Intensive interviews were conducted that included questions on job history, residential history, military service, diseases and medication history, general health information and other personal data.

Researchers will evaluate the relationship of health effects to dose and duration of exposure, determine the latency period for dioxin-related effects, the interaction of other risk factors and any disease complications.

Forty job titles of work activities will be identified and the daily dose calculated for each type. The exposure will be classified as high, medium and low.

Additional risk factors also will be assessed, such as infectious diseases (polio), parasitic diseases (malaria), possible modifiers of immunity (blood transfusions), exposure to other chemicals, drug use and other factors such as diet and smoking.

Data from the questionnaires currently are being tabulated. Researchers began analyzing the data in mid-1985. The study is expected to be completed in 1986.

New York State Soft-Tissue Sarcoma Study

New York State has released the findings of a study of Vietnam veterans and soft-tissue sarcomas (malignant tumors) in which no association was found between the disease and Vietnam service.

The study attempted to determine whether men of draft age who developed soft-tissue sarcomas in later life were more likely to have served in Vietnam than an age-matched control group.

Researchers used the New York State Cancer Registry to identify all living and deceased men with soft-tissue sarcomas diagnosed from 1962 through 1980 who were between the ages of 18 and 29 during 1962 through 1981. The search identified 310 eligible cases.

Interviews were conducted with 281 men or their relatives.

A live control group was selected and matched for each case (by birth, sex and zip code of residence).

Medical records and hospital pathology information were collected for all cases, and specimens were obtained for a subset of 108 cases.

A pathologist reviewed the specimens without knowing the military service status of the cases.

All diagnoses were classified according to the World Health Organization classification system for soft-tissue sarcomas.

Agent Orange Conference Held

More than 95 adjudication officers, environmental physicians and dermatologists attended the third Continuing Education Conference on Agent Orange, held in Washington, D.C., in August 1985.

The three-day conference provided updated information on Agent Orange related-issues, with a special emphasis on the development, diagnosis, treatment and prognosis of chloracne. Reports were presented by members of the Chloracne Task Force, and VA investigators gave progress reports on their research activities.

Additional presentations were made by representatives of the Centers for Disease Control, the Armed Forces Institute of Pathology, various universities and the Air Force.

Policy and future plans for dealing with Agent Orange issues also were discussed.

Other items on the conference agenda included Agent Orange examinations, reports on other non-VA Agent Orange-related studies, and Agent Orange litigation.

VA Updates Series On AO Literature

VA has published volumes V and VI in its series of reviews of Agent Orange literature.

The indepth review and analyses of worldwide scientific literature on the health effects of Agent Orange and other phenoxy herbicides was conducted by an independent organization under contract with the VA.

Volumes I and II of the literature review were published in 1981. Volumes III and IV, which covered published and unpublished literature since the original 1981 reports, were published in April 1984.

Volumes I and II were mandated by Public Law 96-151. VA has continued to publish subsequent volumes because of their contribution to assembling what is perhaps the largest body of references on herbicides in existence.

Lay-language summaries of all six volumes of the literature review also have been published.

The complete series and the lay-language summaries are on file at all VA medical center libraries.

Following is a complete listing of the literature review series. Volumes I through VI can be ordered from the Superintendent of Documents, Government Printing Office, Washington, DC 20402.

Volume I, Analysis of Literature, stock no. 051-000-00154-1, $9.00

Volume II, Annotated Bibliography, stock no. 051-000-00155-9, $9.50

Volume III, Analysis of Recent Literature on Health Effects, stock no. 051-000-0164-8, $9.50

Volume IV, Annotated Bibliography of Recent Literature on Health Effects, stock no. 051-000-0165-6, $3.25

Volume V, Analysis of Recent Literature on Health Effects, stock no. 051-000-00-173-7, $6.00

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(Study, *from page 1*)

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The first (baseline) morbidity report of the Air Force Ranch Hand Study, released in February 1984, did not identify statistical differences between the Ranch Hand group and the comparison groups for illnesses commonly attributed to dioxin exposure.

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Agent Orange Review

Vol. 6, No. 1

October 1988

Information for Veterans Who Served in Vietnam

Vietnam Experience Study Released by CDC

The Vietnam Experience Study, conducted by the Centers for Disease Control, is designed to evaluate possible health effects of the Vietnam experience on veterans. The study compared the health status of a group of male U.S. Army veterans who served in Vietnam with a group of male U.S. Army veterans who served elsewhere during the Vietnam Era.

The study has several components: a mortality assessment; a morbidity study (which includes telephone interviews, and medical and psychological examinations); a birth outcome validation; and a semen analysis.

Mortality/Morbidity Assessment

CDC used a random sample of military records to find 9,324 male U.S. Army veterans who served in Vietnam and 8,989 Army veterans who served in Korea, Germany or the United States during the same time period. All of these men had been discharged starting in 1965 to 1971.

Over the entire followup period (mortality after discharge through December 1983), total mortality among the Vietnam veterans was 17 percent higher than for the other veterans. The excess mortality occurred mainly in the first five years after discharge from active duty, when the death rate among Vietnam veterans was about 45 percent higher than the rate among non-Vietnam veterans. Most of the increased mortality was from external causes, such as motor vehicle injuries, suicide, homicide and unintentional poisonings (mostly by drugs).

After the first five years, mortality among Vietnam veterans was similar to that of non-Vietnam veterans, except for drug-related deaths which continued to be elevated. This excess in post-service mortality among Vietnam veterans due to external causes is similar to that found among men returning from combat after World War II and the Korean Conflict.

An unexpected finding in the study was a deficit in deaths from diseases of the circulatory system among Vietnam veterans.

CDC recently updated the first mortality report through 1986. As with the earlier data, with the exception of the first five years after discharge, Vietnam veterans continue to have a similar rate of death for all causes compared to non-Vietnam veterans.

The morbidity findings of the Vietnam Experience Study include results of the telephone interview, the medical and psychological examinations, and the reproductive and child health components of the study.

In the telephone interview component, nearly 18,000 veterans were traced with 94 percent of the Vietnam and 92 percent of the

*(see **Vietnam**, page 4)*

About the "Review"...

"Agent Orange Review" is prepared by VA's Office of Public Affairs. The "Review" is published periodically to provide information on Agent Orange to concerned veterans and their families.

This issue updates federal government studies and activities related to Agent Orange and the Vietnam experience.

For additional copies of this issue, write VA's Office of Public Affairs (003F), 810 Vermont Ave., NW, Washington, DC 20420. Please specify the number of copies you are requesting. VA facilities should order additional copies from the VA Supply Depot.

If you have had an Agent Orange Registry examination and have questions about it, contact the environmental physician at the VA medical center where you had the examination.

If you have questions about VA benefits, contact the VA facility nearest you. The phone number can be found in your telephone book under "U.S. Government" listings.

Soft-Tissue Sarcoma Studies Show Veterans Not at Increased Risk

A VA study of soft-tissue sarcoma among men of draft age during the Vietnam Conflict shows that, in general, veterans who served in Vietnam did *not* have an increased risk of this type of cancer compared to those men who had never been in Vietnam.

The study was published in the October 1987 issue of the "Journal of the National Cancer Institute" and was conducted in collaboration with the Armed Forces Institute of Pathology (AFIP). The case-control study compared individuals with soft-tissue sarcomas and individuals without soft-tissue sarcomas with respect to Vietnam service, potential Agent Orange exposure and other possible risk factors, such as radiation therapy, exposure to specific chemicals, occupational exposure to phenoxy herbicides and certain medical conditions.

The cases were drawn from the AFIP soft-tissue tumor files. Between one-fourth and one-third of all soft-tissue sarcoma cases in the United States are sent to AFIP for review. The selection for the study was limited to men who were diagnosed at AFIP as having soft-tissue sarcoma between January 1, 1975 and December 31, 1980, and who were born between 1940 and 1955.

*(see **Sarcoma**, page 3)*

VA's Mortality Study Findings Prompt Further Analysis

The results of VA's proportionate mortality study of Army and Marine Corps Vietnam veterans, released in September 1987, indicated that Marine Corps Vietnam veterans appeared to have an increased mortality from lung cancer and non-Hodgkin's lymphoma. (Army Vietnam veterans did not.) The study, however, could not investigate possible causative factors for these elevated malignancies in Marines, and VA is conducting five followup studies either to confirm or refute the study findings.

The study also found statistically significant excess deaths among Army Vietnam veterans for motor vehicle accidents, non-motor vehicle accidents and accidental poisonings. Similar findings have been reported in other studies of Vietnam veterans, such as the Centers for Disease Control's Vietnam Veteran Mortality Study. Suicides were *not* elevated among this group of Vietnam veterans.

Published in May 1988 in the "Journal of Occupational Medicine," the study compared the mortality patterns and specific causes of death among 24,235 Vietnam veterans and 26,685 veterans without Vietnam service. The veterans were drawn from a random sample of deceased Vietnam-Era veterans identified in a computerized VA benefit file. Service information was obtained from military personnel records, and cause of death information from death certificates.

Committee Review

In August 1987, the study was provided to the Veterans Advisory Committee on Environmental Hazards for scientific review. The committee, whose membership includes experts in the field of dioxin exposure, discussed the study findings during their October 1987 meeting and recommended no changes in VA's current guidelines that do not allow disability compensation claims based on dioxin exposure.

The committee determined that the findings concerning lung cancer and non-Hodgkin's lymphoma, while statistically significant, are inconclusive and should be interpreted with caution. Among the reasons given by the committee for this cautious position was that a proportionate mortality study, by its very nature, cannot resolve the question of whether study results constitute a direct cause and effect relationship without the need for additional studies.

Concerning the lung cancer finding, the committee also noted the absence of any information on the smoking history of the study subjects.

Followup Studies

Based on conclusions of the Advisory Committee on Environmental Hazards, VA is conducting five followup studies to confirm or refute the findings of the Vietnam Veteran Mortality Study.

The first of these efforts involves updating the mortality study by including an additional 11,000 Vietnam-Era veterans' deaths in the analysis. These deaths occurred between 1982 and 1984.

The data will give to the study added statistical power and cases with longer latency periods — an important factor because some of the diseases suggested as being associated with Agent Orange exposure and Vietnam service may take years to develop.

The second effort involves a separate analysis for Army Vietnam veterans who served in the I Corps area of Vietnam. This analysis is being undertaken to determine whether the Army veterans who were stationed in the same geographic areas as the Marine Corps veterans experienced mortality patterns similar to the Marines.

Because of the widely accepted view of a causal relationship between smoking and lung cancer, the third activity involved obtaining military medical records of Marines in the mortality study who died from lung cancer in an attempt to determine their smoking status. It was later found impossible to determine who smoked and who did not.

Fourth, the VA is reviewing the Patient Treatment File for non-Hodgkin's lymphoma and Hodgkin's disease among Vietnam-Era veterans who have been treated in VA medical centers. The cases and the control patients will be compared with respect to Vietnam service and other factors associated with military service. The hypothesis is that if military service in Vietnam is not associated with an increased risk of non-Hodgkin's lymphoma or Hodgkin's disease, then the proportion of veterans having served in Vietnam or having certain military characteristics should be similar for both the cases and the controls.

In the fifth effort, a separate mortality study has been designed exclusively for Marine Vietnam veterans. To date, the only study providing an overall mortality rate of Vietnam veterans is a cohort mortality study recently published by the Centers for Disease Control which was restricted to Army veterans. A substantial portion (approximately 20 percent) of U.S. ground troops in Vietnam were Marines.

Unlike the Army units, the Marine Corps units were located in one geographic area — I Corps. In view of the results of the VA mortality study and the lack of overall mortality rates as well as cause-specific mortality rates for Marine Vietnam veterans, a separate mortality study for Marine veterans will be conducted.

AGENT ORANGE CLASS-ACTION SUIT SETTLEMENT...

The Supreme Court recently declined to review rulings that had dismissed lawsuits by approximately 300 veterans who had challenged the $180 million settlement between Vietnam veterans and their families and the manufacturers of Agent Orange. This action now opens the way to begin payments to totally disabled veterans who were exposed to Agent Orange or to their survivors. It is anticipated that it will be some time next year before the first payments are made. Payments will vary depending on the onset and duration of the total disability.

Neither the Veterans Administration nor any other federal agency is directly involved in the distribution of the settlement assets. The Court has designated the Aetna Life Insurance Company to serve as the claims administrator for the program. Information about the settlement can be obtained either by calling, toll-free, 1-800-225-4712, or by writing to the Special Master, Kenneth Feinberg, in care of Kaye, Scholer, Fierman, Hays and Handler, 1575 Eye St., NW., Washington, DC 20005.

(Sarcoma, from page 1)

The control group, which duplicated such characteristics as residency and socio-economic status, was drawn from the pathology records of hospitals and clinics that send reports to AFIP.

Interviews were conducted for 217 of 279 cases and 599 of 808 controls with study subjects or next of kin. Military and Vietnam service for all study subjects was documented by reviewing existing military personnel records.

An effort also was made to determine whether the odds of developing soft-tissue sarcoma increased with a greater probability of exposure to Agent Orange. To determine the likelihood of Agent Orange exposure, the following factors were reviewed: service in the Army or Marine Corps, occupation in the military, location of the veteran's unit in Vietnam or a combination of these factors.

Forty-five (21 percent) of 217 soft-tissue sarcoma cases and 145 (24 percent) of 599 controls had military service in Vietnam. There was no statistically significant association between soft-tissue sarcomas and Vietnam service.

Although the assumption is that ground troops in Vietnam as a group had a greater opportunity for exposure to Agent Orange, the study showed that this group actually had a slightly lower risk of soft-tissue sarcomas than men who had never been in Vietnam.

No statistically significant association was found between soft-tissue sarcomas and other study variables, such as viral diseases, skin problems, other types of cancer, smoking, alcohol use and occupations in which exposure to radiation or certain chemicals occurred.

Patient Treatment File Review

In a parallel effort to the VA-AFIP soft-tissue sarcoma study, a review was undertaken of soft-tissue sarcoma cases in VA's Patient Treatment File.

The review of VA hospital patients was conducted to determine if there was a connection between Vietnam service and soft-tissue sarcomas. The review found that the chance of Vietnam veterans having soft-tissue sarcoma was not greater than that of veterans without Vietnam service.

VA's Agent Orange Projects Office, in collaboration with VA's Pathology Service and AFIP, reviewed soft-tissue sarcoma cases among Vietnam-Era veterans who were admitted to VA medical centers in 1969-1983. The cases consisted of 234 Vietnam-Era veterans who served in the military between 1964 and 1975, were treated in one of VA's 172 medical centers between 1969 and 1983, and had a diagnosis of soft-tissue sarcoma. The comparison group consisted of 13,496 patients who were drawn from the same patient population sample.

The findings of the review are consistent with other studies of Vietnam veterans and soft-tissue sarcoma, including the Air Force Health Study of personnel who were involved in Agent Orange spraying missions in Vietnam, the New York State mortality study of Vietnam veterans and the Australian government's mortality study of Vietnam veterans.

An article on the results of the patient treatment file review was published in the December 1986 issue of the "Journal of Occupational Medicine."

Agent Orange Study Cancelled

The Centers for Disease Control's Agent Orange Epidemiological Study, which was intended to assess the possible adverse health effects on Vietnam veterans of Agent Orange exposure, has been cancelled.

Progress on the study — one of three components of the large-scale Epidemiology Study mandated by Congress — was delayed because of the inability to discriminate between ground troops who were exposed to Agent Orange and ground troops who were not.

A variety of methods were attempted in an effort to solve the problem, but none succeeded, partly because military records lack sufficient detail to pinpoint an individual's location with respect to areas of Agent Orange use (with the exception of Air Force Ranch Hand personnel and an even smaller group of chemical corps veterans).

The Congressional Office of Technology Assessment and the Science Panel of the Agent Orange Working Group have agreed that military records cannot be used as a basis for determining individual exposure.

In addition, self-reporting of exposure by Vietnam veterans cannot be used because troops were exposed to a variety of aerial spraying in Vietnam, making it impossible for an individual to distinguish among the sprayings of Agent Orange, other herbicides and insecticides.

The inability to evaluate Agent Orange exposure by other means resulted in a decision to conduct a special TCDD (Dioxin) Validation Study to determine whether measuring dioxin levels retained in the body can be used as a way of identifying and measuring exposure. Dioxin had been shown to remain for years in body fats after exposure to the herbicide, and technical advances have made it possible to measure minute amounts of dioxin in human blood.

The Validation Study conducted by CDC found that the dioxin content of blood from 646 Vietnam ground troop veterans matched the amount of dioxin in the blood of 97 non-Vietnam veteran contemporaries. The dioxin content and, therefore, the exposure to it was essentially the same whether the individual had been in Vietnam as part of ground troops or had never been in Vietnam. Virtually all the study participants had dioxin levels *below* the upper limit for U.S. residents without known dioxin exposure. These findings were reviewed by the Domestic Policy Council's Agent Orange Working Group and the Congressional Office of Technology Assessment.

The final conclusion of the Validation Study was that the dioxin content of blood cannot be used to identify a group or cohort of Vietnam veterans large enough to serve as a study group of men who had been exposed to Agent Orange.

The other components of the Epidemiology Study — the Vietnam Experience Study and the Selected Cancers Study — are proceeding. The Vietnam Experience Study is looking at the health experience of veterans with Vietnam service and veterans without Vietnam service to determine whether Vietnam veterans have health problems that are different from those who did not serve in Vietnam.

The Selected Cancers Study is focusing on whether Vietnam veterans are at increased risk of developing certain cancers that have been suggested as associated with exposure to phenoxy herbicides and their dioxin contaminant. The cancers are: lymphoma, soft-tissue sarcoma, nasal and naso-pharyngeal cancer, and primary liver cancer. The CDC reports that the study should be completed some time in 1988.

(Vietnam, *from page 1*)

non-Vietnam men located during 1985 and 1986. Of those located, 93 percent of the Vietnam and 91 percent of the non-Vietnam men were interviewed.

The interviews revealed a broad similarity between the two groups in terms of current demographic and social characteristics, such as education, income, employment rates and marital status.

Although the two groups are very similar socio-economically, the Vietnam veterans reported more current limitations in activities, more current use of prescription drugs, and a greater prevalence of many types of diseases and somatic and psychological symptoms.

Also, while this study was not large enough to evaluate risks of specific types of cancers, the two groups were similar in the total reported number of physician-diagnosed cancers. These findings are consistent with the results of other studies of the health of Vietnam veterans.

The Vietnam veterans reported more problems with impaired fertility, yet both groups reported fathering the same average number of children.

The Vietnam veterans also reported more birth defects and other health problems among their children. However, when this information was checked against medical records, the children of Vietnam veterans were no more likely to have birth defects than the children of non-Vietnam veterans.

In the examination component, a random subsample (approximately 41 percent) of those interviewed were provided comprehensive physical, psychological and laboratory examinations. Physical and laboratory examinations showed few current differences between the two groups, despite the many differences reported by telephone interview. For example, there were large differences in reported skin problems; but on examination, all skin conditions, including scars from possible past chloracne, were found at the same rate for both groups.

Psychological evaluation of the men who were examined was done through standardized interviews and questionnaires. Although most men in both groups fell within normal limits in these evaluations, current psychological problems — primarily alcohol dependence or abuse (13.7 percent versus 9.2 percent), anxiety (4.9 percent versus 3.2 percent), or depression (4.5 percent versus 2.3 percent) were more prevalent among Vietnam than non-Vietnam veterans.

Analysis of combat-related post-traumatic stress disorder was limited to Vietnam veterans. About 15 percent of these veterans reported ever experiencing symptoms which met diagnostic criteria for this disorder. Combat-related psychological symptoms diminished over time, but 2 percent still experienced episodes of post-traumatic stress disorder during the month before examination, up to 20 years after their Vietnam service.

Overall, hundreds of physical health items were evaluated as part of the examinations, including blood pressure, electrocardiograms, chest roentgenograms, pulmonary function tests, visual acuity and hearing tests, peripheral nerve function, immunologic status and more than 100 laboratory tests. For most items, no statistically significant differences were found between the two groups. The most noteworthy differences were hearing loss, evidence of past infection with hepatitis B, lower sperm concentrations, and lower average proportions of morphologically "normal" sperm cells. Despite these last two findings, the average number of children fathered per veteran in each cohort was identical — 1.6 children.

Reproductive Findings

Although Vietnam veterans reported more adverse reproductive and child health outcomes than non-Vietnam veterans during the telephone interview portion of the study, the children of Vietnam veterans were no more likely to have birth defects (all types combined) recorded on hospital birth records than were children of non-Vietnam veterans.

These results are consistent with the findings of three epidemiologic studies (the Australian Birth Defects Study, the CDC Birth Defects Study, and the U.S. Air Force Health Study or "Ranch Hand Study") conducted since 1981 on the relationship of Vietnam service and birth defects in children of male veterans.

In addition, the recently published study of birth defects in the Seveso, Italy, area, which was contaminated by dioxin as a result of an industrial accident in 1976, concluded "that the data collected contain no evidence to support the position that in the population of the Seveso area exposed to dioxin, there was greater risk of producing congenitally malformed offspring."

On February 13, 1987, CDC published the findings of the mortality review component of the Vietnam Experience Study in the "Journal of the American Medical Association." The findings on the health effects of Vietnam service were published in the "Journal of the American Medical Association" on May 13, 1988.

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Agent Orange Review

Information for Veterans Who Served in Vietnam

Veterans Administration

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Agent Orange Review

Vol. 7, No. 1 — *Information for Veterans Who Served in Vietnam* — October 1989

Secretary Derwinski on Agent Orange

Edward J. Derwinski

Shortly after his appointment as Administrator of Veterans Affairs, Edward J. Derwinski, who served 24 years in the U.S. House of Representatives prior to 6 years in the State Department, sought and obtained a comprehensive briefing on the VA Agent Orange program. He quickly assembled VA's most knowledgeable experts on Agent Orange. Mr. Derwinski also met with individuals outside VA to get other perspectives on this most difficult and controversial issue.

On March 16, 1989, one day following the White House ceremony installing him as the first Secretary of Veterans Affairs, Mr. Derwinski attended a meeting of the Department's Advisory Committee on Health-Related Effects of Herbicides. This group, which includes a number of individuals from the veteran community, meets on a regular basis to assist VA in developing appropriate policies in the best interests of Vietnam veterans who may have been exposed to herbicides during their military service.

Secretary Derwinski's participation in the Advisory Committee meeting underlined his interest in and concern about this issue and provided concrete evidence of the importance of this issue on his agenda. The Secretary's involvement in this meeting also reflected the respect and high regard that he has for this Committee and its members.

On May 11, 1989, Secretary Derwinski held a news conference to announce the Department's position on a recent U.S. District Court decision invalidating a portion of the VA regulations which govern the payment of compensation for specific diseases relating to exposure to Agent Orange. Secretary Derwinski said that he would not appeal the decision.

He explained that it was his view "that an appeal would not be in the best interests of the Administration or the veterans community served by this Department." He declared that VA would take a "fresh look" at the issue, that the regulations will be rewritten and published for public comment as soon as possible, and that claims that have been denied will be reconsidered. His action won widespread acclaim from Congress, veterans organizations, and the news media.

Compensation Regulations Revision Underway

On July 18, 1989, the Department of Veterans Affairs released for public comment a "proposed rule" to amend its regulation on scientific and medical study evaluations to establish criteria for determining when a significant statistical association exists between exposure to dioxin or ionizing radiation and specific diseases. The proposal was published in the *Federal Register*.

The proposed amendment was prompted by a decision of the United States District Court for the Northern District of California in *Nehmer, et. al. v. U.S. Veterans Administration, et. al.* in early May invalidating a portion of VA regulations on the handling of some disability compensation claims.

The District Court struck down the VA provision indicating that due to the lack of scientific evidence concerning a cause-and-effect relationship between dioxin exposure and the development of diseases other than chloracne, any such disability and death claims based upon

Continued page 2.

About the "Review"...

This issue of the "Agent Orange Review" was prepared by VA's Environmental Medicine Office. (Responsibility for this publication was recently transferred to this office from VA's Office of Public Affairs, which prepared all previous issues with support from the Environmental Medicine Office.) The "Review" is published periodically to provide information on Agent Orange and related matters to Vietnam veterans, their families, and others with concerns about Agent Orange. The most recent issue was published in October 1988.

This issue describes Secretary Derwinski's commitment to veterans who may have been exposed to Agent Orange, explains that disability regulations are being revised, updates VA and other Federal research efforts, provides information about other VA activities (including the Agent Orange Registry examination program, advisory committees, Environmental Medicine Office), includes referral information concerning the class action lawsuit, discusses State efforts, and offers information regarding several other matters. Comments or questions about the content of these articles and suggestions for future issues of this publication should be sent to the Director, Environmental Medicine Office (10B/AO), VA Central Office, 810 Vermont Avenue, NW, Washington, DC 20420.

Requests for additional copies of this issue, should also be directed to the Environmental Medicine Office. Please specify the number of copies you are requesting. VA facilities should order additional copies from the VA Supply Depot.

If you have had an Agent Orange Registry examination and have questions about the examination or your results, contact the environmental physician at the VA medical center where you had the examination.

If you have questions about VA benefits, contact a veterans benefits counselor at the VA facility nearest you. The telephone number can be found in your telephone book under "U.S. Government" listings.

Compensation Regulations Revision *from page 1*

other diseases are generally to be denied. (Exceptions exist if the disease can be shown to have been present during military service or, for some diseases, within statutorily prescribed periods thereafter.)

The Court concluded that in the process of deciding which diseases would be recognized as being caused by Agent Orange, VA used an erroneous and too demanding standard. Rather than using the cause-and-effect standard, the Court indicated that VA should have recognized any disease for which the scientific evidence shows there is a "significant statistical association" with exposure to dioxin.

The Court also ruled that in evaluating the scientific literature, VA should have applied the "reasonable doubt" standard used when weighing evidence in individual claims. This long-standing VA rule of claims adjudication provides that if the weight of evidence tending to support a claim is in balance (or near balance) with that tending to oppose it, the benefit of doubt goes to the claimant (that is, the veteran or dependent).

Because a specific portion of VA's regulation was invalidated, VA claims decisions based upon it since its adoption in 1985 were also voided. Before those claims can be readjudicated, the new regulatory standard for review of scientific studies must be established.

Secretary Derwinski pledged in May that the Department would proceed expeditiously in revising the voided regulations in consultation with the Veterans' Advisory Committee on Environmental Hazards, as required by law. The Committee was consulted, and a proposed amended rule specifying the standard that will be used to evaluate scientific studies was published on July 18, 1989.

As soon as the all the public comments have been carefully reviewed and any appropriate changes made, a final regulation will be published. After publication of the new regulation, the Committee will review the scientific evidence utilizing the new standard. Favorable recommendations from the Committee on "significant statistical associations" will be followed by amendment of adjudication regulations. A review of prior claims from individual veterans will then be undertaken.

American Legion Study Published; Compared with CDC Effort

In December 1988, *Environmental Research* published five papers describing the results of the American Legion-Columbia University Vietnam Veterans Study, an investigation of long-term health consequence of military service in Vietnam. This study can be compared with the Centers for Disease Control (CDC) Vietnam Experience Study (VES) in many respects.

Methodology

There are important similarities and differences in the methods and objectives of the VES, described in detail in the last issue of "Review," and the American Legion study. Both studies were cross-sectional surveys of current and past health status among Vietnam veterans compared to veterans of the same era who served in locations other than Southeast Asia. Both studies used questionnaires to assess current health status. The VES included a personal interview, physical and psychological testing, and laboratory examination of some veterans. The American Legion study used only a self-administered written questionnaire.

The method used to assess herbicide exposure was less rigorous than that attempted and abandoned as invalid by CDC. Investigators in American Legion study did not validate herbicide exposure estimates by using military records or by measuring levels of dioxin in blood. The Congressional Office of Technology Assessment and Science Panel of Domestic Policy Council's Agent Orange Working Group both have criticized the American Legion study because of the questionable validity of the herbicide exposure index.

Results

Despite the differences between these studies and the controversy surrounding their methodology, both the VES and the American Legion study demonstrated that Vietnam veterans report more current and past health problems than non-Vietnam veterans. They also report more adverse reproductive outcomes and more health problems among their children.

In the VES, reported medical problems were associated with recall of herbicide exposure among Vietnam veterans. Those veterans who did not think they were exposed to herbicides during Vietnam service reported no more health problems than did non-Vietnam veterans. In the American Legion study the perception of poor health among Vietnam veterans was associated with both combat and herbicide exposure as assessed by the questionnaire.

The American Legion study also revealed a strong correlation between reported combat exposure and herbicide exposure making it difficult to independently assess the impact of either of these by itself.

The medical examination and testing performed on some of the participants in the VES failed to confirm most of the adverse health effects reported in the telephone interviews. The only differences between Vietnam and non-Vietnam veterans that were confirmed by medical examinations were hearing loss, the presence of blood in feces, lowersperm counts, and altered sperm morphology. There was no evidence of differences in fertility or reproductive success associated with the differences in sperm characteristics.

Medical examinations were not performed in the American Legion study. Psychological diagnoses depended upon telephone interview. Both studies showed major differences between Vietnam veterans and non-Vietnam veterans with regard to psychological well-being. The American Legion study showed a much greater prevalence of symptoms characteristic of post traumatic stress disorder among Vietnam veterans than among non-Vietnam veterans. Neurologic function tests performed in the VES showed no differences between Vietnam and non-Vietnam veterans.

In summary, both studies indicate that Vietnam veterans perceive themselves to be in poorer health than non-Vietnam veterans. The American Legion study indicates that this perception may correlate with subjective and unvalidated assessment of exposure to herbicides and/or combat. The VES suggests that most of the perceived adverse health effects cannot be confirmed objectively by medical examination. The perception of poor health is important and a biochemical basis for this perception cannot be ruled out.

CDC Selected Cancers Study Nears Completion

With the Vietnam Experience Study completed and published and the Agent Orange Exposure Study canceled, scientists at the Centers for Disease Control (CDC) in Atlanta are now focusing on the third component of the Congressionally mandated epidemiology study, the Selected Cancers Study.

(The October 1988 issue of the "Agent Orange Review" contained extensive articles about the Vietnam Experience Study and the Agent Orange Exposure Study.)

The Selected Cancers Study is designed to determine if Vietnam veterans are at increased risk of contracting any of five specific cancers: soft tissue sarcoma, lymphoma, nasal, nasopharyngeal, and liver cancer. The data collection phase of this study component began in 1985 and is nearing completion.

CDC officials anticipate publication of the study findings in 1990.

New Ranch Hand Study Results Released

On April 17, 1989, the Air Force released a mortality update of its long-term study, entitled *Air Force Health Study (Project Ranch Hand II), An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides.* The purpose of this ongoing study is to determine whether individuals involved in herbicide spraying in Vietnam during the Ranch Hand operation experienced any adverse health effects as a result of participation in that program. The study is designed to evaluate mortality (death) and morbidity (disease) in these individuals over a 20-year period beginning in 1982.

The initial mortality report was released in June 1983, and the initial morbidity report in February 1984. Follow-up mortality reports were released in 1984, 1985, 1986, and 1989. A follow-up morbidity report was published in 1988. The study has not demonstrated health effects which can be conclusively attributed to herbicide or dioxin exposure.

Ranch Hand personnel were compared with selected Air Force organizational units with a mission of flying cargo to, from, and in Vietnam during the same period. Individuals were matched to each Ranch Hander by job category, race, and age to the closest month of birth. The 1989 report showed no statistical difference between the cumulative mortality of 1,261 Ranch Hands and that of 6,250 matched comparisons and the entire population of 19,101 comparisons. The researchers found that 5.8% of the Ranch Hands, 6.02% of the matched comparisons, and 5.44% of the comparison population have died.

The investigative team, headed by Dr. William H. Wolfe, Colonel, USAF, MC, concluded that the overall cumulative mortality of the Ranch Hand personnel remains statistically indistinguishable from that of both their matched comparisons and the entire comparison population, although there is a statistically significant increasing trend in post-1983 death rates among Ranch Hand digestive system deaths relative to the comparison population; these findings are not suggestive of an herbicide effect. Ranch Hands are equivalent to all comparisons in cumulative accidental, malignant neoplasm and circulatory system mortality.

VA Research—A Progress Report

Substantial progress has been made in a number of VA research efforts investigating possible adverse health effects of military service in Vietnam and exposure to herbicides including Agent Orange. Several of the published studies were described in detail in the October 1988 issue of the "Agent Orange Review." Investigations summarized in that issue included two VA soft-tissue sarcoma studies, the VA Vietnam Veteran Mortality Study, and the VA-funded Vietnam Experience Study, conducted by scientists at the Centers for Disease Control. Additional significant VA research is described below.

Adipose Tissue Study

VA, in collaboration with the U.S. Environmental Protection Agency (EPA), recently completed a very detailed analysis of adipose tissue specimens from 200 men of the Vietnam-era age group. The specimens were analyzed for 2,3,7,8–TCDD, the contaminant found in one of the ingredients of Agent Orange, and sixteen other dioxins and dibenzofurans. Researchers used adipose tissue collected for the EPA's National Human Adipose Tissue Survey.

A total of 40 Vietnam veterans, 80 non-Vietnam veterans, and 80 civilians were selected and their archived tissues were analyzed. Investigators found that the average level of 2,3,7,8–TCDD in adipose tissue of Vietnam veterans was not significantly different from that of non-Vietnam veterans or civilians. This was the case both with and without adjustment for several demographic variables. Furthermore, the results showed no association between TCDD levels and Agent Orange exposure opportunity estimations based on military records.

Mortality Study Follow-up

VA is conducting five follow-up studies to confirm or complement the findings of the VA Vietnam Veterans Mortality Study, published in the "Journal of Occupational Medicine" in May 1988 and described in the "Agent Orange Review" in October 1988.

VA is updating the mortality study by including an additional 11,000 Vietnam era veterans' deaths. These deaths occurred between 1982 and 1984. Inclusion of the additional data provides enhanced statistical power for the study and also allows investigators to detect cases with longer latency periods. This is important because some diseases that may be associated with Agent Orange exposure or Vietnam service may take a long time to develop. Data analysis are completed for this follow-up project, and a report is being prepared.

A separate analysis is being completed for Army veterans who served in the I Corps area of Vietnam. This is an effort to determine whether Army veterans who were stationed in the same geographic areas as Marine Corps veterans experienced mortality patterns similar to the Marines. (Marine Corps Vietnam veterans appeared to have relatively more deaths from lung cancer and non-Hodgkin's lymphoma.) The U.S. Army and Joint Services Environmental Support Group assisted VA in researching troop locations for given time periods. A report is being prepared.

Given the widely accepted view of a causal relationship between smoking and lung cancer, a special effort was made to examine military medical records of Marines in the mortality study who died from lung cancer in an attempt to determine their smoking status. Unfortunately, investigators were unable to determine who smoked.

VA reviewed the Patient Treatment File for non-Hodgkin's lymphoma and Hodgkin's disease among Vietnam era veterans who have been treated in VA medical centers. Patients will be compared with respect to service in Vietnam and other military service factors. If military service in Vietnam is not associated with an increased risk of non-Hodgkin's lymphoma or Hodgkin's disease, then the proportion of veterans having served in Vietnam or having certain military characteristics should be similar for both the cases and control patients.

A separate mortality study has been designed exclusively for Marine Corps Vietnam veterans. The only study providing an overall mortality rate of Vietnam veterans is a cohort mortality study published by the Centers for Disease Control (CDC). The CDC effort was restricted to Army veterans. A substantial portion (approximately 20%) of U.S. ground troops in Vietnam were Marines.

Unlike the Army units, the Marine Corps units were located in one geographic area, I Corps. In view of the VA mortality study results and the lack of overall mortality rates as well as cause-specific mortality rates for Marine Vietnam veterans, a separate mortality study for Marine veterans is being conducted. In October 1988, the VA awarded a contract for the abstraction of military records of 10,000 Marine Vietnam veterans and 10,000 Marine veterans who did not serve in Vietnam. A pilot study was completed in December 1988 to test the military records abstraction forms and procedures. Identifying information is being submitted to the National Personnel Records Center to obtain the military personnel records needed for the study. Military record abstraction is expected to be completed by October 1990.

Women Vietnam Veterans Mortality Study

The health effects of military service in Vietnam are being evaluated for women who served in Vietnam. The study cohort consists of all women who were on active duty in Vietnam. Approximately 5,000 female Vietnam veterans were identified from morning reports and military records to verify Vietnam service dates; military occupations have been abstracted as well.

Every cause of death among female Vietnam veterans will be compared with those among female Armed Forces veterans who did not serve in Vietnam. A comparison cohort of approximately the same

size as the study cohort has been identified and military records have been abstracted.

Data analysis are expected to be completed by December 1989. A report will be available in the summer of 1990.

Army Chemical Corps Mortality Study

VA researchers are also examining health effects of chemical exposures during military service in Vietnam among men who were assigned to Army chemical units, which were responsible for detecting and counteracting enemy chemical warfare by using riot control agents and for defoliating vegetation using phenoxy herbicides.

Because they were involved in the mixing and application of these chemicals, they were likely to have had heavier exposure to them than ground troops. Nearly 1,000 men who served in Army chemical units in Vietnam between 1965 and 1971 have been identified from unit morning reports.

This study will examine mortality and morbidity among men who served in Army chemical units in Vietnam. Data analysis are expected to be completed by September 1989. A report will be available in the spring of 1990.

Readjustment Study

The National Vietnam Veterans Readjustment Study found that a majority of Vietnam theater veterans have made a successful re-entry to civilian life and currently experience few symptoms of post-traumatic stress disorder (PTSD) or other readjustment problems.

Although in general, male Vietnam theater veterans do not differ greatly in their current life adjustment from their era veteran counterparts, there is some evidence that female theater veterans currently experience more readjustment problems than other Vietnam era veteran women of similar age and military occupation.

The study found that 15.2 percent of all male Vietnam veterans and 8.5 percent of Vietnam veteran women currently suffer from PTSD. The study also indicated that PTSD in the Vietnam veteran population is associated with significant levels of morbidity, reflected in higher levels of employment, family and educational difficulties. The rates of PTSD are higher for black and Hispanic veterans than among white veterans.

Suicide in Vietnam Veterans

Potential risk factors for suicide among 38 Vietnam veterans were examined using 46 Vietnam veterans who died from motor vehicle accidents as a comparison group. The veterans were selected from Los Angeles County Medical Examiner's files and covered the period 1977 to 1982.

No military service factor was associated with suicide. The characteristics of Vietnam veteran suicide cases were not substantially different from non-Vietnam veteran suicides with respect to known demographic risk factors.

The psychological profile of Vietnam veteran suicide cases was also similar to non-Vietnam veteran suicide cases in most instances. Symptoms related to PTSD were observed more frequently among suicide cases than accident cases. However, suicides were not associated with specific combat experiences or military occupation. The extent of combat experience in Vietnam per se as measured in this study was not a good predictor of suicide death.

Veterans' Advisory Committee on Environmental Hazards Assists VA

Public Law 98–542, Veterans' Dioxin and Radiation Exposure Compensation Standards Act, enacted October 24, 1984, directed VA to establish a fifteen member advisory committee known as the Veterans' Advisory Committee on Environmental Hazards.

The Committee was chartered on March 11, 1985, and has held 11 meetings since then. The most recent meeting was on June 26, 1989. Under the law the Committee is charged with responsibility for advising VA on guidelines and (where appropriate) standards and criteria for the resolution of claims for VA benefits where the criteria for eligibility include a requirement that a death or disability be service connected and the claim of service connection is based on a veteran's exposure during service in Vietnam to a herbicide containing dioxin, or in connection with such veteran's participation in atmospheric nuclear tests or with the American occupation of Hiroshima or Nagasaki, Japan, prior to July 1, 1946, to ionizing radiation from the detonation of a nuclear device.

To accomplish this function, the Committee has reviewed the results of a large number of scientific studies, including more than a hundred publications on Agent Orange and other herbicides used in Vietnam.

The Committee is currently assisting the Department in a major revision of the Agent Orange regulations to ensure that they are consistent with the recent court decision described elsewhere in this issue.

The Committee is primarily composed of medical and scientific authorities on dioxin, ionizing radiation, and related scientific disciplines. Mr. Oliver Meadows chairs the full Committee, and Dr. Armon Yanders, the Committee's Scientific Council. No Committee member is a VA employee. Mr. Frederic L. Conway, III, Special Assistant to the VA's General Counsel, serves as Executive Secretary. The next meeting is planned for November 2–3, 1989. For additional information regarding that meeting and the Advisory Committee, write to Mr. Frederic L. Conway, III, Special Assistant to the General Counsel (02C), Department of Veterans Affairs, 810 Vermont Avenue, NW, Washington, DC 20420.

Class Action Lawsuit Referral Information

The Department of Veterans Affairs (VA) has received a large number of inquiries regarding the status of claims for compensation from the Agent Orange Settlement Fund, established as a result of the settlement of a class action lawsuit ("Agent Orange" Product Liability Litigation) brought by Vietnam veterans and their families against the manufacturers of Agent Orange.

Neither VA nor any other Federal department or agency is directly involved in the distribution of the settlement funds. Information on this matter can be obtained by calling, toll-free 1–800–225–4712, and writing to the Agent Orange Veteran Payment Program, P.O. Box 110, Hartford, Connecticut 06104.

VA Agent Orange Information Available

During the past eight years VA has produced a substantial amount of information on Agent Orange. Some of this information has been published in independent scientific journals, but much of it has been released as VA documents.

Printed Items

A great deal of information is quite technical. A multi-volume publication, entitled *Review of Literature on Herbicides, Including Phenoxy Herbicides and Associated Dioxins*, is prepared primarily for use by researchers, physicians, scientists, and others with similar backgrounds. The initial two volumes were released in 1981, in response to a requirement of Public Law 96–151. Updates (in two volume sets) were issued in 1984 and each year thereafter. The Government Printing Office offered some of the earlier volumes for purchase although many are now out of print. Copies of all volumes are maintained at all VA medical center libraries. The literature reviews were prepared for VA by independent contractors.

To assist non-technical readers in understanding the complex issues involving Agent Orange and other herbicides, VA publishes a series of "lay language" summaries, entitled *Synopsis of Scientific Literature on Phenoxy Herbicides and Associated Dioxins.* Copies of these booklets have been sent to all VA medical center libraries.

Three technical books were also published by VA on matters related to herbicides and concerns of Vietnam veterans and their families. Since these books each focus on a single limited topic they are known as monographs. The monographs published to date are *Cadocylic Acid: Agricultural Uses, Biologic Effects, and Environmental Fate* by Ronald D. Hood, Ph.D.; *Birth Defects and Genetic Counseling* by Annemarie Sommer, M.D.; and *Human Exposure to Phenoxy Herbicides* by Terry L. Lavy, Ph.D. Each of these documents is maintained in all VA medical center libraries.

In November 1982, VA's Office of Public and Consumer Affairs (now known as the Office of Public Affairs) initiated publication of the "Agent Orange Review" newsletter as part of VA's expanded program to provide information on Agent Orange to concerned veterans and their families. This periodical has been published ten times since the inaugural issue. The mailing list has grown significantly in the past seven years. All recipients of the Agent Orange Registry examination automatically are included in the distribution. Veterans service organizations and State Agent Orange commissions and programs also receive substantial quantities. Copies are available at all VA medical facilities and regional offices. Approximately 500,000 copies of the newsletter are printed.

In October 1988, VA's Environmental Medicine Office prepared a series of 13 fact sheets, known as "Agent Orange Briefs," designed to answer questions regarding Agent Orange and related matters. The "Briefs" were distributed to all VA medical centers, Vet Centers, and regional offices. The following "Briefs" are currently available: (1) Agent Orange—General Information; (2) Agent Orange Registry; (3) Agent OrangeLitigation; (4) Agent Orange—Research Problem; (5) Agent Orange—Priority Treatment Program; (6) Agent Orange and Birth Defects; (7) Agent Orange and Chloracne; (8) Agent Orange and VA Disability Compensation; (9) Agent Orange and Soft Tissue Sarcoma; (10) Agent Orange and Related Research—VA Efforts; (11) Agent Orange and Related Research—Non-VA Efforts; (12) Agent Orange and Non-Hodgkin's Lymphoma; and (13) VA Publications on Agent Orange and Related Matters. For additional information on the "Briefs," contact the Agent Orange Coordinator at the nearest VA medical center or write to the Environmental Medicine Office (10B/AO), VA Central Office, 810 Vermont Avenue, NW, Washington, DC 20420.

Videotapes

In addition to this printed matter, VA has produced several videotape programs regarding Agent Orange. In January 1981, the initial program, entitled "Agent Orange: A Search for Answers," was released. The videotape explained what Agent Orange was, where and how it was used in Vietnam, why concerns arose among those exposed to it, and what VA was doing in response to these concerns. The videotape was distributed widely throughout the VA system. The program received an Emmy Award from the National Academy of Television Arts and Sciences. It was also honored by the Health Education Communication Association and the Network for Continuing Medical Education and by the International Television Association.

In 1986, VA completed and distributed a training videotape for Medical Administration Service staff to sensitize these personnel to Agent Orange concerns and issues. Last year VA released another videotape program, entitled "Agent Orange: An Update," designed to update the initial videotape. All three programs were produced by the Regional Learning Resources Service, VA Medical Center, St. Louis and were distributed to all medical center libraries.

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VA Herbicide Advisory Committee Renewed

On June 26, 1989, Secretary Derwinski took action to formally renew the VA Advisory Committee on Health-Related Effects of Herbicides for an additional two years.

The Committee, originally established in 1979, has five primary functions under its charter. The Committee has and will (1) review and make recommendations relative to VA's programs to assist Vietnam veterans who were exposed to herbicides (such recommendations may concern the information delivery system and outreach efforts, scheduling of Agent Orange-related examinations, essential follow-up activities and related matters); (2) advise the Secretary on VA Agent Orange-related programs, programs of the Federal Government, and State programs which are designed to assist veterans exposed to herbicides, and simultaneously, will minimize duplication of VA and other Federal programs concerned with the Agent Orange issue; (3) receive and review information from veterans service organizations regarding services provided by VA to Vietnam veterans concerned about the possible adverse health effects of exposure to herbicides; (4) review and comment on proposals for research on the possible health effects of exposure to herbicides; and (5) serve as a forum for individual veterans to inform VA of their views on policy issues and on the operation of Department programs designed to assist veterans exposed to herbicides and dioxins in Vietnam.

The Committee meets two to three times annually in VA Central Office. Eight to twelve members are authorized. Members come from varied backgrounds. Physicians, attorneys, scientists, officials of national veterans service organizations, State officials, and individuals with other experiences serve on the Committee. Several members are Vietnam veterans. Dr. Michael Gough, a Senior Fellow with the Center for Risk Management, Resources for the Future, has chaired the Committee since 1987. Dr. Gough previously served with the congressional Office of Technology Assessment. His book, *Dioxin, Agent Orange: The Facts*, was published in 1986.

The Committee met most recently on March 16, 1989, the day after the Veterans Administration became the Department of Veterans Affairs. Secretary Derwinski participated in the meeting. Copies of the minutes are available from the Committee Manager (10B/AO), Environmental Medicine Office, VA Central Office, 810 Vermont Avenue, N.W., Washington, DC 20420. Telephone requests should be directed to (202) 233-4117.

Agent Orange Registry Information Updated

Since 1978, VA health care facilities have offered free medical examinations to Vietnam veterans who are concerned that they may have been exposed to herbicides during their military service and that these herbicides may adversely affect their health.

Veterans participating in this voluntary program are given a series of baseline laboratory studies, including a chest x-ray (unless one has been done within the previous six months), complete blood count, blood chemistries and enzyme studies, and urinalysis. Evidence is also sought concerning the following potentially relevant symptoms or conditions: altered sex drive; congenital deformities (that is, birth defects) among children; neoplasms or cancers, including soft tissue sarcoma and lymphoma (including non-Hodgkin's lymphoma); repeated infections; sterility; and difficulties in carrying pregnancies to term.

Any veteran who had active military service in Vietnam between 1962 to 1975 and expresses a concern relating to exposure to herbicides may participate in the Registry. Approximately 240,000 Vietnam veterans have already participated in this program. Although the program is more than 11 years old, hundreds of veterans are still

visiting VA facilities every month for their examination. Many of these veterans have no medical problems; others present a wide range of ailments.

Vietnam veterans interested in receiving the Agent Orange Registry examination or seeking information on this program should contact the nearest VA medical facility.

New Agent Orange Law Enacted

Public Law 100-687, signed by President Reagan on November 18, 1988, contains several provisions related to Agent Orange matters. These issues are briefly summarized below.

Section 1201, entitled "Funding for Agent Orange Blood Testing," provides that certain funds appropriated to VA for the Centers of Disease Control Agent Orange Study be available for obligation until September 30, 1989 for certain other purposes. Specifically, the law provides $3 million for payment of expenses of the Air Force for blood testing for Project Ranch Hand II personnel. The funds were transferred to the Air Force for that purpose. The section also provides $1 million for payment of expenses of a survey of scientific evidence, studies, and literature relating to health effects of possible exposure to toxic chemicals contained in herbicides used in Vietnam. The law directs that the survey be conducted by an independent scientific entity under contract to VA "pursuant to a law enacted after the date of the enactment of this Act." Since no subsequent law was enacted, the $1 million survey has not been initiated.

Section 1202, entitled "Extension of Health-Care Eligibility Based on Agent Orange or Ionizing Radiation Exposure," extends for an additional two years the VA priority treatment program for veterans with medical problems possibly, but not necessarily, related to exposure to Agent Orange or ionizing radiation. Under this law, the program will be in effect through December 31, 1990.

Section 1203, entitled "Treatment for Needs-Based Benefits Purposes of Amounts Received Under Agent Orange Litigation Settlement," provides that payments received under the settlement of the class action lawsuit brought by Vietnam veterans and their families against the manufacturers of Agent Orange be treated for purposes of laws administered by VA as reimbursement for prior unreimbursed medical expenses, and that these payments not be countable as income for such purposes.

Section 1204, entitled "Outreach Services," requires VA to conduct an active, continuous outreach program for furnishing Vietnam veterans information relating to (1) the health risks (if any) resulting from exposure to herbicides in Vietnam, as such information on health risks becomes known; and (2) services and benefits available to such veterans with respect to such health risks. This section also requires VA to organize and update the Agent Orange Registry to enable VA to promptly notify veterans of any increased health risk resulting from exposure to Agent Orange.

Section 1205, entitled "Ranch Hand Study," makes changes in the membership requirements for the Ranch Hand Advisory Committee established by the Secretary of Defense. It also provides reporting requirements concerning the progress on the Air Force Study.

States Act on Agent Orange Issue

During the past decade a number of State governments have established their own Agent Orange programs, commissions, and/or studies. The Department of Veterans Affairs is closely monitoring these State initiatives. Two State officials, Mr. Charles F. Conroy, Jr., Director, Agent Orange Assistance Program, West Virginia Department of Health, and Mr. Allen E. Falk, Chairman, New Jersey Agent Orange Commission, serve on the VA Advisory Committee on Health-Related Effects of Herbicides. In addition, Mr. Conroy is a member of the Veterans' Advisory Committee on Environmental Hazards. In fact, as the only member of both of these two VA advisory committees, Mr. Conroy serves as a link between these groups.

At the most recent meeting of Advisory Committee on Health-Related Effects of Herbicides, Mr. Conroy reported that several States have terminated their programs: Georgia (in 1983), Tennessee (1984), Iowa (1985), Hawaii (1985), Ohio (1985), Texas (1985), Kansas (1986), Oregon (1986), Wisconsin (1986), California (1987), and Massachusetts (1988). He noted that the following States have ongoing Agent Orange efforts: West Virginia, New York, Rhode Island, Michigan, New Jersey, Pennsylvania, Oklahoma, Virginia, Maryland, and Maine. He added that several on these States may terminate their programs in Fiscal Year 1990.

According to Mr. Conroy, most of the States that have any program focus on information sharing with Vietnam veterans in their states and/or conducting surveys or studies.

Agent Orange Review

Information for Veterans Who Served in Vietnam

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