

# Study of agent orange and cancer biology essay

[Economics](#), [Trade](#)



About 3 million Americans served in the armed forces in Vietnam during the 1960s and early 1970s, the clip of the Vietnam War.

During that clip, the armed forces used big sums of mixtures known as defoliants, which were chemicals that caused the foliage to fall off works. One of these defoliants was Agent Orange, and some military personnels were exposed to it. Many old ages after US forces withdrew from Vietnam, inquiries still remain about the permanent wellness effects of those exposures, including additions in malignant neoplastic disease hazard. As the US veteran population ages, survey consequences continue to emerge.

This article offers a brief overview of the wellness grounds on Agent Orange and malignant neoplastic disease. It is intended to assist physicians, Vietnam veterans, and their household members understand our current province of cognition. The grounds comes from several beginnings, including surveies of: Vietnam veterans Workers exposed to weedkillers or dioxins in occupational ( workplace ) scenes ( since dioxins contaminated the weedkiller mixtures used in Vietnam ) Vietnamese populations in the wake of the war This article does non offer a complete reappraisal of all grounds - it is meant to be a brief drumhead. It besides introduces readers to benefits plans and other issues that arise in caring for malignant neoplastic disease patients or others concerned about the hazards from exposure to Agent Orange during military service.

## **Background**

During the Vietnam War, US military forces sprayed about 19 million gallons of weedkiller on about 3.6 million estates of land in Vietnam and Laos to

take forest screen, destroy harvests, and clear flora from the margins of US bases. This attempt, known as Operation Ranch Hand, lasted from 1962 to 1971.

Assorted herbicidal ( plant-killing ) preparations were used, but most were mixtures of 2 weedkillers known as phenoxy weedkillers because of their chemical constructions: 2, 4-dichlorophenoxyacetic acid ( 2, 4-D ) 2, 4, 5-trichlorophenoxyacetic acid ( 2, 4, 5-T ) Each preparation was shipped in a chemical membranophone marked with an identifying colored band. The most widely used mixture contained equal parts 2, 4-D and 2, 4, 5-T.

Because this weedkiller came in membranophones with orange chevrons, it was called Agent Orange. Today, Agent Orange is used to mention by and large to all the phenoxy weedkillers sprayed at the clip. ( Other types of weedkillers were besides used, including cacodylic acid and picloram.

)The 2, 4, 5-T was contaminated with little sums of dioxins, which were created accidentally during the fabrication procedure. Dioxins are a household of biologically active compounds formed during the fabrication of paper and some other industrial procedures. Because they can stay in the environment for old ages, they form portion of a group of chemicals known as “ relentless organic pollutants. ” The peculiar dioxin nowadays in Agent Orange, 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin, or TCDD, is remarkably toxic. In surveies that compared Vietnam veterans with veterans who had served at the same clip elsewhere, TCDD ( dioxin ) degrees were found to be elevated among those who had served in Vietnam, although the lifts diminished easy over clip. After a scientific study in 1970 indicated that 2, 4,

5-T could do birth defects in lab animate beings, the usage of 2, 4, 5-T in Vietnam was suspended.

A twelvemonth subsequently, all military weedkiller usage in Vietnam ended. During the 1970s, veterans returning from Vietnam began to describe tegument roseolas, malignant neoplastic disease, psychological symptoms, birth defects and disabilities in their kids, and other wellness jobs. Some veterans were concerned that Agent Orange exposure might hold contributed to these wellness jobs. These concerns helped originate a series of scientific surveies, wellness attention plans, and compensation plans directed to the exposed veterans. A big class-action case was filed in 1979 against the weedkiller makers, and was settled out of tribunal in 1984. It resulted in the Agent Orange Settlement Fund, which distributed about \$ 200 million to veterans between 1988 and 1996. Although there is now rather a spot of grounds available about the wellness effects of Agent Orange, many inquiries have non yet been answered.

## **How Were Peoples Exposed to Agent Orange?**

About 3 million people served in the US military in Vietnam during the class of the war, about 1.

5 million of whom served during the period of heaviest weedkiller spraying from 1967 to 1969. Exposure to Agent Orange varied a great trade. Most of the large-scale crop-dusting operations in Operation Ranch Hand were done with aeroplanes and choppers. However, some weedkillers were sprayed from boats or trucks, and some were applied by soldiers with back pack

sprayers. Those who loaded aeroplanes and choppers may hold been exposed the most.

Members of the Army Chemical Corps, who stored and assorted weedkillers and defoliated the margins of military bases, likely besides had some of the heaviest exposures. Others with potentially heavy exposures included members of Particular Forces units who defoliated distant campgrounds, and members of Navy river units who cleared base margins. Exposures could hold occurred through take a breathing the chemicals in, consuming them in contaminated nutrient or drink, or absorbing them through the tegument. Other exposure tracts may hold been possible every bit good, such as through the eyes or through interruptions in the tegument. One of the challenges in measuring the wellness effects of Agent Orange exposure is finding the sum of exposure any single veteran received ( or even what they were exposed to ) , as there is really small information of this type available.

## **Does Agent Orange Cause Cancer?**

### **Human Evidence**

Surveies of Vietnam veterans potentially provide the most direct grounds of the wellness effects of Agent Orange exposure. However, because of the little figure of extremely open individuals, these surveies have yielded really limited information on malignant neoplastic disease. The Vietnam Experience Study ( VES ) , conducted by the Centers for Disease Control ( CDC ) , was a survey that compared about 9, 000 Vietnam Army veterans with about 9, 000 Vietnam-era Army veterans who served elsewhere.

A related attempt was the CDC Selected Cancers Study, a survey conducted in 8 malignant neoplastic disease registers that provided information on non-Hodgkin lymphoma, sarcomas, and other malignant neoplastic diseases. In both of these surveys, the figure of veterans with heavy exposure to Agent Orange was excessively little to pull steadfast decisions. The Department of Veterans Affairs, once the Veterans Administration ( VA ) , besides conducted a series of surveys getting down in the 1980s.

The VA surveys ranged from large-scale surveys to surveys of specific subgroups of veterans. Both the CDC and the VA surveys looked loosely at Vietnam veterans, without a particular focal point on Agent Orange exposure ( although some VA surveys focused on Chemical Corps veterans ) . In contrast, the Air Force Health Study specifically compared about 1, 200 Ranch Hand veterans straight involved in weedkiller distribution to 1, 300 veterans non involved. This 20-year survey, launched in 1982, involved periodic physical test, medical records reappraisals, and blood dioxin measurements. Although this survey focused more straight on Agent Orange exposure, the comparatively little figure of topics, and the even smaller figure with elevated blood dioxin degrees, greatly limited the survey ' s power to observe additions in malignant neoplastic disease incidence. At the province degree, about a twelve provinces, largely in the Midwest and Northeast, have conducted surveys of their veterans, some of which have yielded malignant neoplastic disease information. Finally, a series of surveys of Australian Vietnam veterans has provided information on malignant neoplastic disease hazard. These surveys, excessively, were limited by their

little size, by the deficiency of elaborate exposure appraisal, and ( at least ab initio ) by the comparatively immature age of the veterans.

As the veterans continue to age, extra research should give more information about malignant neoplastic disease hazard. Because of the bounds of the Vietnam veteran surveies, surveies of 3 other groups have provided of import information on the possible cancer-causing belongings of Agent Orange exposure. Vietnamese soldiers and civilians exposed to the same weedkillers as United States service forces, frequently for more drawn-out periods ( although there have been few systematic wellness surveies in these populations ) Workers exposed to weedkillers in other scenes, such as weedkiller fabrication workers, weedkiller appliers, husbandmans, lumbermans, and forest and dirt environmentalists, who frequently had much higher serum dioxin degrees than Vietnam veterans Peoples exposed to dioxins after industrial accidents in Germany, Seveso ( Italy ) , and California, and after chronic exposures at work and in the environment Each of these populations differs from the Vietnam veterans in the features of the people exposed, the nature of the dioxin exposures, and other factors such as diet and other chemical exposures. Based on this comparatively big organic structure of grounds, decisions can be drawn about several malignant neoplastic diseases.

Soft tissue sarcoma: Surveies of Vietnam veterans have non demonstrated an addition in soft tissue sarcomas. In peculiar, no association with soft tissue sarcoma was seen in the Ranch Hand survey, in a survey of over 10,000 Marines who had served in Vietnam, a big survey of sarcoma patients in

VA infirmaries, the Selected Cancers Study, or surveys of veterans in Michigan, Massachusetts, or other provinces. A survey of Australian Vietnam veterans suggested a big addition in soft tissue sarcomas, but this determination was based on a mail study of self-reported diagnoses.

In a follow-up survey designed to corroborate the diagnoses, the surplus of soft tissue sarcomas could not be verified. However, soft tissue sarcomas have been linked to phenoxy weedkiller exposure by a series of surveys in Sweden and by some surveys of industrially open workers. Many surveys of husbandmen and agricultural workers show an addition in soft tissue sarcomas, which may associate to herbicide exposure.

Soft tissue sarcomas have besides been linked to dioxin exposure in a survey of over 5, 000 chemical fabricating workers in the United States, in some other workplace surveys, and in some surveys of environmental exposures. Non-Hodgkin lymphoma: Most surveys of Vietnam veterans have not shown an addition in non-Hodgkin lymphoma ( NHL ) . The Selected Cancers Study showed that Vietnam service was associated with a 50 % increased hazard of NHL, but self-reported Agent Orange exposure was not linked with increased hazard. Similarly, in the CDC ' s Vietnam Experience Study, there were 7 NHL deaths among approximately 8, 000 Vietnam veterans and merely 1 NHL death among about 8, 000 non-Vietnam veterans. Based on military occupation rubrics, there was no suggestion that the 7 Vietnam veterans with NHL had sustained Agent Orange exposure.

The Ranch Hand survey showed no addition in NHL, nor did the VA mortality survey of over 33, 000 Army and Marine Vietnam veterans, a survey of over



200 Vietnam veterans with NHL, or legion state-level surveies. A survey of Australian Vietnam veterans suggested a big addition in NHL, but this determination was based on a mail study of self-reported diagnosings. In a survey that attempted to corroborate the diagnosings, the figure of NHL instances declined to the upper terminal of the expected scope. Several other surveies have found a nexus between phenoxy weedkiller exposure ( normally on the occupation ) and NHL.

Many other surveies of husbandmans and agricultural workers besides suggest this association, although well-designed surveies of weedkiller production workers have by and large found no nexus or describe really little or unsure associations based on really little Numberss of instances. Hodgkin disease: Surveies of Vietnam veterans have non demonstrated an addition in Hodgkin disease. In peculiar, the Ranch Hand survey did non demo an addition in these tumours, nor did a survey of over 33, 000 Army and Marine Vietnam veterans, the Selected Cancers Study, a survey of more than 250 Vietnam-era veterans with Hodgkin disease, or surveies of veterans in Michigan, New York, or other provinces. However, Hodgkin disease was linked to phenoxy weedkiller exposure in one survey in Sweden. Another yielded similar consequences, although the Numberss were little plenty that they may hold been due to opportunity.

Many surveies of husbandmans and agricultural workers show an addition in Hodgkin disease, which may associate to herbicide exposure. The nexus between Hodgkin disease and dioxin exposure specifically is less clear. The big occupational survey of over 5, 000 chemical fabricating workers in the

United States did not demonstrate an increase in Hodgkin disease. The Seveso, Italy survey showed no instances of Hodgkin disease in the zone of greatest dioxin exposure, and a slight surplus of instances in the other zones. Other surveys have given assorted consequences. Lung and other respiratory malignant neoplastic diseases: Surveys of Vietnam veterans have not shown a consistent increase in respiratory malignant neoplastic diseases, such as those of the lung, windpipe ( trachea ) , bronchus, and voice box ( voice box ) .

The VA surveys did not uncover an increased hazard of death from these malignant neoplastic diseases in Vietnam veterans, nor did the survey of Army Chemical Corps veterans. The Ranch Hand survey suggested an increase in lung malignant neoplastic disease, but this determination was based on merely 10 deaths, and a high prevalence of smoke in the group being studied may have accounted for this determination. In surveys of Australian Vietnam veterans, self-reports suggested an increase in lung malignant neoplastic disease ( 120 instances versus 65 expected ) , but merely 46 of these self-reported instances could be confirmed, really proposing a reduced hazard of lung malignant neoplastic disease. Most surveys of workers with workplace weedkiller exposure, such as weedkiller fabrication workers, weedkiller applicators, husbandmen, and forest and dirt environmentalists have shown no extra hazard of lung malignant neoplastic disease. Similarly, followup of the Seveso accident has not shown a nexus between dioxin exposure and lung malignant neoplastic disease, although followup of industrial accidents in Germany and California did propose an increase in respiratory malignant neoplastic diseases, based on little

Numbers of instances. Chronic workplace exposures to dioxin have besides been associated with increased hazard of respiratory malignant neoplastic diseases among those with high exposures.

Together, these informations provide small support for the hypothesis that phenoxy weedkillers increase the hazard of lung malignant neoplastic disease, but they suggest a possible association of dioxin exposure with lung malignant neoplastic disease. Prostate malignant neoplastic disease: While the VA and Ranch Hand surveies did non demo an surplus of prostate malignant neoplastic disease, the Australian veterans study did demo an extra, with 212 instances observed and 147 expected. Surveies of other groups have yielded assorted consequences. Most surveies of workers occupationally exposed to phenoxy weedkillers do non demo an surplus of prostate malignant neoplastic disease. However, there are exclusions.

For illustration, recent surveies of pesticide appliers in Florida ( exposed to many agents other than weedkillers ) reported an approximative doubling of prostate malignant neoplastic disease incidence and mortality. Follow-up of the Seveso accident revealed a little surplus of prostate malignant neoplastic disease ( which may hold been due to opportunity ) , as did a National Institute of Occupational Safety and Health ( NIOSH ) survey of chronic dioxin exposure. However, followup of other acute dioxin exposure incidents showed no surplus of prostate malignant neoplastic disease. Overall, the grounds of an association between Agent Orange and prostate malignant neoplastic disease is non strong.

Multiple myeloma: None of the surveys of Vietnam veterans is helpful in finding hazard of multiple myeloma ( a type of immune system malignant neoplastic disease that affects the castanets ) , because the Numberss of instances have been systematically little. However, other surveys of people exposed to pesticides, weedkillers, and/or dioxins have been implicative. For illustration, several surveys of husbandmans and agricultural workers have reported a little addition in hazard of multiple myeloma, although other surveys show no extra hazard. Follow-up of the Seveso accident shows a reduced hazard of multiple myeloma among open males but an increased hazard among females, a disparity that remains unexplained. Similarly, the NIOSH survey of over 5, 000 workers exposed to dioxins showed about a doubling of multiple myeloma hazard, based on 10 instances.

Overall, the grounds associating Agent Orange to multiple myeloma is thin and indirect. Acute myelogenous leukaemia ( AML ) in the kids of veterans: Three surveys have pointed to an association between paternal Agent Orange exposure and acute myeloid leukaemia ( besides called acute myelogenous leukaemia ) in kids. The first survey, reported by the Children ' s Cancer Study Group, compared more than 200 kids with AML ( instances ) to a similar group of kids without AML ( controls ) . Children with AML were approximately 2 A? times more likely to hold a male parent with long-run pesticide exposure in the workplace. As for maternal exposure, 7 female parents of kids with AML and no control female parents reported such exposure. The hazard was elevated for kids diagnosed before the age of 6and for kids who had sustained direct pesticide exposure. " Pesticides " in this survey included both insect powders and weedkillers, so it is non clear

which agents were associated with the increased hazard. The 2nd survey was a study of about 50, 000 Australian Vietnam veterans.

This survey besides found about a 4-fold addition in AML among the kids of Vietnam veterans. The hazard of acute lymphocytic leukaemia ( ALL ) was non increased in this survey. The 3rd survey, a survey of more than 1, 800 instances of ALL and more than 500 instances of AML, was reported from the Children ' s Cancer Group. Although a parent ' s military service in general conferred no increased hazard of childhood leukaemia, service in Vietnam or Cambodia was associated with a 70 % increased hazard for AML ( and no increased hazard of ALL ) . Self-reported exposure to Agent Orange was non associated with increased hazard. Gastrointestinal ( GI ) malignant neoplastic disease: Cancers of the GI piece of land – gorge, tummy, pancreas, colon, and rectum — have been extensively studied in Vietnam veterans, occupational groups with weedkiller exposure, and people exposed to dioxins.

These surveies have yielded a reasonably consistent form of no association between these exposures and any GI malignant neoplastic disease. One case-control survey in Hanoi suggested that former military service, presumptively implying Agent Orange exposure, was associated with increased hazard of hepatocellular carcinoma ( liver malignant neoplastic disease ) , but the hazard was far smaller than that associated with hepatitis B virus infection. Brain malignant neoplastic disease: Similarly, there is a reasonably consistent form proposing no association between Vietnam service, occupational weedkiller exposure, or dioxin exposure, and

encephalon malignant neoplastic disease. Other malignant neoplastic diseases: There is non adequate grounds to pull decisions sing a nexus between Agent Orange exposure and other malignant neoplastic diseases, including malignant neoplastic diseases of the nose and nasopharynx ( upper portion of the pharynx ) , chest, neck, endometrium ( uterine principal ) , ovaries, liver and gall canals, bone, kidneys, urinary vesica, testiss, or tegument, or leukemias other than chronic lymphocytic leukaemia ( in veterans themselves, as opposed to their kids ) .

### **Animal and Laboratory Studies**

Herbicides such as 2, 4, 5-T and 2, 4-D are non considered extremely toxic compounds, and high doses are required to do effects in animate beings.

These compounds have non been associated with malignant neoplastic disease in carnal surveies. Surveies of cells in lab dishes have besides by and large been negative, although 2, 4-D caused mutants ( alterations in Deoxyribonucleic acid ) in one survey. Cacodylic acid is reported to do lung and vesica tumours, to advance skin malignant neoplastic disease in mice, and to do DNA mutants in some research lab trials. Picloram has caused additions in benign liver tumours and in benign thyroid tumours in rats, but has non caused Deoxyribonucleic acid mutants in cells in lab dishes. 2, 3, 7, 8-TCDD ( dioxin ) is carcinogenic ( cancer-causing ) in animate being trials, increasing a broad assortment of tumours in rats, mice, and hamsters. In lab dish surveies, dioxin does non look to damage DNA straight, but helps tumours to turn alternatively.

## What Do the Expert Agencies Say?

### Institute of Medicine

The “ Agent Orange Act of 1991 ” directed the Secretary of Veterans Affairs to bespeak the National Academy of Sciences ( NAS ) to reexamine and measure the effects of Agent Orange exposure. The Institute of Medicine ( IOM ) , portion of the NAS, responded by organizing the Committee to Review the Health Effects in Vietnam Veterans of Exposure to Herbicides. The Committee has issued a series of surveies, get downing with its 1994 Veterans and Agent Orange: Health Effectss of Herbicides Used in Vietnam.”

sufficient grounds of an association ”” limited/suggestive grounds of an association ”” inadequate/insufficient grounds to find whether an association exists ”” limited/suggestive grounds of no association ” This model provides a footing for authorities policy determinations in the face of uncertainness. As of the most recent update, the links between Agent Orange exposure and malignant neoplastic disease were designated as shown.

( Note that this tabular array shows merely malignant neoplastic diseases. )

### Institute of Medicine: Associations Between Agent Orange and Cancer

#### Sufficient grounds of an association

soft tissue sarcoma  
Non-Hodgkin lymphoma ( NHL )  
Hodgkin disease  
chronic lymphocytic leukaemia ( CLL )

#### Limited/suggestive grounds of an association

respiratory malignant neoplastic diseases ( lung, windpipe, bronchus, voice box )  
prostate malignant neoplastic disease  
multiple myeloma

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## **Inadequate/insufficient grounds to find whether an association exists**

liver and bile canal malignant neoplastic diseasesnasal/nasopharyngeal malignant neoplastic diseasebone malignant neoplastic diseasechest malignant neoplastic diseasefemale generative malignant neoplastic diseases ( cervical, uterine, ovarian )urinary vesica malignant neoplastic diseasekidney malignant neoplastic diseasetesticular malignant neoplastic diseaseleukaemia ( other than CLL )tegument malignant neoplastic diseasesacute myelogenous leukaemia ( AML ) in the kids of veterans

## **Limited/suggestive grounds of no association**

GI malignant neoplastic diseases ( tummy, pancreas, colon, rectum )encephalon tumours

## **National Toxicology Program**

The US National Toxicology Program ( NTP ) , formed from parts of several authorities bureaus, evaluates exposures that may be carcinogenic ( cancer-causing ) . Those exposures thought to be carcinogenic are included in the “ Report on Carcinogens, ” published every 2 old ages.

Each exposure is assigned to 1 of 2 classes: “ known to be a human carcinogen ” “ moderately anticipated to be a human carcinogen ” The first class includes substances for which human surveies provide “ sufficient grounds ” of malignant neoplastic disease causing in worlds. The 2nd class includes substances for which there is limited grounds of malignant neoplastic disease causing in worlds and/or sufficient grounds of malignant neoplastic disease causing in experimental animate beings. The National



Toxicology Program has not listed the phenoxy weedkillers, including Agent Orange, as carcinogens, but 2, 3, 7, 8-TCDD ( dioxin ) is classified as “ known to be a human carcinogen. ”

## **International Agency for Research on Cancer**

The International Agency for Research on Cancer ( IARC ) besides evaluates exposures that may be carcinogenic. IARC classifies exposures into 1 of 4 classes: Group 1 exposures are those “ known to be carcinogenic to worlds, ” normally based on “ sufficient ” human grounds, but sometimes based on “ sufficient ” grounds in experimental animate beings and “ strong ” human grounds. Group 2 exposures are divided into 2 classes. Group 2A ( “ likely carcinogenic to worlds ” ) has stronger grounds, and Group 2B ( “ perchance carcinogenic to worlds ” ) has weaker grounds.

Group 3 exposures are not considered distinctive, because available grounds is limited or unequal. Group 4 exposures are “ likely non carcinogenic to worlds ” based on grounds proposing deficiency of carcinogenicity in worlds and in experimental animate beings. IARC has not rated Agent Orange per se, but the phenoxy weedkillers, including 2, 4-D and 2, 4, 5-T, are categorized as “ perchance carcinogenic to worlds ” ( Group 2B ) , and 2, 3, 7, 8-TCDD ( dioxin ) is categorized as “ known to be carcinogenic to worlds ” ( Group 1 ) .

## **Does Agent Orange Cause Any Other Health Problems?**

Vietnam service and Agent Orange exposure in peculiar have been extensively studied in relation to wellness jobs other than malignant neoplastic disease. High degrees of dioxin exposure are associated with

chloracne, an acne-like roseola caused by exposure to high degrees of chlorine-containing chemicals. Dioxin exposures are besides linked to a status called porphyria cutanea tarda ( PCT ) , which can ensue in liver harm and hypersensitivity of the tegument to visible radiation. This upset has non been found in surplus in Vietnam veterans, nevertheless. For other wellness effects, the grounds is more variable.

There has been a good trade of concern about generative effects such as birth defects in the kids of open veterans. Some informations are implicative, particularly with respect to nervous tubing defects ( such as spina bifida ) , but this is an country that continues to be marked by great uncertainty. There has besides been concern about toxicity to the nervous system, including psychiatric unwellnesss and jobs with the nervousnesss responsible for motion and esthesis, particularly in the custodies and pess. Again, these links are unsure.

Although the immune system is a mark of dioxin, grounds to day of the month has non demonstrated an addition in immune upsets in veterans. Some grounds exists of an association between Agent Orange exposure and diabetes. For other upsets - asthma, GI disease, circulatory upsets, and others - there is small solid grounds of a nexus with Agent Orange.

### **Advice for Vietnam Veterans**

Vietnam veterans with Agent Orange exposure may be eligible for 3 sorts of benefits.

Doctors who are familiar with these benefits can advocate their patients who are veterans consequently.

## **Agent Orange Registry**

The first benefit is the Agent Orange Registry, a wellness scrutiny plan administered by the VA since 1978. Veterans who participate in this plan receive medical scrutinies, basic research lab ratings, and forte referrals if appropriate.

## **Disability Compensation**

The 2nd benefit is disability compensation payments. Such payments are available to veterans with service-related unwellnesss or unwellnesss that were incurred or aggravated by military service. The sum of the payments is determined by the extent of disablement.

Because past Agent Orange exposure is hard to quantify, the VA uses a presumption-based system. If a veteran served in Vietnam between 1962 and 1975 and becomes disabled with one of the conditions designated as Agent Orange-related, the VA classifies his or her disablement as service-related. The diseases considered related to Agent Orange exposure correspond closely to the conditions found by the IOM to hold “ sufficient ” or “ limited/suggestive ” grounds of an association.

The malignant neoplastic diseases on the list include: Hodgkin disease, multiple myeloma, non-Hodgkin lymphoma, prostate malignant neoplastic disease, malignant neoplastic disease of the lung, bronchus, voice box, or windpipe, soft tissue sarcoma ( other than osteogenic sarcomas,

chondrosarcoma, Kaposi sarcoma, or mesothelioma )chronic lymphocytic leukaemia( Some conditions other than malignant neoplastic disease, such as diabetes, are besides on this list. )

## **Medical Benefits**

Third, some veterans qualify for medical attention following Agent Orange exposure. Harmonizing to the Veterans ' Health Care Eligibility Reform Act of 1996 ( Public Law 104-262 ) , the VA must supply its Medical Benefits Package - including outpatient and inmate medical attention at VA installations, prescription medicines, and place wellness and hospice attention - to veterans with upsets associated with weedkiller exposure in Vietnam ( to the extent that Congress appropriates finacness to supply this attention ) . These upsets include the malignant neoplastic diseases presumed to be Agent Orange-related, every bit good as any other upset that a VA physician determines is perchance associated with Agent Orange exposure during service in Vietnam.

Under this jurisprudence, 2 classs of disablement are excluded from attention: a disablement that the VA determines did non ensue from Agent Orange exposures ( such as appendicitis or an hurt from an car clang )a disease that the National Academy of Sciences classifies as holding limited/suggestive grounds of no association with Agent Orange ( GI tumours and encephalon tumours ) . Veterans may desire to look into the VA Web site or their local VA infirmaries for farther information on any of these Agent Orange-related benefits. Doctors should besides supply medical advice and careful everyday medical attention to patients with a history of Agent

Orange exposure. Because of the possibility of extra malignant neoplastic disease hazard, veterans should be advised to seek recommended malignant neoplastic disease showing trials and should quickly seek medical rating of leery symptoms.

Veterans should besides be advised to discontinue smoke, to avoid exposures to other carcinogens, to eat a diet chiefly from works beginnings, and to keep a healthy organic structure weight. Veterans concerned about past exposure to Agent Orange may desire to fall in a support group at the local VA infirmary and/or consult an occupational and environmental medical specialty clinic. These clinics can assist measure past exposures and any hazard that may prevail, and can urge appropriate stairss to wellness protection. They may be located through the Association of Occupational and Environmental Clinics at [www.aoec.org](http://www.aoec.org).

## **Extra Resources**

For medical information on this topic, the unequivocal beginning is the series of Institute of Medicine ( IOM ) studies, Veterans and Agent Orange. These can be found at the National Academies Press Web site. The most recent update is available at: [www.nap.edu/books/0309075521/html/US Department of Veterans Affairs. Agent Orange](http://www.nap.edu/books/0309075521/html/US%20Department%20of%20Veterans%20Affairs.%20Agent%20Orange).

2005. Internet Address: [www.va.gov/agentorange](http://www.va.gov/agentorange)This Web page besides has a nexus to the benefits site noted above. A utile booklet found here is “ Agent Orange: Information for Veterans Who Served in Vietnam ” , at [www.https://assignbuster.com/study-of-agent-orange-and-cancer-biology-essay/](http://www.https://assignbuster.com/study-of-agent-orange-and-cancer-biology-essay/)

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VVA ' s Web site besides contains utile information about Agent Orange,  
including stairss on how to use for benefits, at www. vva.  
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