Cancer and Diabetes Findings in Veterans of Ranch Hand Reevaluated

by Dr. Michalek and Dr. Pavuk MD

I was sent a copy of the new statistical review of Ranch Handers regarding Cancers and Diabetes by one of the former Ranch Hand scientists cancer researcher, and very logical participate in the discussions in front of Congress in 2000 in oversight; as well as when I reviewed the Ranch Hand Transcripts.

I reviewed the study results, processes, and conclusions, without getting into the nuts and bolts of the study that are located elsewhere, and find this study a ray of hope for all Vietnam Veterans and their widows. Dr. Michalek (lead Ranch Hand scientists for 12 years plus) and Dr. Pavuk whom I would bet either are or have been under pressure not to do this study release. A study that totally contradicts former Ranch Hand Study conclusions used in denials of Service Connection for our Veterans and their widows, our Veterans Affairs conclusions, as well as the Institute of Medicine (IOM) contracted by Veterans Affairs and their conclusions.

As many of you know I have given in the past the analogy of Veterans Affairs as our "Judges" and the members of the contracted IOM as our "Jury" in a non-constitutional legal system sponsored by the Executive Branch that gives the plaintiffs (Veterans and Widows) no recourse in addressing the generic issues of incomplete data, contrived data, biased and manipulated data, limits by science itself, levels of certainty of the associations itself and the processes that are "not now" transparent identified fully to the plaintiffs to be addressed in a legal setting. It is called "due process" in any other legal system except, the legal system for Veterans and Widows.

Doctors Michalek and Pavuk have eliminated many of the confounding factors and false assumptions made on exposures which drove the flawed results regarding Diabetes as well as "all Cancer sites" in many Ranch Hand released documents and I would assume even some personal IOM presentations with stated false conclusions.

We have discussed in our groups this fact for about six years now. Including a phone call made to the IOM in 2003 that I personally was concerned by what I considered false assumptions in cohort comparisons and confounding factor bias introducing cumulative errors in statistical results. I also felt this protocol of Dr. Kang's study was also flawed in this manner even though he did find many dioxin, TCDD issues that IOM has not recommended associations and Veterans are indeed suffering from in obvious over abundance of issues. In my review of the transcripts, my benefactor of this release asked, as it had been recommended, did VA's study also include comparisons of clean non-exposed Veterans. When he asked the VA representative attending the Ranch Hand Committee meeting if VA was following that recommendation (I would assume from lessons learned in Ranch Hand) the VA representative went into some diatribe regarding paragraphs and sections while the answer that should have been simply stated as NO; we did not follow the recommendations of Ranch Hand nor the IOM. (Heavens that might have answered the questions we have been asking for 40 years now.)

The IOM then simply states we just do not know how to apply that data to the Vietnam Veterans. Therefore, Veterans and widows just go on and suck it up!

Once Doctors Michalek and Pavuk removed some of my (our) concerns, the data demonstrates a sharpening of the connection of the dioxin isomer, TCDD and diabetes.

In addition, the *conclusions for cancer associations and the dioxin, TCDD* versus what was previously reported by Ranch Hand of "Zero cancer associations" are monumental. With the new study release, removing the flawed assumptions and confounding factors, demonstrates a *remarkable significant trend in all site cancers in cohorts* and *significant increase in risk factor of all site cancers in the highest exposed.*

These revealed facts are not a surprise though and have surfaced in other studies that concluded that even at low exposure levels of the dioxin, TCDD the SMR delta between 'specific cancer sites' versus 'all cancer sites' was negligible. Considering the level of mitochondrial cellular effects of dioxins (plural), similar structured furan isomers, and similarly structured inclusive PCB isomers one should expect that any cancer increase would be statistically associated depending on many genetic variables; as well as other exposure factors involved.

Especially of concern are the facts demonstrated by Dr. Linda Birnbaum of the Environmental Protection Agency that verifies this cellular activity almost immediately upon exposure to such dioxins commences. Other labs have also verified this soon after exposure changing/modifying cellular activity as well. Therefore, any study with the persistence of dioxin in the body is only going to be a snapshot in time of any associations. Concluding that even "trends should be considered an outcome" and expected only to deviate further with the time over life element.

Generically dioxins are very similar to nuclear radiation or heavy metals in their effects depending on "rate of dose" and/or the cumulative effect over life. Where they differ is in the rate of absorption and expulsion depending on method of contamination and overall persistence. Obviously, skin exposure slows down the rate of absorption while the gut and the lungs very rapidly absorb these dioxins. In that respect, it is doubtful, even the new Ranch Hand findings would be the worst found scenario of cohort examinations. While some studies consider the over life issues, our government studies have concentrated on more of linear rate versus outcome(s). Considering all the factors this was probably, not the best study format and protocol. Given that no prior safe dose had been established and now finding that some studies based on quantitative exposure-response analyses have found based on this analysis that threshold mathematical models do not fit the outcomes concluding *there is no threshold of exposure below where there is no cancer risk*.

While the debate goes on, as our Veterans die or become disabled from Military Service with no help, between the real toxicology experts and the members of the Agent Orange Committee at IOM as to whether individual, cancer sites or systems are the only medical issues associated; and how much of what... created what.

Studies as well as national and international toxicologists have found and clearly stated that dioxins (plural) are potent immune system disruptors/dysregulators/modifiers. The new cancer findings alone should conclude that fact along with the statements by our own Environmental Protection Agency's (EPA) toxicology experts.

It should be abundantly clear, with few exceptions, with the established low level of dioxin damages in cellular activity... not only cancers are an exposure result. Damaged immune systems require less dioxin for immunotoxicity versus cancers according to EPA. Not to say that the ultimately over life cell maturation would not be in tumorigenesis both benign as well as malignant. Nevertheless, that certainly leaves room for other medical issues that should be associated to immune system disruption/dysregulation/modification, in the form of autoimmune

disorders or variants that are documented by testing anomalies.

From other studies, these dioxin and "dioxin like" isomer immune system issues seemed to be associated to the disturbance of the homeostasis in B and T cell activity, confusion of th1 versus th2 immune mediated responses, constant increased levels of antibodies in the blood outside the normal established for humans, confusion in the proliferation and differentiation IgG_1 and IgE synthesis, disturbance in cytokine factors, etc.

Medicine established long ago that exposures to such viruses as the Epstein-Barr virus could be connected about 65% of the time in many cancers and immune system issues. Therefore, it seems medicine has already concluded long ago that such exposures creating an "immune system response" can be associated to cancers and that must include the variants of such cancers in smoldering cancers, immune system degradation (ICD coded or not from dioxins) where the cell maturation to cancers is arrested, (not everyone is the same), etc. As well as some immune system mediated neurological disorders such as Multiple Sclerosis and Peripheral Neuropathy.

We, all know this Peripheral Neuropathy (PN) issue being only associated to diabetes by Veterans Affairs and the IOM is nothing but illogical science. PN is a generic term for nerve damages that can be caused by many issues, including Central Nervous System (CNS) damages. This can be in the form of immune mediated PN, or vasculitic mediated PN, yes and diabetic mediated PN. Under each one of these categories there are even more forms of PN that can be created depending on what part of what system is damaged. The data clearly demonstrates that the PN associated to this dioxin and dioxin like isomers was established long ago when there was no discussion of a diabetes connection.

Yet, Veterans Affairs put a time limit on individual PN damages of one year from Vietnam Service and completely resolved within two years. This announcement was made in the late 1990's by President Clinton as a degenerating nerve issue until Veterans Affairs and the IOM put a time limit on the Service Connection and then re-identified the PN tag to something totally different. The time limit is nonsensical just in considering the cancers that are already admitted. While time limits would be sensible for purely antigenic immune mediated PN. We are not ever talking about pure antigenic responses here when discussing dioxin effects.

Not ever referenced nor discussed is the PNS in its entirety, which is also illogical; is the Autonomic Nervous System (our second brain). The portion of the nervous system that monitors all autonomic bodily functions in form of neuron sensors normally collocated to the organ being controlled by the CNS. These neuron/ganglion controllers control organs from the pancreas islets to the digestive system, from the lungs to the heart, and they seemed to interact with one another in an attempt to keep the organs in synch. Such as vascular dilation and constriction control >blood pressure>rate of oxygen exchange>heart rate>breathing rate>etc. Without this neuron ANS communication exchange, every time you stood up quickly you would have the possibility of passing out or becoming dizzy. Without this control, your digestive system from stomach acids to increased gut blood flow during digestive activities would wax and wane or the timing of such events is thrown off and even triglyceride metabolism is effected, as well as activation of lipases found in adipose tissue.

Inhibits mast cells -histamine.

Controls bronchioles by relaxing or contracting muscle through the release of adrenaline.

If one looks at only the vascular implications of these ganglionic neuron messengers, one can see the potential impacts of the ANS (the second brain) which is part of the PNS.

Controls blood to the following:
Renal Artery
Large coronary arteries
Smaller coronary arteries
Arteries to other internal organs
Arteries to skin
Arteries to brain
Arteries to erectile tissue
Arteries to salivary glands
Hepatic artery
Arteries to the skeletal muscle
Controls the contractillity of myocytes (cardiac cells)

Regarding the heart itself this system can regulate cardiac output and decrease/increase conduction of the heart muscle (works with muscle automaticity). Also controls the ventricular cardiac muscle, etc.

In blood, quality and quantity, this system also feeds back and controls the platelet aggregate.

In the endocrine system this second brain function of the ANS provides feedback and regulates some hormonal control from the adrenal medulla which also interacts with the adrenal cortex. With stress, medulla produces epinephrine and norepinephrine and stimulates alarm response similar to sympathetic division of autonomic nervous system, but more prolonged responses: increased blood sugar, faster heartbeat, increased blood pressure, dilated blood vessels in skeletal muscles, increased blood flow to heart and lungs, etc.

The adrenal medulla consists of modified neurons that secrete two hormones: epinephrine and norepinephrine. Stimulation of the cortex by the sympathetic nervous system causes release of hormones into the blood to initiate the "fight or flight" response. The adrenal cortex produces several steroid hormones in three classes: mineralocorticoids, glucocorticoids, and sex hormones. Mineralocorticoids maintain electrolyte balance. Glucocorticoids produce a long-term, slow response to stress by raising blood glucose levels through the breakdown of fats and proteins; they also suppress the immune response and inhibit the inflammatory response.

After a meal, blood glucose levels rise, prompting the release of insulin, which causes cells to take up glucose, and liver and skeletal muscle cells to form the carbohydrate glycogen. As glucose levels in the blood fall, further insulin production is inhibited. Glucagon causes the breakdown of glycogen into glucose, which in turn is released into the blood to maintain glucose levels within a homeostatic range. Glucagon production is stimulated when blood glucose levels fall, and inhibited when they rise.

Diabetes results from inadequate levels of insulin. Type II usually develops in adults from both genetic and environmental causes. Loss of response of targets to insulin rather than lack of insulin causes this type of diabetes. However, the Type II also often develops into the requirement for more and more external injection of insulin. I am unclear at this point, if this is because of lack of production or a systemic issue of timing of the release of insulin. In other words, you do not get the release in what should be a timed event controlled by the ANS.

Traditionally, three main systems of extracellular communication were thought to exist that acted

in an integrated fashion helping the organism survive in its environment. These systems are (1) the immune system which protects the organism against external and internal perturbances (viruses, bacteria, carcinoma) (2) the nervous system whose signals travel by means of electrochemical signals and neurotransmitters between the brain and peripheral tissues and (3) the endocrine system which denotes "internal" secretion of substances (hormones) which are released into the circulation by various endocrine glands and act at a site distant from their site of origin. As these systems were studied in detail, the distinction between them has blurred. *It is relatively clear that the nervous system cannot be separated from the endocrine system in autonomic nervous system integrity.* For example, external and internal inputs to the brain alter the expression of hypothalamic releasing and inhibitory hormones that are released into the portal capillary system to be delivered to the anterior pituitary. In turn, the pituitary gland, often called the master gland, secretes various hormones that regulate other endocrine organs such as the thyroid, adrenal glands and gonads. Furthermore, certain molecules may function as hormones and neurotrasmitters, (e.g. cathecolamines). The immune system also interacts with the endocrine system both under physiologic and pathophysiologic conditions. For example, endocrine dysfunction is often autoimmune **in nature. Another example is type 2 diabetes where low-grade systemic inflammation is a major pathophysiologic component.**

We know that with dioxin exposures there has been found increases in not only the Thyroid Stimulating Hormone (TSH) but also the Liver Enzyme gamma-glutamyltransferase (GGT). While these issues were dismissed because of the snapshot in time, no other issues were found that could be related as outcomes or at least that is the picture painted.

While I cannot find a direct correlation to the ANS and the increase in TSH that does not mean there is not a secondary or tertiary link from very possibly the adrenal medulla. While most in government have dismissed this finding that correlated to dioxin levels due to the lack of linear correlation of dioxin to microsomal or antithyroid antibodies, which was then and now somewhat subjective. IOM dismissed this finding in it entirety stating that:

"Ranch Hand veterans had TSH significantly higher than did the comparison population. No changes in microsomal or antithyroid antibodies were observed, nor was there any evidence of changes in clinical thyroid disease."

"NAS determined the lack of data on the association between exposure to the chemicals of interest and adverse effects on thyroid homeostasis, coupled with the lack of exposure information on Vietnam veterans precludes quantification of any possible increase in their risk."

"NAS concluded that there is inadequate or insufficient evidence to determine whether an association exists between exposure to herbicides and adverse effects on thyroid homeostasis."

Ranch Hand did indeed find microsomal antibodies along with the increased TSH and should have alerted the IOM to subclinical thyroid issues.

Somehow, the interpretation of increased TSH associated with the dioxin, TCDD with no changes in the level of T3 and/or T4 means there is nothing wrong. Much less, the findings of other issues found that would correlate with a diagnosis of subclinical thyroid issues. Such as:

Depression
Fatigue
Hyperlipidemia *Syndrome X
Hyperhomocysteinemia
Coronary Artery Disease or Cardiac Risk Factors

*** Syndrome X, a cluster of several metabolic disorders that includes hyperinsulinemia, hypertriglyceridemia, and hypertension, is associated with severe vascular morbidity. Hyperhomocysteinemia is another risk factor for cardiovascular and cerebrovascular diseases, often exhibited by insulin-resistant patients.**

However, logic defines that if you have a thyroid issue increase clearly associated to levels of dioxin exposures this is probably not a good thing, especially a finding decades after that dioxin exposure.

Levels of serum TSH are generally the most sensitive indicator of thyroid gland function: Abnormal levels of TSH are often found even when serum levels of thyroxine, the principal hormone produced by the thyroid gland, are normal. By convention, abnormal levels of TSH in the presence of normal serum levels of free thyroxine are described as subclinical thyroid dysfunction; abnormal levels of TSH in the presence of abnormal serum levels of free thyroxine are described as overt thyroid dysfunction. This terminology can be confusing… Persons with "subclinical" thyroid dysfunction by this biochemical definition may display clear symptoms or signs of thyroid dysfunction while those with biochemically defined "overt" hypothyroidism may show no other evidence of thyroid dysfunction."

Unfortunately, we Veterans were not privy to the actual linear dose responses that were found to either increased TSH or the levels of increase. However, the concern would be as follows:

Course: Risk of long-term progression to overt Hypothyroidism

TSH 4-6 mU/ml: No increased risk of future Hypothyroidism
TSH >6 mU/ml: 27-42% risk of future Hypothyroidism
TSH >6 mU/ml and Thyroid Peroxidase Antibody positive: >55% risk of future Hypothyroidism

GGT is an enzyme that metabolizes extracellular glutathione and can be induced by various *xenobiotics, drugs, and ethanol. All these compounds, including free fatty acids and acetone, may also induce cytochrome P4502E1 (CYP2E1).

***Xenobiotics … Drugs such as antibiotics are xenobiotics in humans because the human body does not produce them itself nor would they be expected to be present as part of a normal diet. However, this term is also used in the context of pollutants such as dioxins and polychlorinated biphenyls and their effect.**

Some xenobiotics can induce *apoptosis at lower doses and **necrosis at higher doses. Xenobiotics at low concentration can induce pre-committed reversible apoptotic phase but this is followed by irreversible apoptotic phase.

***Apoptosis from lower doses: A form of cell death in which a programmed sequence of events leads to the elimination of cells without releasing harmful substances into the surrounding area. Apoptosis plays a crucial role in developing and maintaining health by eliminating old cells, unnecessary cells, and unhealthy cells. The human body replaces perhaps a million cells a second. Too little or too much apoptosis plays a role in a great many diseases. When programmed cell death or Apoptosis does not work right, cells that should be eliminated may hang around and become immortal. For example, in our Toxic Chemical Veterans cancers and leukemia.**

When apoptosis works overly well, it kills too many cells and inflicts grave tissue damage. This is the case in of our Toxic Chemical Veterans in strokes and neurodegenerative disorders such as Alzheimer, Huntington, and Parkinson diseases. Apoptosis is also called programmed cell death

or cell suicide. Strictly speaking, the term apoptosis refers only to the structural changes cells go through, and programmed cell death refers to the complete underlying process, but the terms are often used interchangeably.

****Necrosis is death of body tissue. It occurs when there is not enough blood to the tissue, whether from injury, radiation, or toxic chemicals. Necrosis is not reversible.**

This whole system of hormones and feedback controller neurotransmitters must be associated with what would be the body's system integrators with the Central Nervous System and the Autonomic Nervous System (the second brain) interpreting the data as then functioning as micro controllers.

If one considers the ANS pancreas islet control in Alpha and Beta cells and sensing when to release and how much and the other issues found… *it becomes a question as to what came first in Vietnam Veterans from "environmental causes" – diabetes or immune mediated ANS damages within the PNS creating diabetes and insulin resistance and many neurological issues; plus other medical issues that were common in returning Vietnam Veterans.*

***A report in the 8 January 2008 Proceedings of the National Academy of Sciences* now demonstrates one of the ways that TCDD may promote cancer's growth and spread.**

The new study describes a novel mechanism of TCDD action that focuses on the mitochondria:

"We found that TCDD induces tumor cell proliferation and invasion by directly acting on mitochondrial transcription machinery and inducing mitochondrial respiratory stress," says principal investigator Narayan G. Avadhani, a biochemistry professor at the University of Pennsylvania. Such mitochondrial dysfunction inhibits apoptosis in malignant cells and increases the invasive potential of cancer. Mitochondrial dysfunction is also associated with conditions such as heart disease, diabetes, obesity, blindness, deafness, kidney disease, and neurodegenerative disorders, as well as with aging.

"[The respiratory stress-signaling] cascade culminates in the activation of a large number of nuclear genes that affect various cellular processes including cell metabolism, proliferation, and apoptosis," says lead author Gopa Biswas, a researcher in Avadhani's lab. "We have now established that TCDD alters cellular morphology and physiology through a similar mechanism."

"Our findings show that at subtoxic levels of ten to fifty nanomolar, TCDD is sufficient to cause mitochondrial dysfunction and induce the signaling cascade", says Avadhani. "These results raise concerns over the adverse health implications of dioxins and PCBs even at very low levels."

In both animal and human studies (notably epidemiologic analyses of cancer rates following the 1976 industrial accident in Seveso, Italy), TCDD exposure has increased cancer incidence and mortality at all cancer sites rather than at a few specific sites.

Now folks this is not new to many of us who have reviewed Dr. Birnbaum's presentations and the explanation of how the cellular intelligence, transcription, and intended born with characteristics are modified. Including that these activities are not unique to any set of cells and that there are multiple effects on-going. The Seveso reports referenced above along with other study results are also not new…*maybe totally ignored but certainly not new.*

Of course, all of these issues are above my pay grade as a novice but I will say this – in failure analysis of trying to prove what is associated, the methodology used in TCDD alone is suspect at

best. As I stated I am a purist in this failure data and what it means. The Vietnam Toxic Chemicals Environment was much more than the dioxin TCDD of which I will address the effects established by our EPA for Arsenical Pesticides and Herbicides later. Many of which in chronic exposures certainly can be attributed to some of issues we Veterans have experienced, including many that overlap what is said to be only the dioxin, TCDD.

The bottom line questions for Veterans and widows to be resolved in this 40-year war between the Veterans and our government are:

- **Was the Vietnam Veteran found to have increased medical issues outside of those that did not serve in the government created toxic chemicals (plural) environment?**

- **If so, what are those found increased risk of incidence medical issues or symptoms?**

- **Is it "just as likely as not" the increase of incidence was created by service in a government created Toxic Chemical Environment and/or without finding out which single or multiple isomers caused what medical disorder from what herbicide at what dose rate (which is impossible) and the only conclusion to the 50/50 level is that the increase can certainly be attributed to that Wartime Service in Vietnam.**

Unfortunately, this has not happened to our nations Veterans/Widows and every stalling and denial trick the U.S. Executive Branch of government including the DoD and Veterans Affairs can come up with has been in play.

One only has to look at the recent admittance by the Department of Defense (DoD) of the Cold War testing done on our Veterans from 1950 to 1975 to completely understand that our Rainbow Herbicide Veterans have not been given a fair assessment. Cold War testing in hallucinogenic drugs, biological created toxins in alternate forms, toxic chemicals, as well as radiation testing that were denied for decades by DoD, as Veterans suffered. All of it denied until the evidence/facts overrode plausible denial and that denial was no longer a viable path of DoD propaganda.

This new study and new conclusions challenging the initial findings of no cancer is available on line at the Journal of Environmental and Occupational Medicine.

http://www.joem.org/pt/re/joem/abstract.00043764-200803000-00011.htm;jsessionid=HsvbQy9pL5h8y85FJwS6SQ5KLkYRM5MyntK18KXq1W20QzpzTsDQ!923867264!181195629!8091!-1

I believe it is obvious that Veterans or their doctors have not been given a fair assessment by anyone in our government and its contracted scientists. No fair assessment in…all cancer sites, degenerating neurological problems, cardiovascular issues including valvular issues, vascular disease, immune/endocrine disturbances (creating multiple outcomes), hematological issues, hepatic issues, neuropsychological issues, pulmonary function issues, systemic organ damages, bone density and muscle loss, and the innocent victims of birth defects; ultimately from cellular damages at the DNA mitochondria level.

In closing, the history of what was found even before Vietnam associated to dioxin and dioxin like

isomers has shown neurological damage, as do most neurotoxic chemicals. This includes the finding of remarkable PN damages in Ranch Hand and the Seveso study referenced in the NAS article. Because we do develop a form of diabetes does not mean this degenerating nerve damage is associated to that diabetes. I am not saying you cannot have both diabetes PN and immune mediated PN or even additional vasculitic mediated PN but the increase in our Vietnam Exposure Veterans is at least as likely as not associated to wartime service. Nevertheless, to assume that PN is only associated to diabetes when the time line of data and historical facts of dioxin does not reflect that sole development; is just that an unverified assumption. Not to include Autonomic Nerve Function Disorders that are part of the massive amount of Peripheral Nerve System developed makes little sense.

I have tried to demonstrate the tie in to many functions of our second brain and just some of the results of what happens when the messengers either neuron sensor and/or hormone control become ineffective/damaged and how these functions intertwine and compliment each other. And how a damaged PNS/ANS can effect many systems and how the dioxin damaged PNS/ANS can be affected by immunotoxicity. Immunotoxicity that involves both the immune system and endocrine damages created by dioxins and like isomers.

What happens if these controls that are adversarial in one respect, only go one way. An analog function eventually becomes a digital function and the input to the second brain becomes an on or off signal or an intermittent sensor process. All of these processes within the body are tightly controlled and the smallest malfunction can create not only serial complications in neurological communications but create parallel events ongoing simultaneously.

However, it is much deeper than that and unknown factor of the damaged Central Nervous System. At least no one in government will tell or admit the possibilty of the Central Nervous System involvement, either clinical or subclinical. Do we have CNS damage in our second brain decision-making and control functions if the communication link is working? On the other hand, do we have both – neuron or ganglion sensor/hormone signals corrupted and/or the second brain decision-making processes are corrupted.

In my review of the medical literature and pathology, there is indication that many scientists believe before there is any PNS damage, which must include the ANS; there is always CNS damages at some level.

Is this PNS and ANS system truly a second brain? Think of it this way. If the upper level CNS damage has damaged the awake intelligence, the entire PNS and ANS system continues to work and function.

What will the IOM do in recommendations with the new assessment of Ranch Hand findings in all site cancers now found in Ranch Hand, Dr. Kang's study results from the Army Chemical Corps that pointed out many of the issues we have been saying for decades now, or even the referenced NAS announcement above which I believe Dr. Birnbaum of our EPA concluded at least 12 years ago? All of it remains to be seen.

Also found, I believe it was in at least 1996, was that these dioxins and like isomers almost immediately start doing whatever is they are going to do shortly after exposures. (Verified by EPA and other independent laboratories.)

I believe a good analogy for the Vietnam Veteran in the actions created by dioxins and like isomers in our Rainbow of Herbicides would be; the Veterans have been living with an unknown non-antigenic virus exposure, that continually has been damaging the bodily systems via

immune/endocrine system damages both clinical and subclinical; culminating in reduced quality of life, passing on birth defects, and ultimately in varying degrees of severity of medical issues and variances of medical issues = government created death and/or disability.

Whatever the outcome by NAS/IOM regarding our Veterans and toxic chemicals and the new studies, you can bet the clearinghouse for all scientific decisions will be the Department of Veterans Affairs before anything is recommended or concluded. (Sounds like Germany circa 1939.)

When the NAS finally pays any attention to the findings of: "cascade culminates in the activation of a large number of nuclear genes that affect various cellular processes including cell metabolism, proliferation, and apoptosis"...then this is certainly should give Veterans and all members of the world a reason to pause regarding toxic chemicals...even the mention of a deranged apoptosis process (programmed cell death) associated to dioxin exposures I believe is of major concern in our degenerating neurological issues.

.Our house and senate members' inability to get to the bottom of these issues is perplexing. The fact that their taxpayer paid for Gold Standard missed a two-fold increase in all cancers certainly should give them reason to question what has gone on the last 40 years. I thought the oversight hearing in 2000 would have prompted at least some questions of "what in the world is going on." Yet, they continue to do little if anything to demand a fair and impartial assessment assuming government process integrity... when there is none

The actions or lack of actions does not exhibit their stated philosophy of "We Support Our Veterans and their widows."

Kelley