

**VA Charge to the IOM Oversight Committee on the
Study of the Health of Participants in Project SHAD
(Shipboard Hazard and Defense)¹**

**Mark Brown, PhD, Director Environmental Agents Service
U.S. Department of Veterans Affairs**

March 21, 2003

Background: As many of you know by now, Project SHAD, which is short for "Shipboard Hazard and Defense," was a series of tests conducted by the Department of Defense in the 1960s and early 1970s to evaluate the vulnerabilities of ships to attacks from chemical and biological weapons.

You've probably also heard how this issue has generated significant concern among test participants over whether their health may have been harmed by participation in these experiments, and has become the focus of Congressional hearings and media attention.

I can also tell you that VA's Secretary Principi also has taken a special interest in this issue and in assuring that VA moves quickly to respond to veterans' health concerns and needs.

In response and at VA's request, the Department of Defense has been systematically searching for and declassifying information about these tests and passing on their findings to VA.

DoD's latest declassification efforts have also included similar land-based experiments that were conducted during this same time period. Collectively, DoD refers to both shipboard and land-based tests as "Project 112." DoD has estimated that there were fewer than 6,000 service members directly involved with the Project 112 tests.

DoD has told us that humans were not the subjects of these tests but were rather only involved as test conductors. DoD has assured us that procedures were taken during the tests to protect participating service members from exposure. DoD also indicates that no veteran became ill during these experiments.

Despite these assurances, there has been a perception by some that military personnel were in some cases the unwitting subjects of secret military experiments involving their deliberate exposure to hazardous agents.

¹ These remarks were delivered March 21, 2003 to the first meeting of the National Academy of Sciences, Institute of Medicine Medical Follow-Up Agency Committee on the study of the health of participants in project SHAD, held in Washington, DC.

IOM's Qualifications: It is not by accident that VA has turned to the Institute of Medicine to help evaluate science behind this issue. In fact, VA has historically turned to the IOM to help evaluate the health impacts of other experiments conducted by DoD in the past that involved possible human exposure to chemical warfare agents.

For example, the 1993 IOM report, "Veterans at Risk: The Health Effects of Mustard Gas and Lewisite," was a review of DoD research conducted in the 1940s to develop better weapons and better methods of protecting against these weapons. According to that report, by the end of WW2, over 60,000 U.S. service members had been used as actual human subjects (not just test conductors) in this chemical defense research program. (The SHAD and Project 112 tests did not apparently involve mustard gas and Lewisite chemical warfare agents.)

As with VA's more recent experience with SHAD veterans, public attention to these experiments came only decades after the fact, when some veteran test subjects sought health care and compensation from VA for health problems that they believed to be caused by their exposure to chemical warfare agents from those experiments.

Complicating the IOM efforts and VA's response, there was usually little or information available to document an individual's participation in these experiments carried out decades in the past. Similarly, there was little information about human health effects associated with the exposures involved to mustard and lewisite chemical warfare agents.

Outreach to SHAD Veterans: I believe that we're in much better shape today with SHAD veterans, due in large part to our close and timely collaboration with DoD to generate the information that VA needs.

VA, with DoD's help, is developing a roster of all SHAD and Project 112 veteran participants. VA is also taking the step of attempting to mail every living veteran on this roster a letter telling them that they were involved with these tests, and that if they have any health concerns, advising them to come to a VA medical center for an examination.

VA has sent out about 3,770 letters to SHAD and Project 112 veterans currently in the database informing them that they may have been exposed to a variety of chemical and biological warfare agents and other hazardous substances during those tests.

As I mentioned, we anticipate that the total number of veterans who participated in those tests will be about 6000 individuals.

We've also gone to great lengths to ensure that Project 112 veterans who come to VA are met by health care providers who are informed about these issues, and

who can fully respond to veterans concerns and questions. VA's policy is to offer all Project 112 veterans a complete "Primary Care New Patient History and Physical Examination," even if they have previously been evaluated by the VA.

In the text of my remarks here I've provided a short table that summarizes the data that DoD has provided to VA, including the number of veterans identified as either SHAD or as land-based test participants, the number of these veterans that VA has sent letters to, and the number of deceased veterans.

Number of veterans that DoD identified as Project 112/SHAD participants and provided VA with their names and service numbers	5,183
Number of veterans that DoD identified as being involved in the land-based Project 112 tests (out of the 5,183)	117
Number of veterans identified by DoD as being involved in SHAD tests (out of the 5,183)	5,066
Number of veterans VA has identified with a social security number (using DoD data)	Approx. 3,700
Number of outreach letters mailed by VA (Some veterans received more than one outreach letter because of the way DoD provided us information about tests.)	3,770
Number of known deceased Project 112/SHAD veterans for whom VA has obtained the date of death	Approx. 750

We have developed a substantial amount of background information about Project 112. This has served both as an outreach to veterans and their families who have health concerns related to these tests, and also as background information to VA health care providers who may be encountering SHAD participants as patients.

In fact I think the best place to begin to become familiarized with this topic is our SHAD website at www.va.gov/SHAD. There you can find a series of Under Secretary for Health Information Letters, VA press releases on the topic, as well as a link to DoD Fact Sheets that describe the individual Project 112 tests.

We see all of these steps as critical for maintaining VA's credibility as a health care provider for all veterans.

SHAD Exposures: We know now that a wide range of chemical and biological warfare agents, less-harmful simulants, and disinfectant agents were used as part of SHAD and Project 112.

The biological warfare agents tested by DoD included *Coxiella burnetii*, *Francisella tularensis*, and Staphylococcal Enterotoxin B.

DoD apparently also tested a number of biological agents that are not biowarfare weapons but were considered to be much less-harmful simulants. Such simulant agents have been widely used as relatively non-toxic stand-ins for actual biowarfare agents. These included *Bacillus globigii* (BG), *E. coli*, and *Serratia marcescens*. Although biological simulants were felt to be safe, we understand today that they can be opportunistic pathogens under certain unusual circumstances – circumstances that are probably not relevant to most active duty personnel.

DoD has also told us that during these tests, they used most of the chemical warfare nerve agents that were in the U.S. arsenal at that time, including Sarin, VX, Tabun and Soman. All of these are organophosphorus nerve agents.

They also carried out tests with a number of chemical agent simulants -- these materials have similar physical properties, such as vapor pressure, but they don't have the lethal toxicity of the live agents. These included methylacetoacetate and sulfur dioxide.

DoD also used a number of common chemicals to sterilize surfaces, presumably following experiments with biological agents. These included β -propiolactone, ethyl alcohol, Lysol, peracetic acid, potassium and sodium hydroxide, and sodium hypochlorite (or common bleach).

Lastly, DoD used a couple of relatively non-toxic chemicals as simulants for biological agents – these were chemicals that again have similar physical properties as the biological agents but without the hazard, such as zinc cadmium sulfide.

VA's own review of the literature on long-term health concerns from biological agents used in Project 112 indicate that long-term health effects are unlikely in the absence of any observable health problems at the time of exposure. This is in part because these infectious agents do not cause latent infections without symptomatic disease.

Similarly, in general, the chemical agents used in project SHAD are most likely to have produced long-term health effects if they caused clinically significant illnesses during or shortly after exposure.

However, there are few good, long-term studies of the health effects of exposure to low levels of the agents used in these tests.

Because of that uncertainty, and to address health concerns of veterans, on October 8, 2002, the Department of Veterans Affairs contracted with the Institute of Medicine to conduct the study you are about to begin, on the potential long-

term health effects of chemical and biological tests conducted on board U.S. Navy ships in the 1960s.

As I mentioned, the IOM brings to VA a highly regarded and independent scientific reputation, and their study will be a key component of VA's response to the concerns raised by Project 112 veterans, members of Congress and the American public.

I've said enough by way of background, so I'll get to the official charge to the committee.

Charge to the Committee: The epidemiological research study you are about to begin will evaluate the current health status of participants in the SHAD tests in comparison with the health status of a comparable group of non-participant veterans.

To the extent possible, the effects of different agents on the health of participants will be estimated.

Data on current health status will come primarily from a telephone survey, but mortality data will also be collected and analyzed.

A panel of expert advisors will advise the Medical Follow-up Agency investigators in the conduct of this study.

MFUA will conduct this study over the course of 36 months, and will publish its final report in a peer reviewed scientific journal at the end of the study period.

Good luck, and I'd be happy to try and answer any questions that you may have.