



# THE INSURMOUNTABLE GULF

*Twenty-four years after the conflict ended, scientists and veterans are still fighting for recognition of Gulf War illness.*

BY SARA REARDON

The meeting last April was supposed to be a scientific review, but the scene looked more like boxers lining up for their turn at a punchbag. The target was Robert Jesse, who at the time was deputy undersecretary for health at the US Department of Veterans Affairs (VA).

Veterans, scientists and VA administrators were meeting in Washington DC to discuss Gulf War illness, a complex disorder that affects some 250,000 veterans of the 1990–91 military operations in the Gulf. After 24 years, the condition is still the subject of intense controversy in the United States and the United Kingdom.

“From the beginning, the VA has refused to

honestly face the problems that face veterans,” said Joel Graves, a Gulf War veteran who until last year had served on a committee advising the VA on research priorities related to the illness.

Graves and others contend that the agency has refused to recognize Gulf War illness as a unique physiological condition, maintaining instead that it is psychosomatic or the result of stress. The VA, they claim, has obstructed research into Gulf War illness, stacked scientific review panels with members who would favour a psychological explanation and defanged the research advisory committee (RAC) that Graves served on. As a result, critics contend, thousands of soldiers have found it difficult to get a diagnosis or related

health benefits. At the meeting, James Binns, an attorney and chair of the RAC, called the VA’s actions “morally and intellectually bankrupt”.

When Jesse finally had a chance to speak, he flatly denied that the VA has clung to a psychological origin for the illness: “We have said unequivocally we do not believe that.” Rather, he and other VA officials believe that the veterans’ health problems are too complex to classify. Jesse then pointed to the VA’s multimillion-dollar research programme as proof that the agency takes the illness seriously.

**Iraqi forces set fire to hundreds of oil wells as they retreated from Kuwait.**

ABBAS/MAGNUM

The rift between scientists, veterans and the VA is deep, but upheavals at the agency in the past year may create an opportunity for reconciliation. “I don’t think it’s a hopeless cause,” says Victor Kalasinsky, an environmental toxicologist and the VA’s programme manager for Gulf War illnesses, “but people need to listen to one another.”

In 1990 and 1991, the United States deployed some 700,000 military personnel to the Gulf to form a coalition with the United Kingdom, Saudi Arabia and several other countries to expel Iraqi forces from Kuwait. The seven-month campaign resulted in few coalition casualties. But soon after returning home, about 30% of US veterans began to get sick. Their illnesses were difficult for doctors to understand.

They shared a cluster of symptoms — including severe fatigue, chronic pain, gastrointestinal disorders and cognitive problems. But few individuals had all of the symptoms, and there were many proposed causes. The destruction of chemical-weapons repositories was a leading suspect. Troops also marched past burning oil wells, slept in tents doused with pesticides and received new vaccines and pills to protect them from diseases and biological and nerve agents.

## BRAIN AND BODY

Government agencies such as the VA, the US Department of Defense and the UK Ministry of Defence were initially reluctant to conclude that something unique was happening — veterans experience health problems after every war — and many doctors dismissed it as a form of post-traumatic stress disorder (PTSD) or even a psychosomatic condition.

But it was clear early on that something else was at play, says Roberta White, a neuroscientist at Boston University in Massachusetts who would eventually become scientific director of the RAC. Several early studies showed the same constellation of symptoms in veterans who had been deployed to the Gulf — particularly those exposed to chemical agents and pesticides — but not in veterans of the same era who had served elsewhere<sup>1</sup>.

Evidence emerged that exposure to organophosphate chemicals in pesticides and the nerve agent sarin, and to nerve-gas prophylactics, were the probable cause. For example, a set of genetic analyses<sup>2</sup> by epidemiologist Robert Haley of the University of Texas Southwestern in Dallas found that symptoms were more severe in veterans who had a less active version of an enzyme that breaks down organophosphates. Veterans with fatigue and pain were more likely than controls to have brain-scan signals suggestive of nerve-fibre damage in certain areas of the brain<sup>3,4</sup>. And veterans experienced cognitive and movement problems similar to those in farmers exposed to high levels of pesticides<sup>5</sup>.

But as research progressed, experts began to

suspect that US and UK government agencies were favouring a psychological explanation. This is hardly unprecedented: people with complex conditions such as chronic fatigue syndrome and the pain disorder fibromyalgia, which have some overlap in symptoms with Gulf War illness, have fought for years for acceptance by the scientific and medical community with limited success.

Veterans who felt that they had been ignored or marginalized after serving their country found allies among elected officials. In 1997, a

**“VETERANS BELIEVE THEY’RE NOT GETTING THE CARE THEY NEED. OUR JOB IS TO GET TO THE BOTTOM OF THIS.”**

congressional report<sup>6</sup> determined that the VA and Department of Defense were concentrating too much on psychological causes, and called their research programme “irreparably flawed”. Among other findings, it charged that the agencies had lost or hidden chemical-exposure data, biased research funding towards psychiatric conditions, and made research impossible by automatically diagnosing veterans with PTSD and ignoring chemical exposures.

The report prompted Congress to create the RAC to evaluate the VA’s Gulf War research programme and advise on how to improve it. Its members would be appointed by the VA but would perform their analyses independently. Binns, a former defence-department official, was appointed as its first director in 2002, accompanied by 11 scientists and veterans.

In 2008, the RAC produced a 454-page report<sup>7</sup> establishing that Gulf War illness was a distinct disorder tied to chemical exposures, with little to no role for stress and psychological factors. “I think that public opinion changed about Gulf War illness being a physical disease versus a psychiatric one” after this report, says White. “That was a big sea change for the field.”

The VA says that the report changed its thinking, too. But it continued to call the condition “chronic multisymptom illness” or “undiagnosed illness”, incensing veterans and researchers. The VA has resisted giving it an official name because it is difficult to establish diagnostic criteria for a unique syndrome. Epidemiologists have proposed several definitions, but they tend to be either too narrow to account for the diverse symptoms or so broad as to be meaningless.

Although anyone who served in the Gulf War is eligible for health care paid for by the agency, it can be difficult for veterans trying to claim

disability benefits to prove that their disability is connected to the war. Of the 54,000 claims for Gulf War-related illnesses filed as of last March, nearly 80% were denied, although more than half of those denied received compensation for other service-connected conditions.

In Britain, which sent more than 53,000 personnel to the Gulf War, the Ministry of Defence agreed in 2005 to use ‘Gulf War syndrome’ as an umbrella term “to provide an element of closure for those who have sought some acknowledgment that their ill-health is connected to their Gulf service”, says a government website. Still, advocacy groups such as the National Gulf Veterans and Families Association in Hull have found that many Gulf War veterans have difficulties claiming disability benefits.

In the United States, failing to adopt a standard definition for Gulf War illness has also complicated research. It has made it difficult to compare veterans who have the condition with those who do not, says RAC member Beatrice Golomb, a neurobiologist at the University of California, San Diego. What is more, the VA’s database defines Gulf War veterans as anyone who was deployed to the Gulf after 1990, and most in that category have not had the same chemical exposures as those in the 1990–91 conflict. That dilutes the sample, says Golomb.

Critics say that the VA has also hobbled an important research tool. Roughly every ten years, the agency conducts a survey of 30,000 veterans from the Gulf War era, asking about their health, symptoms and treatments. But the questions have changed every decade, making it hard to accurately track changes in health over time. The most recent version, sent out in 2012, included many questions about psychological stress, but not key questions that critics say are necessary to diagnose Gulf War illness. The RAC did not see the questionnaire before it went out, and when the committee pointed out the survey’s flaws, the VA responded that it would be too expensive to change it.

## INSTITUTIONAL SUPPORT

As well as doing its own research and funding other researchers, the VA has commissioned a series of reports on Gulf War veterans’ health from the US Institute of Medicine (IOM). But critics from the RAC and elsewhere have claimed that the VA stacked the IOM committees with members who favoured psychological explanations for the disorder, and that it tailored the questions that the committees were to study or the pool of studies they were to review.

For the first time in 2010, an IOM committee specifically looked for a link between Gulf War service and chronic multisymptom illness. Although the report<sup>8</sup> determined that a link exists, it said that there was not enough evidence from the human studies it had assessed to finger specific toxic exposures as a cause.

A 2014 IOM report<sup>9</sup> urged the VA ►

# A TENSE RELATIONSHIP

For more than two decades, the US Department of Veterans Affairs (VA) has been in conflict with researchers and veterans over Gulf War illness.

1990



**JANUARY 1991:** A US-led coalition bombs Iraqi chemical-weapons plants, triggering nerve-agent alarms at coalition bases to the south.

1995



**NOVEMBER 1997:** Prompted by veterans' grievances, a congressional report finds flaws in the VA's handling of Gulf War-related health issues, and calls for the formation of an independent advisory committee.

2000

**JANUARY 2002:** The Research Advisory Committee (RAC) on Gulf War Veterans' Illnesses is appointed to assess research, identify gaps and approaches, and recommend on programme needs.

2005



**NOVEMBER 2008:** The RAC releases a comprehensive 454-page report establishing the case for Gulf War illness and calling for US\$60 million in new annual funding for research.

2010

**MARCH 2013:** A VA whistle-blower alleges misconduct and cover-up of data pertaining to Gulf War-related health problems. An internal investigation finds no wrongdoing but requires publication of more data.

**JUNE 2013:** The VA announces the replacement of RAC members and revisions to its charter.

2015

► to start calling the disorder Gulf War illness. Although still hazy on the disease's origins, it recommended that the VA adopt two sets of diagnostic criteria that it could choose between, depending on its research needs. One, from the US Centers for Disease Control and Prevention, is broad; the other, developed by former RAC member Lea Steele, an epidemiologist at Baylor University in Waco, Texas, has stricter criteria and excludes people with known psychiatric disorders.

Although Binns sees the report as a great foundation for defining the disorder, some argue that the approach is a sign of equivocation. Bradley Flohr, senior adviser for compensation service at the VA, says it shows that even experts at the IOM are unable to agree.

The major limitation that the IOM has dealt with is the quality of the studies available for review, most of which are not comprehensive or have weaknesses in their methodology, says Kenneth Shine, former IOM president and head of several of its committees. He is not confident that any biomarker or discovery will make a more precise definition possible. "We have to say that the longer it goes from the deployment, the less likely it is that there will be a firm definition," he says, because the veterans are ageing and acquiring more illnesses that muddy the picture.

Kalasinsky says the agency does plan to adopt a definition for research purposes, but not necessarily for medical claims. As *Nature* went to press, the VA was still considering how to respond to the IOM's recommendations, nearly nine months after the report's release.

## ALL CHANGE

Interactions between the VA and its RAC had long been adversarial (see 'A tense relationship'). But things came to a head in 2013 when, at a congressional hearing, members of the RAC testified that they had "no confidence" in the VA's research programme. Although the VA inspector-general found no evidence of wrongdoing, an investigation by the congressional committee on veterans' affairs has backed the RAC's claims that the agency was misappropriating money for Gulf War research and stacking IOM committees in its favour.

In June that year, the VA announced that it would be replacing most of the RAC. Members are supposed to serve for 2 years, but many had served for 12, so the VA said it was simply upholding the rules. It also rewrote the RAC's charter, stripping the mandate to evaluate the effectiveness of the VA's research programme and limiting the committee to reviewing current research and providing advice.

Existing members of the RAC see the move as retaliation. They say that they welcome new expertise on the committee, but they worry that the VA will try to appoint people who push a psychosomatic explanation. E-mails obtained by *Nature* show Jesse proposing candidates for three scientist positions; two have expertise in

psychosomatic illness and stress. Binns objected vigorously, and Jesse withdrew the nominations.

The VA would not discuss the search for candidates, but Kalasinsky denies that the decision to replace members was retaliatory and says that the changes to the charter were "not as draconian" as the RAC members believe.

But things are changing at the VA, which has suffered high-profile problems in the past year. The agency was thrown into chaos after an unrelated scandal in which VA hospitals falsified records to hide how long veterans were waiting for care. VA secretary Eric Shinseki resigned in May, and many officials, including Jesse, have moved positions. As a result, goals such as adopting a case definition for Gulf War illness have been delayed, says Kalasinsky.

At the RAC's most recent meeting, in September, several of the soon-to-be-dismissed members eagerly anticipated an appearance by the new VA secretary, Robert McDonald — a visit that Shinseki had never made. When he arrived, McDonald assured researchers and veterans that the VA believed that the veterans' suffering was real.

In an interview with *Nature*, McDonald said that he was busily educating himself on the illness. "Veterans believe they're not getting the care they need," he says. "Our job is to get to the bottom of this." Although he stopped short of saying that the disorder was something distinct, he said that the IOM's publications "seem to say it is very real".

Binns and Kalasinsky take McDonald's visit as a hopeful sign for reconciliation. But both acknowledge that it will be difficult. "The RAC makes recommendations. If they expect us to implement them all, that's not being realistic," says Kalasinsky. Nor is it accurate or helpful, he says, to continue suggesting that the VA supports the idea that Gulf War illness is psychosomatic. He says he does believe that veterans sometimes hear this from VA doctors, but that can be corrected. "We simply have to do a better job getting the word out and improve on our education programmes. I think the secretary is very committed to that." ■

**Sara Reardon** writes for *Nature* from Washington DC.

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