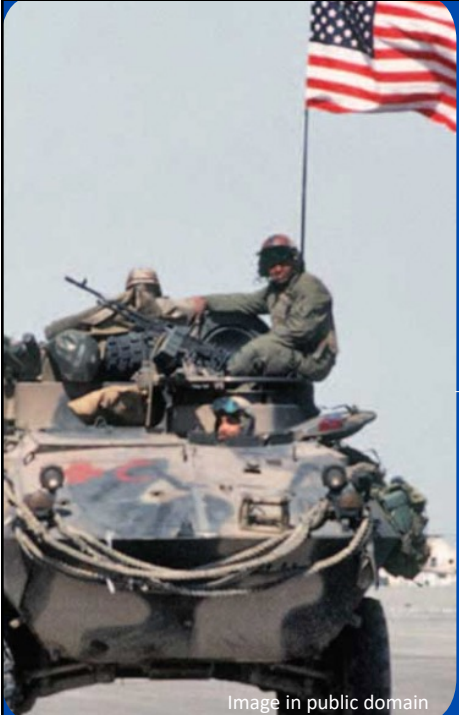




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Gulf War Illness: An Overview for Healthcare Professionals

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UC San Diego
SCHOOL OF MEDICINE

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2

Outline

- I. The First Persian Gulf War
- II. The Exposures
- III. The Symptoms
- IV. Exposures Linked to Illness
- V. Objective Markers and Mechanisms
- VI. Many Comorbidities Increased
- VII. ICD code: The Diagnosis
- VIII. Provider Attitudes Matter
- IX. In Veterans' Words
- X. Recap
- XI. Learn More (Resources)

3

The First Persian Gulf War



4

Test Your Knowledge

When were veterans of the First Persian Gulf War deployed?

- a. 1975-77
- b. 1984-86
- c. 1990-91



01

5

The First Persian Gulf War

WHAT?

- A military conflict triggered by Iraq's invasion of Kuwait in August 1990.
- In response, a US-led coalition of nations launched a large-scale military operation to force Iraqi troops out of Kuwait.

WHERE?

- Middle East- Primarily Kuwait, Iraq, Saudi Arabia, but also the entire broader Persian Gulf region

WHEN?

- Aug 1990 – Jan 1991: Operation Desert Shield
- Jan 1991 – Feb 1991: Operation Desert Storm
 - Ground war just 4 days: February 24-28, 1991; Many never saw combat
- 28 Feb 1991: Ceasefire declared; troops remained until late 1991

WHO?

- US-led coalition of over 35 countries
- ~697,000 American service members deployed to Gulf theater
 - Americans made up bulk of forces

6

Test Your Knowledge

When were veterans of the First Persian
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- a. 1975-77
- b. 1984-86
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01

7

Test Your Knowledge

When were veterans of the First Persian
Gulf War deployed?

- a. 1975-77
- b. 1984-86
- c. 1990-91



01

8



9

Test Your Knowledge

List 2-3 chemical exposures Gulf War veterans experienced

02



10

Unprecedented Exposures

Many novel, unique, or excessive exposures^{1,2}:

- Pyridostigmine bromide (PB)^{3,4}: Nerve agent protection pill
- Pesticides and Repellants^{3,5,6}: Prolonged, often excessive exposure to organophosphates, carbamates, pyrethroids, others
- Nerve gas: sarin or cyclosarin (organophosphates)^{3,7,8} (exposure occurred e.g. during demolition of munitions depot containing chemical weapons^{7,8}), limited sulfur mustard^{7,8}
- Oil fires: over 600 burning oil wells Jan-Nov 1991^{9,10}
- Depleted uranium (e.g. to harden tanks, munitions)¹¹⁻¹³
- Large number of vaccines, including uncommon vaccines: Anthrax, Botulinum toxoid^{8,9}
- Many more (e.g.): open-air burning/burn pits^{7,8,14}, solvents and fuels (e.g. jet fuel)^{7,8,15}, chemical agent resistant coating (CARC) paint⁸, fine sand/sandstorms⁸, extremes of heat and cold⁸

11

Exposure Experiences I

- “..We had a chemical alarm go off and "Holy cow" and you are like, put on your stuff and suit up and wait for the all clear. You never went to the bathroom without your mask.” –IC Lim^a
- “They had the fire trenches lit.. 10,000 meters wide or long fire trench.. of oil was lit.. the flames were burning probably 30 feet high, absolutely no wind. So, from about from the ground level to about 30 feet there were tremendous flames, and then from 30 feet to maybe 10,000 feet there was just a blanket of black smoke going straight up just like a -- just like a curtain.” –PJ Garman^b
- “..when we went through afterwards and detonated equipment that had been left and stores that had been left, there were chemical munitions there.” –PJ Garman^b
- “..oil fires that were so thick it looked like night in the middle of the day. Pyridostigmine bromide tablets we had to take every 8 hours..” –Gulf War veteran^c
- “..we demolished everything that we built, we burn it all in the pits, and I have photos of it. It was not weapons, but debris, human waste, tents, kitchen, shower tower..” –Gulf War veteran^c

Selected quotes from:

- a. Lim IC. Veterans History Project Collection, American Folklife Center, Library of Congress; oral history recording and transcript (audio). Ingrid C. Lim, AFC/2001/001/65442; collected 2008-10-04.
- b. Garman PJ. Veterans History Project Collection, American Folklife Center, Library of Congress; oral history interview (video). Patrick J. Garman, AFC/2001/001/23800; collected 2004-02-17.
- c. *Golomb Research Group survey response

12

Exposure Experiences II

- “On a nightly basis, we would spray our uniforms with pesticides.. We weren’t supposed to put them on immediately after spraying them. The sand fleas were a problem. We used to put flea collars around the legs of our cots or we would put flea powder on the floor around our cots to try to keep the sand fleas away from us while we were sleeping. We slept with nets over us to keep the flies off. The flies were ungodly.” –SSgt Ts^a
- “..we were staying near the oil wells, and your uniform would be completely covered with black, like soot all over you. Your arms were exposed, your food, everything, your water where you took showers. It was constantly dark; there was no such thing as daylight.” –Army Gulf War veteran^a
- “A thermal plume rose into the atmosphere over the largest Iraqi chemical warfare agent research, production, and storage facility at Muthanna after Coalition aircraft and missile bombardment. Seventeen metric tons of Sarin were reportedly destroyed during these attacks, which began on January 17, 1991. These thermal and visual plumes extended directly toward the areas where those same chemical warfare agents were detected and confirmed..” –Jim Tuite, 1997 Congressional Testimony^b
- “We were in a congested area with burning vehicles all around. Suddenly, the tank in front of us caught fire. The ammunition blew, but the blowout panel saved the lives of the crew. We saw DU penetrators flipping end over end over our heads. We immediately rushed to the tank to rescue the guys in it. We were breathing smoke from the burning ammo, but we had no concern about DU and took no protective measures.” –Gulf War veteran^c

Selected quotes included in the 2008 RAC-GWVI Report from:

- a. Johnson A. *Gulf War Syndrome: Legacy of a Perfect War*. Brunswick, ME: MCS Information Exchange; 2001.
- b. U.S. House Committee on Government Reform and Oversight. *Gulf War Veterans' Illnesses: VA, DOD Continue to Resist Strong Evidence Linking Toxic Causes to Chronic Health Effects (Second Report)*. Washington, D.C. Nov 7, 1997. HR 105-338.
- c. Fahey D. *Case Narrative: Depleted Uranium (DU) Exposures*. Swords to Plowshares, Inc., National Gulf War Resource Center, Inc., and Military Toxics Project, Inc.; Sep 20, 1998.

13

Exposure Experiences III

- “..we had traveled through many of the oil fires that were burning so we had that smoke that we were inhaling, right? ..Gulf War sand particulates are extremely sharp and minute. We were engulfed in numerous sandstorms where it was just a wall. And when it hit ya, you couldn’t see your hand three inches right in front of your face. We had goggles but nothing really for protection for lungs.. they think that our unit was hit with low levels of sarin gas between four and eight times.. And then the last one of the details is either trash burning, the burn pit, along with doing cleaning out the latrine stalls, using diesel and lime to ignite that burn.” –Jeremy
- “And all this time, they were giving us pills, shots, you know, because supposedly he had anthrax and all that other chemical warfare stuff.” –Joseph
- “.. all my alarms started going off.. So the M8 alarms were going off, verifying with the M256 kits. We called that in, and everybody was put in MOPP level four. MOPP level four is where you put on all your protective equipment, gas masks.. At the time, I did not know that there was an ammunitions dump nearby that was blown up and that we were directly downwind from that. So it's my firm belief that all of us that were exposed.” –”Santos”

Quotes from: HealthExperiencesUSA, multiple Gulf War veterans, *Gulf War Illness – Military Exposures*, accessed August 2025.

14

Test Your Knowledge

List 2-3 chemical exposures Gulf War veterans experienced

02



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15

Test Your Knowledge

List 2-3 chemical exposures Gulf War veterans experienced

Any combination of:

- Pyridostigmine bromide (PB)
- Pesticides: organophosphates, carbamates, pyrethroids
 - Nerve agents: sulfur mustard, sarin, cyclosarin
- Unusual Vaccines: high multiplicity, anthrax, botulinum
 - Oil fires
 - Depleted uranium
- Open-air burning/Burn Pits
- Fuels & solvents, CARC paint, sand, temperature extremes

02



16



17

Test Your Knowledge

Which of these are symptoms of Gulf War Illness?

- a. Pain
- b. Cognitive Problems
- c. Fatigue
- d. Gastrointestinal Problems

03

18

Veterans Describe Symptoms

- “..I am diagnosed with chronic fatigue (CF), Fibromyalgia, and IBS, just to name a few” – Veteran from Dallas, TX^a
- “Insomnia, chronic fatigue, skin rash, sleep apnea.” –Veteran from Duncan, OK^a
- “..my body still hurts all the time and have joint and back pain.. still living with headaches almost daily as well and skin rashes with severe psoriasis and memory loss. Believe it or not as I'm writing this I have to stop for a bit to remember names of things that I have known for years..” –Veteran from Geneva, OH^a
- “My symptoms began in the Gulf with severe abdominal cramping and severe diarrhea. I also had terrible headaches and bouts of dizziness and tingling. Once I returned to the base in Germany, the headaches persisted, and I experienced the cramps and diarrhea on a cyclic basis. I also went through periods of night sweats. And there were periods when I would sleep a lot because I was so fatigued. My joints were stiff, and my knees would swell after I ran. It was harder for me to do things without feeling short of breath. These symptoms became worse as time passed...” –SSgt BJ^b

Selected quotes from:

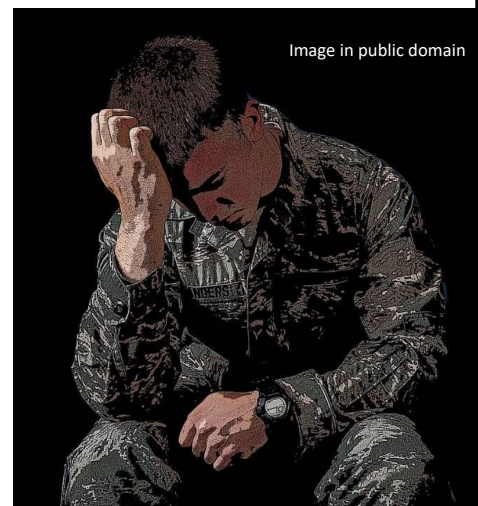
- a. Winnett DK Jr. *Statement for the Record before the U.S. House of Representatives, Committee on Veterans' Affairs, Subcommittee on Oversight and Investigations, for a hearing entitled "Persian Gulf War: An Assessment of Health Outcomes on the 25th Anniversary"*. 2016 Feb 23. Available from: <https://www.congress.gov/114/chrg/CHRG-114hrg99606/CHRG-114hrg99606.pdf>
- b. Johnson A. *Gulf War Syndrome: Legacy of a Perfect War*. Brunswick, ME: MCS Information Exchange; 2001. (Included in the 2008 RAC-GWVI Report.)

19

About **25-35%** of those deployed became ill, attributable to deployment^{16*}
Most have remained ill, even decades later^{17,18}

Gulf War Illness (GWI)

- Chronic
- Multi-symptom
- Chemical-induced
 - PB
 - Pesticides
 - Nerve agents
 - Other exposures



*i.e.: the fraction that are ill, over and beyond the percent of non-deployed veterans meeting similar criteria.

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Gulf War Illness Symptom Domains

“Kansas criteria” are specific for GWI

01. Fatigue/Sleep	04. Gastrointestinal
02. Neurological Includes Cognitive and Mood	05. Respiratory
03. Pain	06. Skin

Citation #19: Steele L. Prevalence and patterns of Gulf War illness in Kansas veterans: Association of symptoms with characteristics of person, place, and time of military service. Am. J. Epidemiol. 2000;152:992–1002. doi: 10.1093/aje/152.10.992.

21

Fatigue/Sleep Domain

- Fatigue
- Problems falling or staying asleep
- Not feeling rested after you sleep
- Feeling unwell after physical exercise or exertion

Neurological/Cognitive/Mood Domain

- Headaches
- Feeling dizzy, lightheaded, or faint
- Eyes very sensitive to light
- Blurred or double vision
- Numbness or tingling in your extremities
- Tremors or shaking
- Low tolerance for heat or cold
- Night sweats
- Having physical or mental symptoms after breathing in certain smells or chemicals
- Difficulty concentrating
- Difficulty remembering recent information
- Trouble finding words when speaking
- Feeling down or depressed
- Feeling irritable or having angry outbursts

Gulf War Symptoms¹⁹

Pain Domain

- Pain in your joints
- Pain in your muscles
- Body pain, where you hurt all over

Gastrointestinal Domain

- Diarrhea
- Nausea or upset stomach
- Abdominal pain or cramping

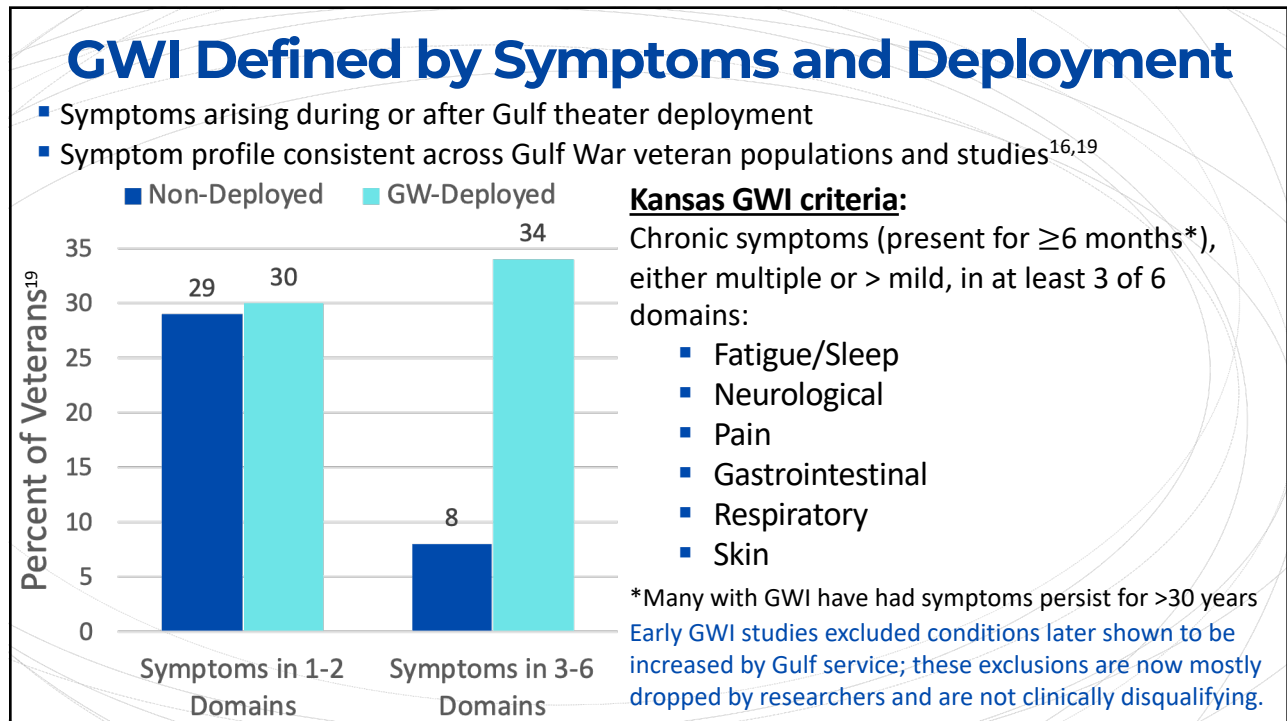
Respiratory Domain

- Difficulty breathing or catching your breath
- Frequent coughing when you don't have a cold
- Wheezing in your chest

Skin Domain

- Skin rashes
- Other skin problems

22



23

Test Your Knowledge

Which of these are symptoms of Gulf War Illness?

a. Pain

b. Cognitive Problems

c. Fatigue

d. Gastrointestinal Problems

03

24

Test Your Knowledge

Which of these are symptoms of Gulf War Illness?

- a. Pain
- b. Cognitive Problems
- c. Fatigue
- d. Gastrointestinal Problems

03 AND MANY MORE



25



26

Test Your Knowledge

Which (2) of the following factors are currently show strong evidence tying them to GWI?

- a. Brucellosis
- b. Pyridostigmine bromide (PB)
- c. Uranium
- d. Pesticides

04



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Example Evidence of Exposure Links to GWI

Exposure*	OR for GWI (95% C.I.)†
PB Pills	2.6 (2.2-3.1)
Chemical or nerve agent attack	2.6 (1.9-3.5)
NBC suits (proxy for PB, sarin, heat)	2.7 (2.3-3.3)
Pesticide (personal pesticides)	2.2 (1.9-2.6)
Hear chemical alarms (possible proxy for nerve agent exposure)	2.2 (1.9-2.6)

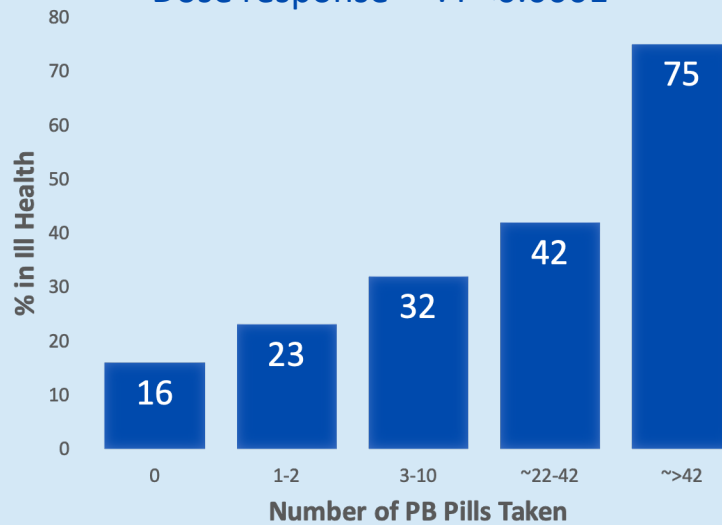
*Table from PNAS paper exploring evidence of exposures linked strongly to illness from many studies³.

†For those with these exposures relative to unexposed.

28

PB Pills Show a Dose Relation to GWI

Pyridostigmine bromide (PB) nerve agent protection pill
Dose response^{3,20}: $P < 0.0001$



29

Test Your Knowledge

Which (2) of the following factors are currently show strong evidence tying them to GWI?

- a. Brucellosis
- b. Pyridostigmine bromide (PB)
- c. Uranium
- d. Pesticides

04



30

Test Your Knowledge

Which (2) of the following factors are currently show strong evidence tying them to GWI?

- a. Brucellosis
- b. Pyridostigmine bromide (PB)
- c. Uranium
- d. Pesticides

04



31

V

Objective
Markers and
Mechanisms



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GWl: Many Objective Markers are Altered

- ↓ Mitochondrial function/bioenergetics²¹⁻²⁴ (also GWI animal models)^{25,26}
- Δ Lipidomics, lipid products²⁷⁻²⁹ (also GWI animal models)³⁰⁻³²
- ↑ Inflammation (mild), coagulation³³⁻³⁵
- ↑ Neuroinflammation³⁶ (also GWI animal models)^{37,38}
- ↑ Autoantibodies³⁹
- ↑ Autonomic dysfunction⁴⁰⁻⁴²
- Δ Hormones⁴³⁻⁴⁶
- ↓ Natural killer cells (number, activity)^{39,47,48}
- ↓ Brain gray matter/volume; white matter changes⁴⁹⁻⁵¹

33

PON1 Gene-Environment Interactions

- A variant at position 192 on the PON1 detoxifying enzyme relates to PON1's effectiveness at detoxifying different chemicals, including organophosphates (OPs), such as nerve agents and pesticides
 - The R variant at 192 is worse at detoxifying sarin than the Q variant
 - The Q variant at 192 is worse at detoxifying some pesticides than the R variant
- Those with less effective sarin detox (R at 192) had more GWI, in those exposed to sarin^{*52,53}
- Those with less effective pesticide detox (Q at 192) had more GWI, in those exposed to some pesticides⁵³

*By proxy of hearing chemical alarms

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PB Gene-Environment Interactions

- Butyrylcholinesterase (BChE) enzyme: binds and detoxifies pyridostigmine bromide (PB)
- Among Gulf War veterans with usual BChE genotypes: PB exposure → ~3× higher prevalence of GWI⁵⁴
- Among GW veterans with low activity BChE genotypes: PB exposure → 40× higher prevalence of GWI⁵⁴
- Adverse BChE genotype ≠ illness: in the absence of PB use, BChE genotype was not associated with GWI⁵⁴
- Findings support causal role of PB

35

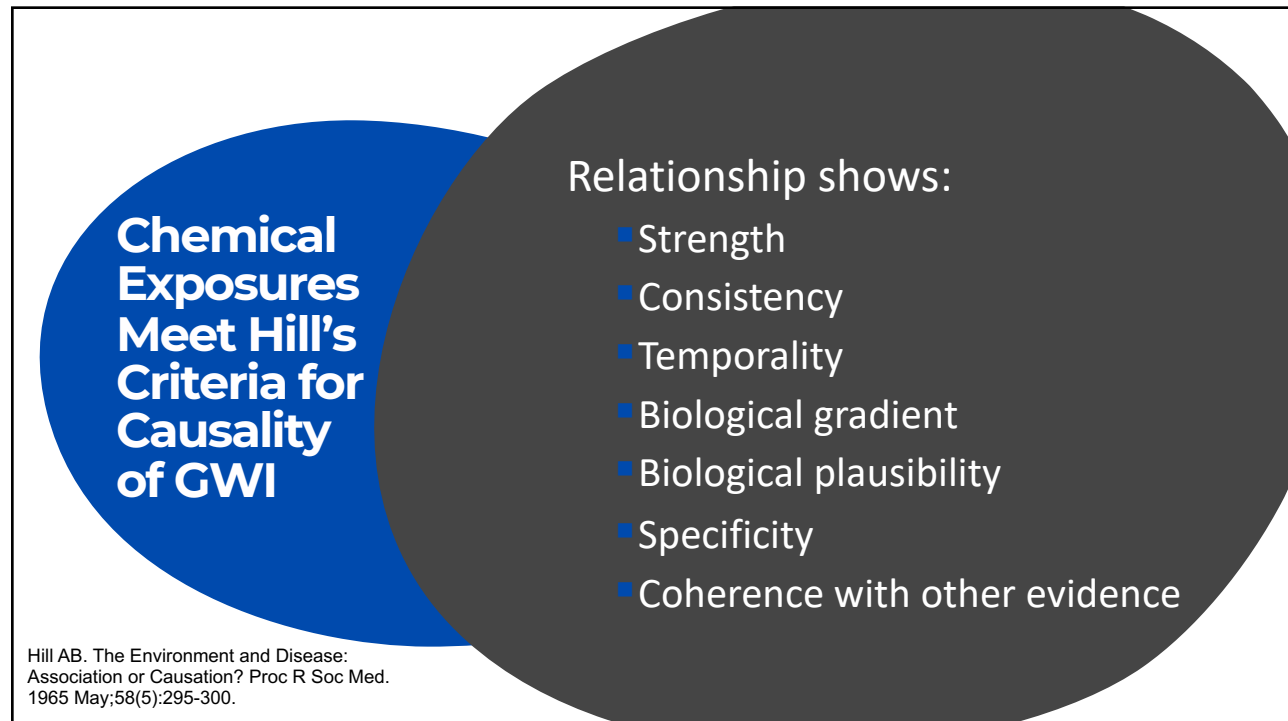
Possible Mechanism: Mitochondrial Impairment²⁴

Factors	In Gulf War Illness [^]	In Mitochondrial Impairment
Exposures (e.g.):		
Carbamates (including PB)	✓	✓ ^{55,56}
Organophosphates	✓	✓ ⁵⁶⁻⁶⁰
Pyrethroids	✓	✓ ⁵⁸
Symptoms (e.g.):		
Multiple, vary person to person	✓	✓ ⁶¹⁻⁶³
Brain, fatigue, muscle (organs with high energy demand)	✓	✓ ^{64,65}
Variable latency to onset	✓	✓ ^{66,67}
Comorbidities (e.g.):		
Sleep apnea	✓	✓ ⁶⁸
Hypertension	✓	✓ ⁶⁹
Cardiovascular disease	✓	✓ ⁷⁰
Treatment (early data): cell energy and antioxidant support yields benefit	✓	✓ ^{71,72}

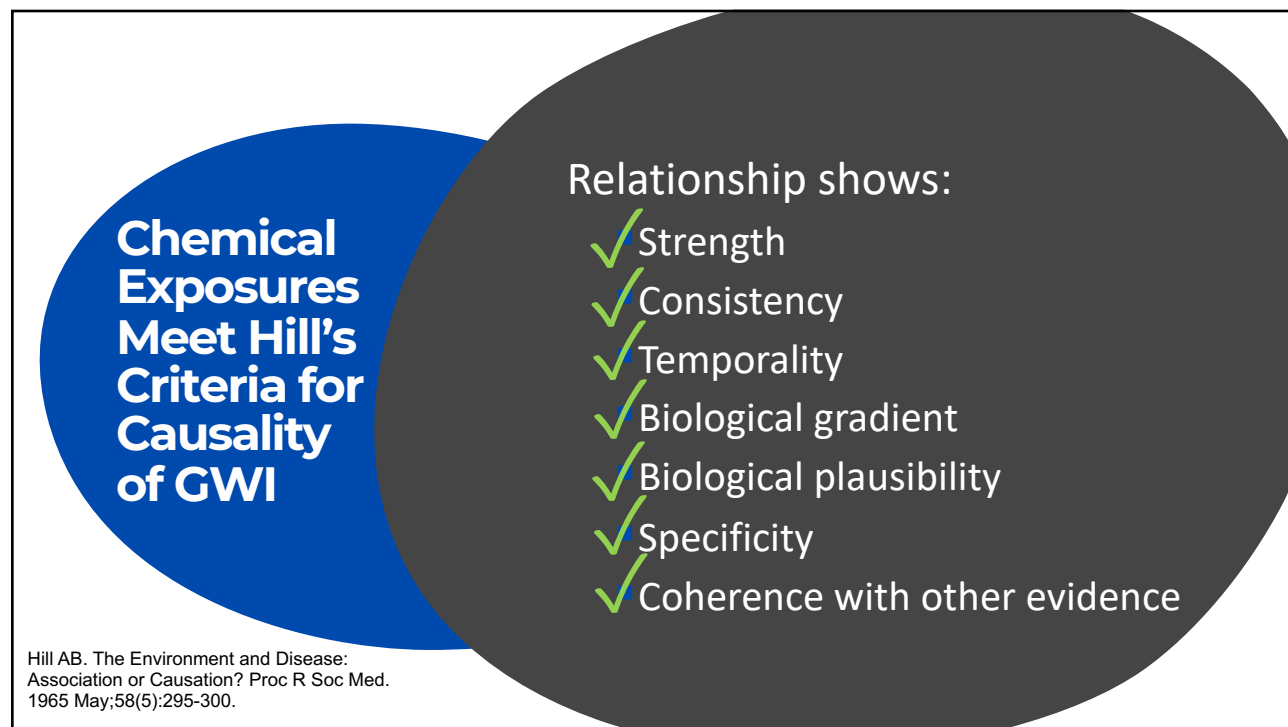
*Additionally: Severity of GWI is tied to severity of mitochondrial impairment, not true (e.g.) for inflammation²⁴

[^]Gulf War Illness-specific citations in previous slides

36



37



38

VI

Many Comorbidities Increased



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39

Examples of Elevated Comorbidities (among many)

CFS = chronic fatigue syndrome;
IBS = irritable bowel syndrome;
MCS = multiple chemical sensitivity;
ALS = amyotrophic lateral sclerosis;
GERD = gastroesophageal reflux disease

“Overlap conditions”: CFS⁷³⁻⁷⁸,
fibromyalgia^{77,79,80}, IBS^{74,80}, MCS^{73,74,76,78,81,82}

ALS (early post-deployment years only)⁸³⁻⁸⁵

Hypertension^{73-75,86-88}

Heart disease^{87,89,90}

GERD^{91,92}

Sleep apnea^{76,93}

Small fiber peripheral neuropathy⁹⁴

40

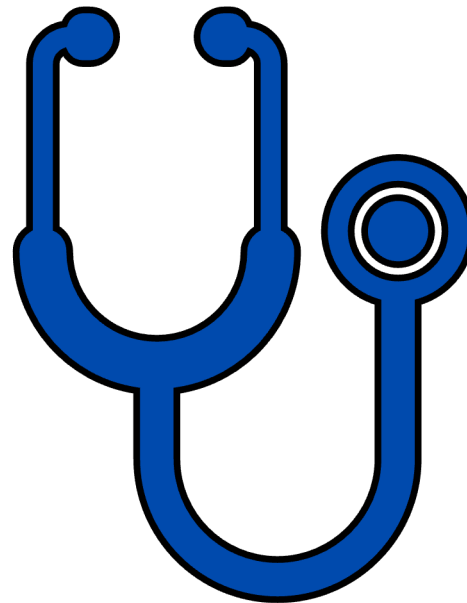
Sleep Apnea

- A vicious cycle: Sleep apnea is prevalent among those with mitochondrial diseases⁷¹, and intermittent hypoxia, in turn, causes mitochondrial damage and oxidative stress⁶⁸
- Veterans with GWI have more frequent Sleep Disordered Breathing than control veterans($p<0.0001$)⁹³
- Sleep apnea magnifies GWI symptoms due to its impact on cell energy
- SDB treatment with CPAP lessens GWI symptoms like pain, fatigue, cognitive dysfunction, and more, supporting its contributory role⁷⁶

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VII

**ICD-10-CM
Code: The
Diagnosis**



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Test Your Knowledge

We have discussed causes & symptoms; list
2-3 considerations for diagnosis?



05

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Test Your Knowledge

Which (1) of these patients meets Gulf War Illness
diagnostic (Kansas) criteria?

- a. 42-year-old veteran presenting with muscle pain, irritability, and emphysema who developed symptoms in the years after deploying to Iraq in 2003
- b. 53-year-old veteran, who served in Kuwait in 1990, presenting with diarrhea, dry skin, nausea, headaches, mild confusion, and fatigue who reports that he has suffered from headaches since childhood, but did not notice other symptoms until he started chemotherapy for small cell lung cancer
- c. 62-year-old veteran presenting with diarrhea, hypertension, muscle pain, severe fatigue, and recurrent unexplained rashes, symptoms emerging gradually starting around 6 months after he returned from June 1991 service in Iraq
- d. 75-year-old veteran, who served in Saudi Arabia during Operation Desert Shield, presenting with muscle pain and joint pain that have been increasing in the last five years, but are well-controlled with occasional acetaminophen use, on review of symptoms, there are no other persistent complaints

06



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Diagnosing Gulf War Illness

“Kansas criteria”

- Deployment to the Gulf War theatre of operations 01 Aug 1990 - 31 Jul 1991
- Chronic Symptoms (≥ 6 months), with either multiple symptoms per domain or ≥ 1 symptom considered moderate or severe in ≥ 3 of 6 domains:
 - Neurological, Fatigue/Sleep, Respiratory, Pain, GI, Skin
- Symptom onset during or after Gulf deployment
- Symptoms present over the previous 6 months
- In research, we exclude some veterans with conditions that those with GWI are at increased risk for, but these should not be clinically disqualifying
 - Consider timing of symptoms, deployment, and other conditions

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ICD-10-CM Codes:

T75.830 = Gulf War Illness

**Z77.31 = Contact with and
[suspected] exposure to
Gulf War theater**

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Why is an ICD-10-CM code important? In their words...

"The single most important thing for me about this new code is validation of an illness that has impacted me for 34 years." –Ronald E. Brown, Gulf War Veteran, Toxic Wounds Consultant for Vietnam Veterans of America

"With use of this diagnostic code over time, there is real potential for better monitoring continued health problems, tracking treatments tried successfully and not, and identifying co-occurring conditions potentially related to Gulf War Illness. All that will help our veterans suffering from this debilitating and currently incurable disease." –Anthony Hardie, National Chair & Director, Veterans for Common Sense

"It is my sincere hope that with the creation of ICD-10 codes for Gulf War Illness, I will be able to spend more of my time and energy focused on doing what I need to improve my symptoms, and less time educating and advocating for my care.. The creation of these codes will help people within the VA better understand us and our illness. This better understanding will relieve veterans who suffer from Gulf War Illness of some of the burden of having to constantly re-explain ourselves and the medical background of our illness.. I look forward to the improved care and collaboration that the creation of these codes promises for me and veterans like me." –Veteran Jason Carrick

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Supportive Care

- Test and Treat Sleep Apnea!
- "Clean" nutrient-dense low processed food diet⁹⁵
- Avoid additional chemicals to which many veterans are intolerant⁹⁶
 - Such diets are beneficial across many populations⁹⁷
- Exercise: "Start low, go slow"
 - Many veterans experience post-exertion fatigue, severe pain, cognitive, and/or muscle problems⁴²
- Rethink Pharmacological Approaches
 - "Avoiding certain drugs is often more beneficial than application of established, apparently indicated drugs"⁹⁸ in patients with mitochondrial problems, since many drugs compound mitochondrial impairment
- Keep your eyes open for new studies; many small studies show apparent benefit.
 - Monitor clinicaltrials.gov/search?cond=Gulf%20War%20Illness

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Test Your Knowledge

We have discussed causes & symptoms; list
2-3 considerations for diagnosis?



05



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49

Test Your Knowledge

We have discussed causes & symptoms; list
2-3 considerations for diagnosis?

Any combination of:

- Deployment to Gulf region 1990-91
- Gulf exposures, if known by veteran
 - Symptoms: Kansas criteria
- Health problems prior to Gulf deployment
- Timing of symptom onset relative to deployment and other candidate causes
- High risk of comorbidities

05



50

Test Your Knowledge

Which (1) of these patients meets Gulf War Illness diagnostic (Kansas) criteria?

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06



51

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06



52

VIII

Provider Attitudes Matter

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"I think because of the early beginnings of skepticism, an awful lot of VA providers still don't believe it or don't have the education to know that it's real or even know what it is." -Pharmacologist⁹⁹

Provider Understanding of GWI

- Providers lack guidance for addressing GWI, and many lack knowledge and even awareness of GWI^{99,100}.
- Beliefs among clinicians about GWI etiology and treatment are variable, contributing to multiple referrals for veterans⁹⁹.
 - Some providers do not think GWI exists
 - Some do not believe GWI symptoms are related to deployment
- Veterans feel, and are sometimes directly told, that providers distrust and disbelieve them about their symptoms and the connection between Gulf War exposures and symptoms^{100,101}.
- Veterans go on to do their own research and seek care elsewhere, feeling betrayed¹⁰¹.

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In BEST encounters, veterans:

- Feel honored and validated
- Perceive providers as empathetic
- Think providers are knowledgeable
- See providers as trying to help

In WORST encounters, providers:

- Don't believe veterans
- Suggest veterans are malingering
- Suggest symptoms are in their head
- Suggest symptoms are due to stress or age (even when veterans were in their 20s)

Veteran Survey: Best and Worst Healthcare Visits

Berg B, Golomb B. Adverse provider attitudes compromise healthcare for veterans with Gulf War illness. Partnerships for Veteran and Military Health Conference 2025; Aurora, CO: September 3-5.

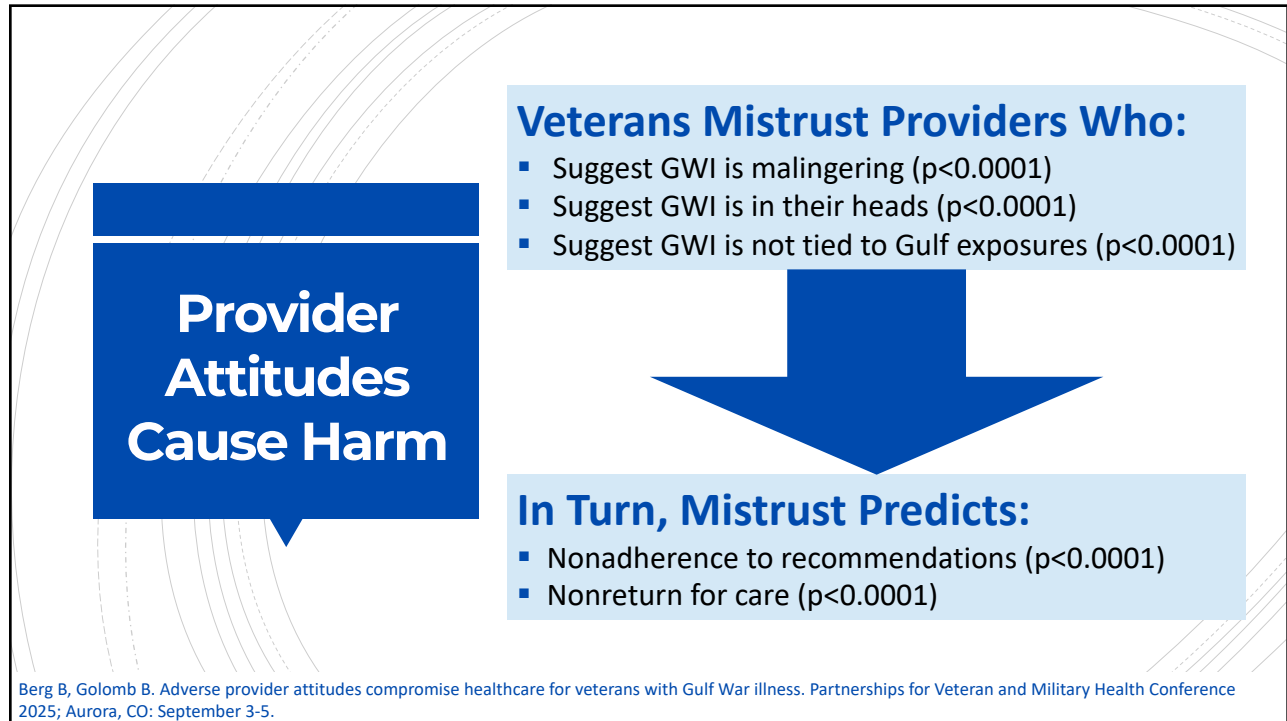
55

Quotes from Veterans on Provider Attitudes

- “The provider is unaware and/or in denial of GWI, they don't seem to care and comes up with accusations that this is just made up in my head...”
- “He wanted me to fit into a box he recognized, and when I didn't, he referred me to a bunch of experts, and when their tests all showed up negative, he took to constantly asking me if I was depressed and told me to exercise more”
- “I did not feel like I was heard. The provider had made up their minds about my symptoms and the diagnosis before they ran any tests or asked me any questions. They did not believe the possibility that my symptoms were from exposures overseas.”
- “The worse was my current VA doctor who is new. I was scheduled for labs before our appt., so I wrote her a letter to explain that I am a Desert Storm vet and that I suffer from Desert Storm syndrome and that my ANA and RNP are normally elevated... When I arrived, she came in the room, rolled her eyes and said I read your letter and I never heard of Desert Storm syndrome. The appt. went downhill from there...”
- “It was very, very hard after what I've been through in the military, how doctors looked at me, ‘Is this malingering?’ Some of my greatest emotional wounds are from that.”

Berg B, Golomb B. Adverse provider attitudes compromise healthcare for veterans with Gulf War illness. Partnerships for Veteran and Military Health Conference 2025; Aurora, CO: September 3-5.

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Veteran Quotes: Disbelief Builds Distrust

- “When I originally went for the Gulf War Registry exam the Dr. dismissed all my concerns &, although not said out loud, he intimidated.. that I was just a hysterical female & everything was just in my head.”
- “..Did not want to hear about the Persian Gulf. Actually put a comment in my VA record ‘Patient trying to pin condition on the Desert Storm’ [After this dermatologist’s proposed treatments all failed.] ‘I told him of the [CoQ10] study my wife found & how it was helping, he looked at me & basically escorted me out the door. I have not been back to the VA Dermatologist since”
- “During a visit with the VA Dr. they had no time no compassion & put no credence on the fact my symptoms could be related to my time in the gulf. I had no faith in them as they completely discounted my gulf service”

Berg B, Golomb B. Adverse provider attitudes compromise healthcare for veterans with Gulf War illness. Partnerships for Veteran and Military Health Conference 2025; Aurora, CO: September 3-5.

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You Can Make a Difference!

Honor and respect your veterans. They served their country, and their Gulf War Illness is a legacy of their noble service.

Believe your veterans' symptoms and their suffering and validate their experience with empathy.

Acknowledge the tie between GWI and Gulf deployment exposures.

Become educated about GWI. (This CME is a great start!)

Be a partner in your veteran patients' search for solutions. Try multiple approaches and listen to their input.

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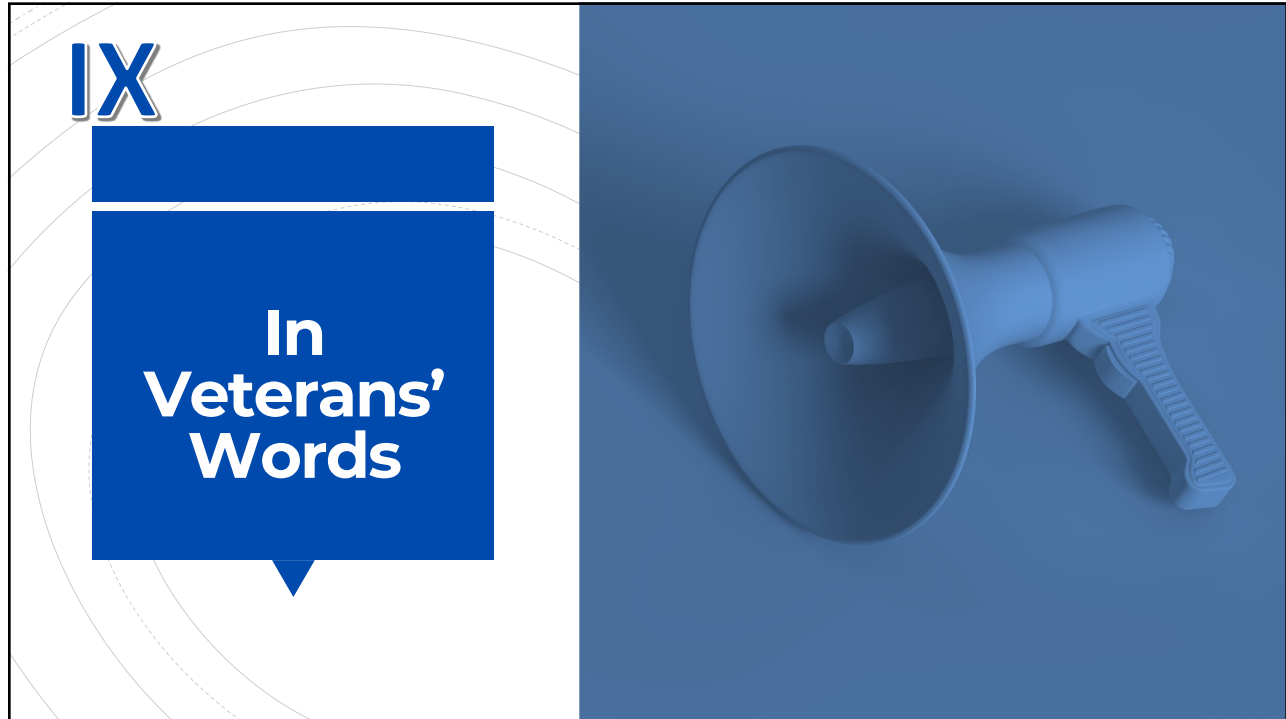
Veteran Quotes: Good Providers

"I have restored part of my soul."

- "I would pass out brochures for [the provider] in the rain, sleet, and snow."
- "I follow [the provider's] advice, every time he gives it."
- [About a treatment] "True game changer in my life."

Berg B, Golomb B. Adverse provider attitudes compromise healthcare for veterans with Gulf War illness. Partnerships for Veteran and Military Health Conference 2025; Aurora, CO: September 3-5.

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All In Your Head

Mercifully delivered, away from death we rode,
 Traveling down highways paved with gold,
 Arms stretched skyward in victory,
 None could ever have imagined what lay in store,
 Soon our health would be gone forevermore,
 Our vision back then was crystal clear,
 yet we were too blind to see,
 Young & naive, bold & cool,
 that magical day - the day the world we ruled,
 Coming home to crowds & cheers & ice cold beers,
 Nothing could stop us, there was nothing we feared,
 Humbly taking it all in stride,
 for a time it seemed, what a rush, what a ride,
 Then suddenly things began to fall apart,
 the symptoms began, but that was only the start,
 Why? was the question, What is it? we asked,
 What is wrong with our bodies, failing so fast?,
 The answer is simple, our government said,
 There is no Gulf War Illness,
 It's all in your head.

-Captain David K. Winnett Jr.

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In Their Own Words..

"Pain all over the place. I've been tested, poked, and probed, and diagnosed with post-traumatic stress disorder, which I don't buy. And [they] told me there has been no real connection between the individuals [exposures], like Pyridostigmine and gulf war, or anthrax vaccine and the gulf war, or this and the gulf war."

"In general worst experiences deal with medical physicians not looking for causation to any conditions complained about; fatigue, muscle aches, lack of sleep, GI. Any complaints regarding these conditions have/had no follow through to discover root causation leading to treatment."

"I have been shot at age 13, Had a Motorcycle wreck, and had broken bones. None of these have caused the levels of pain I feel now every day. The above listed injuries were severe but I healed from them. I don't feel there is a healing for GWI."

"I felt [they] were abandoning the very principle of leave no soldier behind. My rank and career were taken away. My life as I knew it had ended and I was ashamed of who I was and I no longer felt worthy of wearing the uniform, being a person."

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Recap

- Gulf War typified by heavy exposures: PB, pesticides, sarin, and more
- ~1/3 became ill as a result
- Chemicals relate causally to illness
- GWI is defined by symptoms (and deployment)
 - GI, Skin, Pain, Respiratory, Sleep, Neurological
- Many objective markers are altered
- Many comorbidities are increased
- An ICD-10-CM code released 01 October 2025
- Provider attitudes impact outcomes

Image in public domain

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Thank You
For tuning in

Get in touch:

_____→

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Learn More

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Helpful Links For Providers

- Kansas Diagnostic Criteria
 - [\(Link forthcoming\)](#)
- Gulf War Illness Info Sheet
 - [\(Link forthcoming\)](#)
- Gulf War Illness Research Program Report (2020)
 - https://cdmrp.health.mil/gwirp/pdfs/GWIRP_Landscape_2020.pdf
- War Related Illness and Injury Study Center (WRIISC):
 - Has information about exposure-informed care with resources for providers and veterans, screening information, and education materials: <https://www.warrelatedillness.va.gov/WARRELATEDILLNESS/EIC/Veterans.asp>
 - VA Providers can refer complex cases of GWI and other service-related conditions to WRIISC for evaluation: <https://www.warrelatedillness.va.gov/WARRELATEDILLNESS/clinical/va-referrals.asp>

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Veteran-Centered Groups and Resources

- Veterans for Common Sense: Offers information, education, and advocacy
 - <https://veteransforcommonsense.org>
- Wounded Warrior Project: Veterans organization involved in information, service, advocacy, and support programs
 - www.woundedwarriorproject.org
- VA Adaptive Sports and Arts: Offers health and healing through sport, art, and therapy
 - <https://department.va.gov/veteran-sports/>
- Boulder Crest Foundation: Holistic healing and posttraumatic growth for veterans, including family programs
 - www.bouldercrest.org
- Outward Bound for Veterans: Adventure-based healing experiences using teamwork in nature
 - www.outwardbound.org/veterans

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