THE WILDERNESS IS TRYING TO KILL US

[UNFORTUNATE] WAYS TO DIE

THE WILDERNESS IS TRYING TO KILL US

[UNFORTUNATE] WAYS TO DIE

1. We’re all lucky to be alive. I’M lucky to be alive.
2. Our patients aren’t dumb, no “victim-blaming”… but taking care of these patients is difficult.

EVERYTHING OUTSIDE CLINIC IS WILDERNESS
&
WILDERNESS IS TRYING TO KILL US

Travis Clark, DO

Disclosures:

- No financial conflicts interests

- AI assisted in the creation of this presentation

Travis Clark, DO

NICE TO MEET YOU!


NAVY


700
HSM-77
NAVY
712
NAVY


713


43
NAVY
RESCUESWIMMERSHOP.COM

MEDICAL STUDENT / SEA TURTLE RESCUER

“THANK GOODNESS, WE HAVE A DOCTOR!”

“THANK GOODNESS, WE HAVE A DOCTOR!”

- “Is there a doctor in the house?”
- “Is there a medical provider onboard?”
- “You’re a doctor, right? Do something!”

IS THERE A NAME FOR THIS PHENOMENON?

IS THERE A NAME FOR THIS PHENOMENON?

“WILDERNESS MEDICINE”

“Wilderness Medicine is medical care delivered amidst geographic challenges and/or limited resources.”

– Wilderness Medical Society

"Wilderness Medicine is medical care delivered amidst geographic challenges and/or limited resources."

– Wilderness Medical Society

EVERYTHING OUTSIDE CLINIC IS WILDERNESS

EVERYTHING OUTSIDE CLINIC IS WILDERNESS

OPTION 1: AVOID WILDERNESS

- Never leave the clinic
- Limit outdoors activities
- Never tell anyone you're a doctor

OPTION 2: DO SOME WILDERNESS MEDICAL TRAINING

NAVY GRADUATE MEDICAL EDUCATION

- Intern year of Emergency Medicine residency
- Tactical Combat Casualty Care (TCCC)
- Advanced Trauma Life Support (ATLS)
- Military Tropical Medicine Course, Ghana
- Navy SEALS BUDs, Hell Week, medical support
- Next step? Residency, Marines, ship, SEALS, or flight surgery

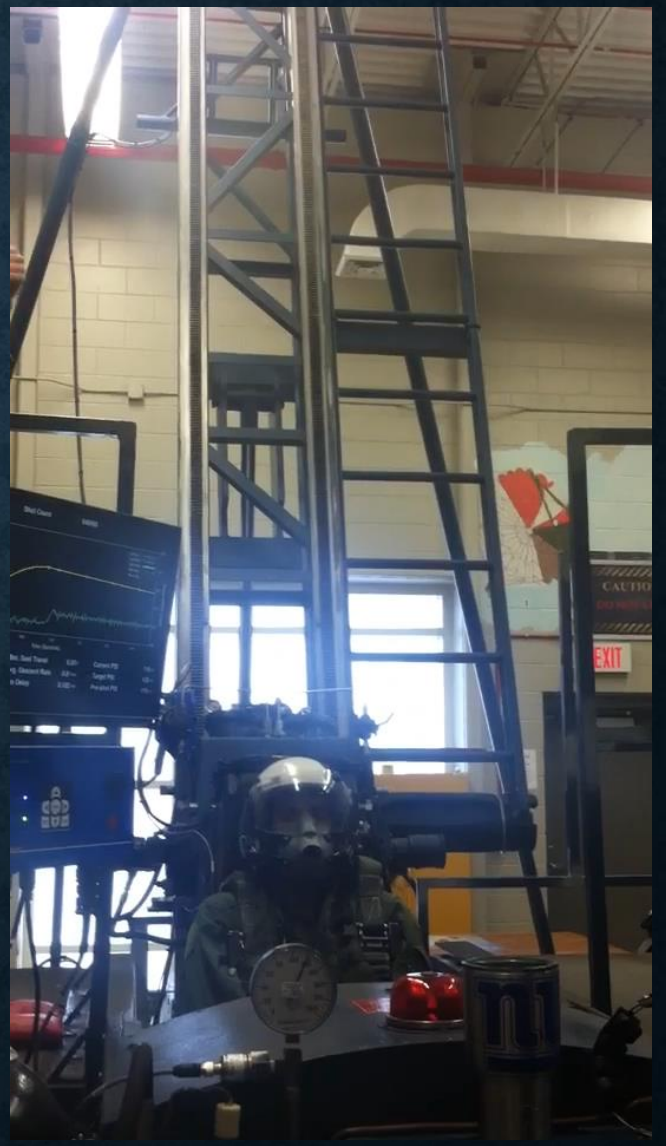
NAVY FLIGHT SURGERY

- “Coolest job in the Navy”
- Learn to fly both fixed wing and rotary aircraft. Everything the Navy flies, flight surgeons are qualified to sit at the controls.
- Expected to maintain flight status throughout.
- Why??

NAVY FLIGHT SCHOOL

Aviation Pre-Flight Indoctrination (API)

- **6-Week Course**
- Aerodynamics
- Aviation Weather
- Engines
- Navigation
- Flight Rules and Regulation
- Aviation Physiology
- Land Survival
- Water Survival
- Physical Fitness



HELO DUNKER

NAVY FLIGHT SURGEON

US Navy destroyer loses helicopter in mid-flight crash

By Zachary Cohen, CNN
Updated 11:31 PM EDT, Thu April 27, 2017

U.S. Navy/Spc. 2nd Class John Philip Wagner

STORY HIGHLIGHTS

A medical team reported no apparent injuries

The incident occurred during "routine flight operations"

Washington (CNN) — A US destroyer rescued two pilots and a crewman Wednesday after their Navy helicopter crashed in the waters near Guam, according to the service.

A medical team aboard the USS Dewey examined the helicopter crew and reported no apparent injuries.

The incident occurred as the MH-60R Sea Hawk was performing “routine flight

“DOES ANYONE HERE HAVE ANY MEDICAL TRAINING?”

What we think wilderness medicine providers look like

“DOES ANYONE HERE HAVE ANY MEDICAL TRAINING?”

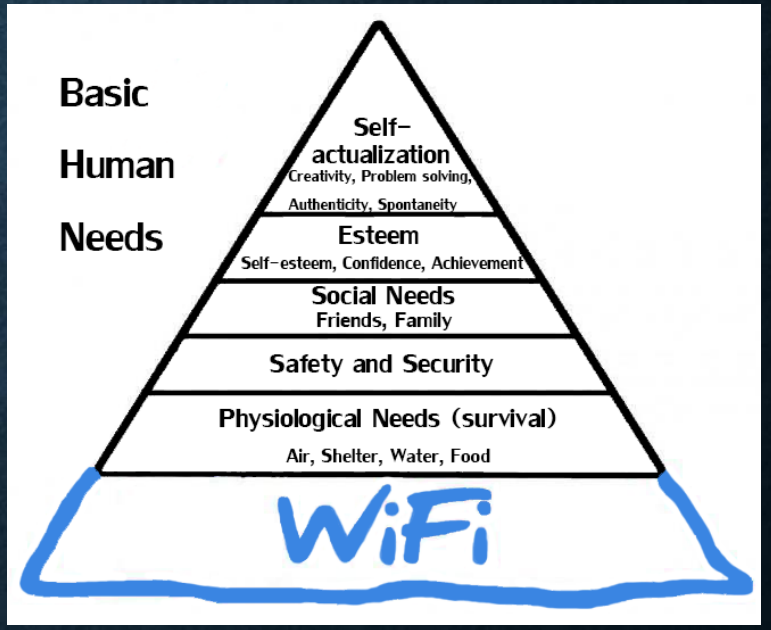
What we think wilderness medicine providers look like

What wilderness medicine providers actually look like

EVERYTHING OUTSIDE CLINIC IS WILDERNESS

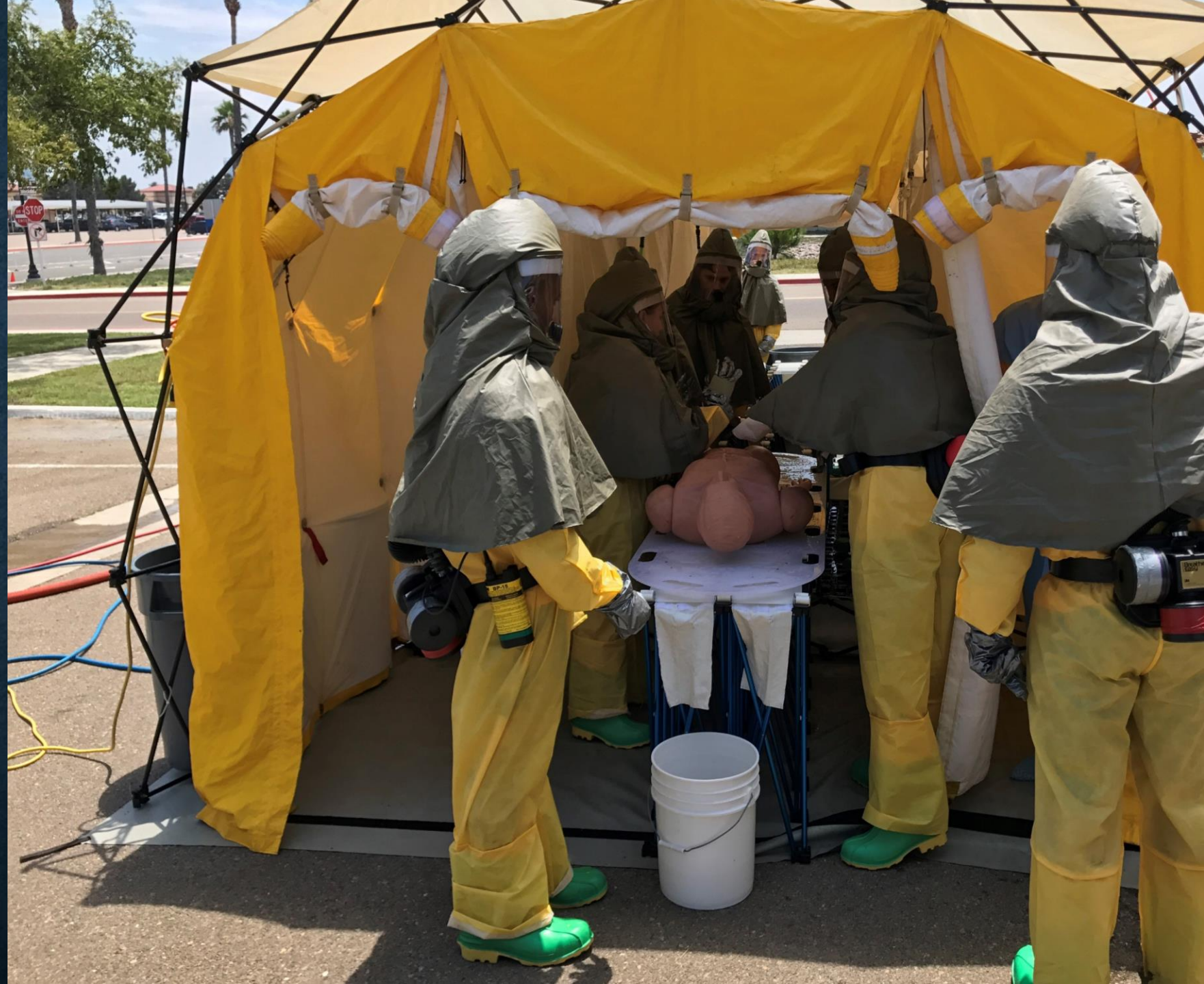
Other common limited resource environments?

- Limited medical equipment
- No specialists for consult
- Limited imaging
- Limited labs
- No internet (no uptodate.com)



MEDICAL CARE DURING NATURAL DISASTERS

(LIMITED RESOURCE ENVIRONMENT)



PANDEMIC MEDICINE

(LIMITED RESOURCE ENVIRONMENT)

MOUNTAIN MEDICINE

(LIMITED RESOURCE ENVIRONMENT)

EVERYTHING OUTSIDE CLINIC IS WILDERNESS

Limited resources examples:

- Happening upon a car accident during commute
- Family/Friends: medical questions over the phone or at a party
- Church speaker losing consciousness at the pulpit
- Sea turtle rescue on a beach in South Carolina

EVERYTHING OUTSIDE CLINIC IS WILDERNESS

YOU ARE ALL WILDERNESS MEDICINE PROVIDERS, CONGRATS!

EVERYTHING OUTSIDE CLINIC IS WILDERNESS

HOW MUCH USE ARE WE?

- Understanding the human body (vs nonmedical) people
- Critical Thinking Skills
- “How Doctors Think” is advantage
- Sick versus not sick
- Better than nothing

EVERYTHING OUTSIDE CLINIC IS WILDERNESS

GOOD SAMARITAN

But a Samaritan, as he traveled, came where the man was; and when he saw him, he took pity on him. He went to him and bandaged his wounds, pouring on oil and wine. Then he put the man on his own donkey, brought him to an inn and took care of him.

Luke 10:33-34

Everything outside clinic is wilderness medicine.

- The Bible (probably)

EVERYTHING OUTSIDE CLINIC IS WILDERNESS

WILDERNESS IS TRYING TO KILL US

(AND OUR PATIENTS)

AUGUST 2017

SNAKEBITE

GUNSHOT WOUND

TRAUMATIC AMPUTATION

Patients don’t know wilderness medicine, but they should

EVERYONE should know wilderness medicine

Wilderness Medicine = EDUCATION

COMMON WILDERNESS MEDICINE MYTHS

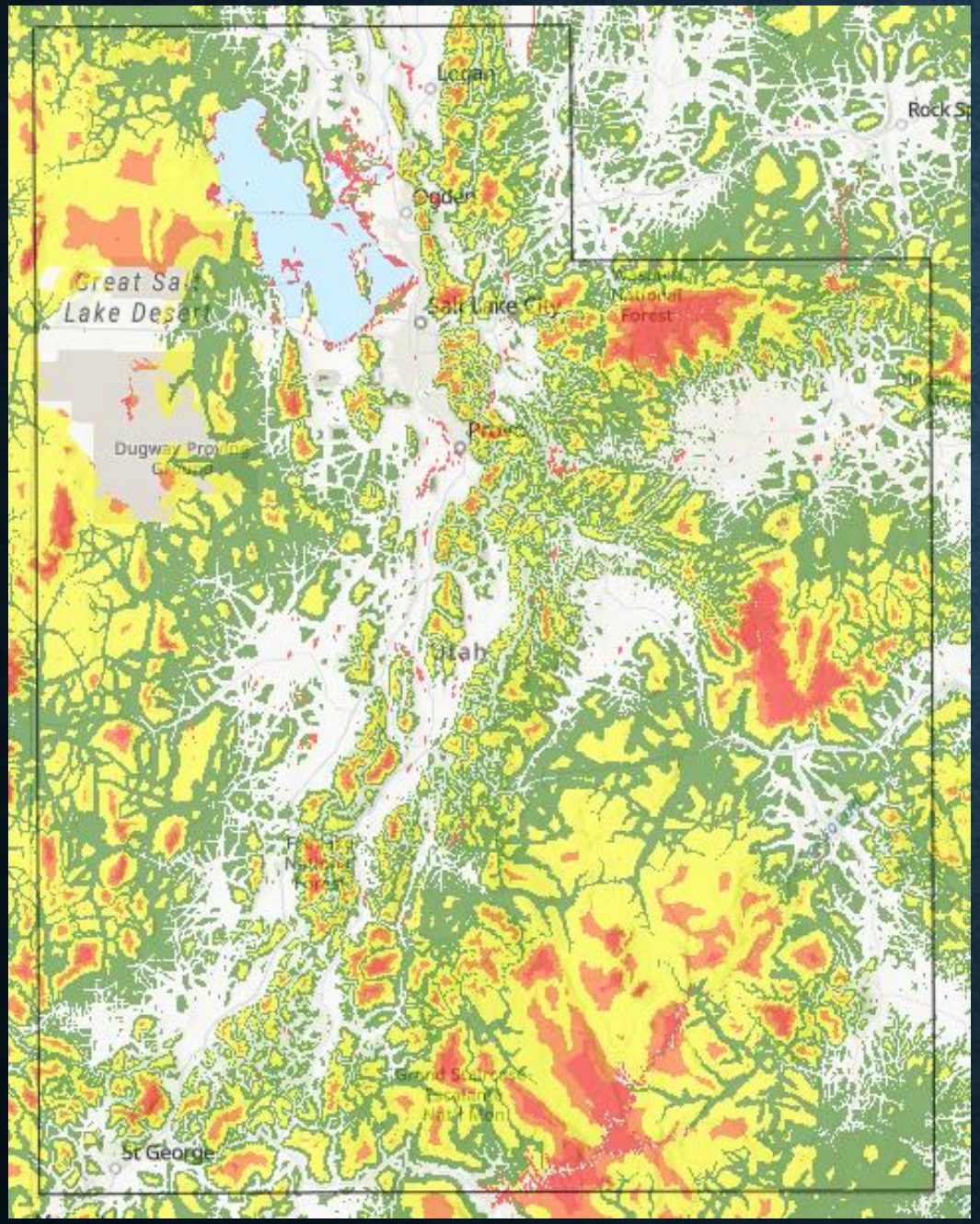
- Snake bites
- Tourniquets
- Wound management
- C Collar
- First Aid Kit

- Hawkins, S., & Simon, R. (2021). Ten Myths about Medical Emergencies and Medical Kits. Advances in Archaeological Practice, 9(1), 23-33. doi:10.1017/aap.2020.47

HOW TO PRACTICE WILDERNESS MEDICINE

Educating public: COMMON

CPR on a mountainside: UNCOMMON

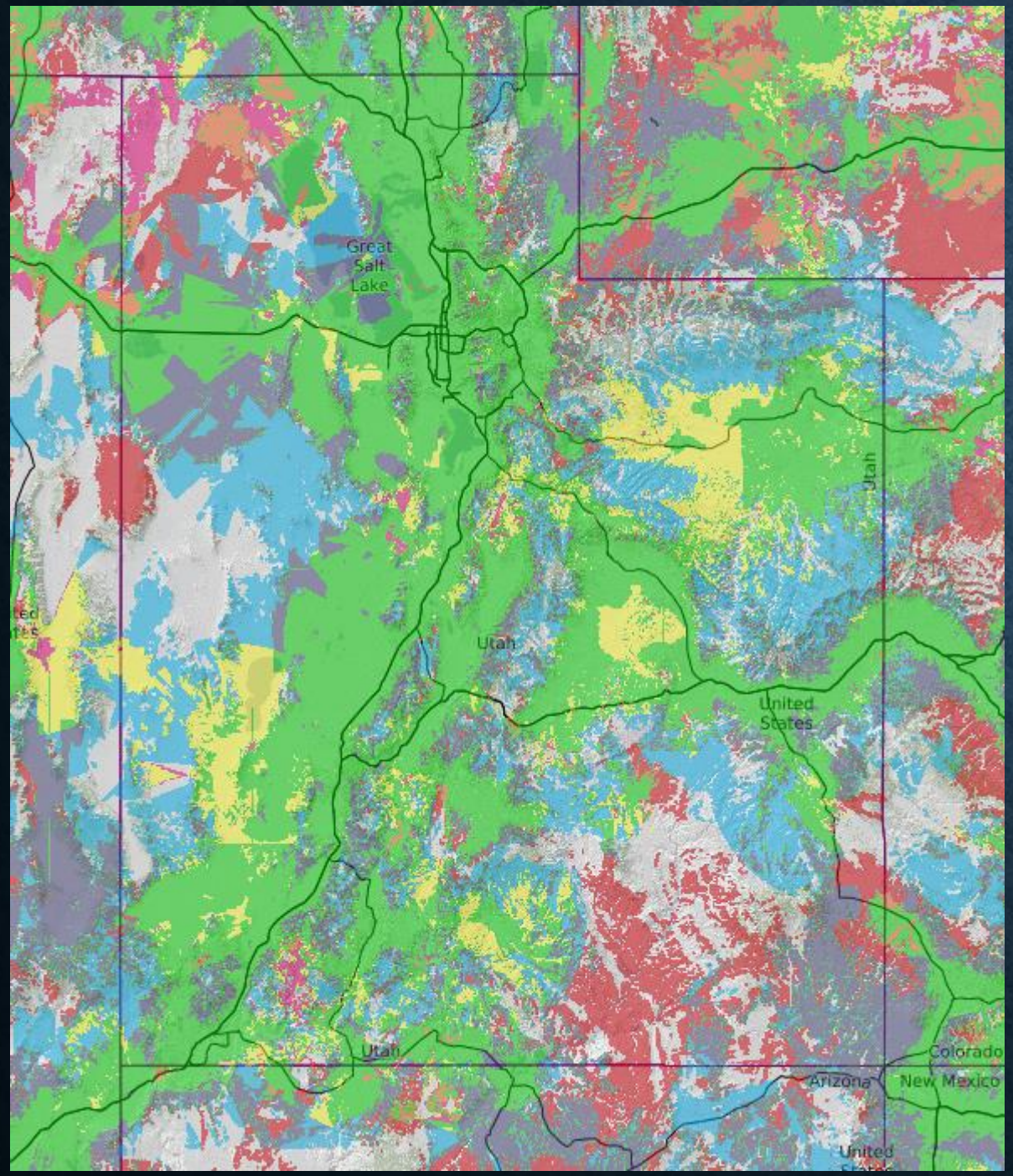


Symbology

EstimatedEvacTime - EstimatedGroundEvacuationTime

- 2
- 4
- 6
- 7

- Does not include the time to reach the patient or time to stabilize.
- The travel time is from the moment a litter is lifted off the ground and travel begins.
- It assumes vehicle transportation is waiting at the closest point on a road from the injury location to begin driving immediately.



AT&T Coverage Only
T-Mobile Coverage Only
Verizon Coverage Only
AT&T and T-Mobile Coverage
AT&T and Verizon Coverage
T-Mobile and Verizon Coverage
All Providers Have Coverage

- Cell Phone Coverage in the State of Utah

MILITARY EN ROUTE CARE

ORIGINAL ARTICLE

ONLINE FIRST

Eliminating Preventable Death on the Battlefield

Russ S. Kotwal, MD, MPH; Harold R. Montgomery, NREMT; Bavi M. Kotwal, MS; Howard R. Champion, FRCS; Frank K. Butler Jr, MD; Robert L. Mabry, MD; Jeffrey S. Cain, MD; Lorne H. Blackbourne, MD; Kathy K. Mechler, MS, RN; John B. Holcomb, MD

Objective: To evaluate battlefield survival in a novel command-directed casualty response system that comprehensively integrates Tactical Combat Casualty Care guidelines and a prehospital trauma registry.

Design: Analysis of battle injury data collected during combat deployments.

Setting: Afghanistan and Iraq from October 1, 2001, through March 31, 2010.

Patients: Casualties from the 75th Ranger Regiment, US Army Special Operations Command.

Main Outcome Measures: Casualties were scrutinized for preventable adverse outcomes and opportunities to improve care. Comparisons were made with Department of Defense casualty data for the military as a whole.

Results: A total of 419 battle injury casualties were incurred during 7 years of continuous combat in Iraq and 8.5 years in Afghanistan. Despite higher casualty severity indicated by return-to-duty rates, the regiment's rates of 10.7% killed in action and 1.7% who died of wounds were lower than the Department of Defense rates of 16.4% and 5.8%, respectively, for the larger US military population ($P = .04$ and $P = .02$, respectively). Of 32 fatalities incurred by the regiment, none died of wounds from infection, none were potentially survivable through additional prehospital medical intervention, and 1 was potentially survivable in the hospital setting. Substantial prehospital care was provided by nonmedical personnel.

Conclusions: A command-directed casualty response system that trains all personnel in Tactical Combat Casualty Care and receives continuous feedback from prehospital trauma registry data facilitated Tactical Combat Casualty Care performance improvements centered on clinical outcomes that resulted in unprecedented reduction of killed-in-action deaths, casualties who died of wounds, and preventable combat death. This data-driven approach is the model for improving prehospital trauma care and casualty outcomes on the battlefield and has considerable implications for civilian trauma systems.

Arch Surg. 2011;146(12):1350-1358. Published online August 15, 2011. doi:10.1001/archsurg.2011.213

THE 75TH RANGER REGIMENT is the US Army's premier raid force. Comprising more than 3500 personnel, the regiment conducts joint special operations combat missions to include airborne, air assault, and other direct-action raids to seize key targets, destroy strategic facilities, and capture or kill enemy forces.[1] Providing care to casualties during such missions is a major challenge.

See Invited Critique at end of article

Historically, approximately 90% of combat-related deaths occur prior to a casualty reaching a medical treatment facility (MTF).[2,3] The combat environment has many factors that affect prehospital care, including temperature and weather extremes, severe visual limitations imposed by night operations, logistical and combat-related delays in treatment and evacuation, lack of specialized medical care providers and equipment near the scene, and lethal implications of opposing forces. Thus, a tailored approach to prehospital trauma care must be used when conducting combat operations.

Combat casualty care in World War II, the Korean War, and the Vietnam War resulted in incremental and significant improvement of civilian trauma care and systems.[4] Conversely, assimilating civilian paradigms such as Advanced Trauma Life Support into the combat setting exposed deficiencies in military prehospital trauma care during conflicts in Iraq and Somalia in the early 1990s. Subsequent congressional inquiries and after-action reports led to a better understanding of profound medical differences between civilian and military environments.[5-8]

Emerging from these reviews and from Vietnam War casualty data analysis was an article entitled "Tactical Combat Casualty Care in Special Operations," which presented prehospital trauma care guidelines customized for the battlefield.[9] These Tac-

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Teaching lay people wilderness medicine increases survivability by 90%

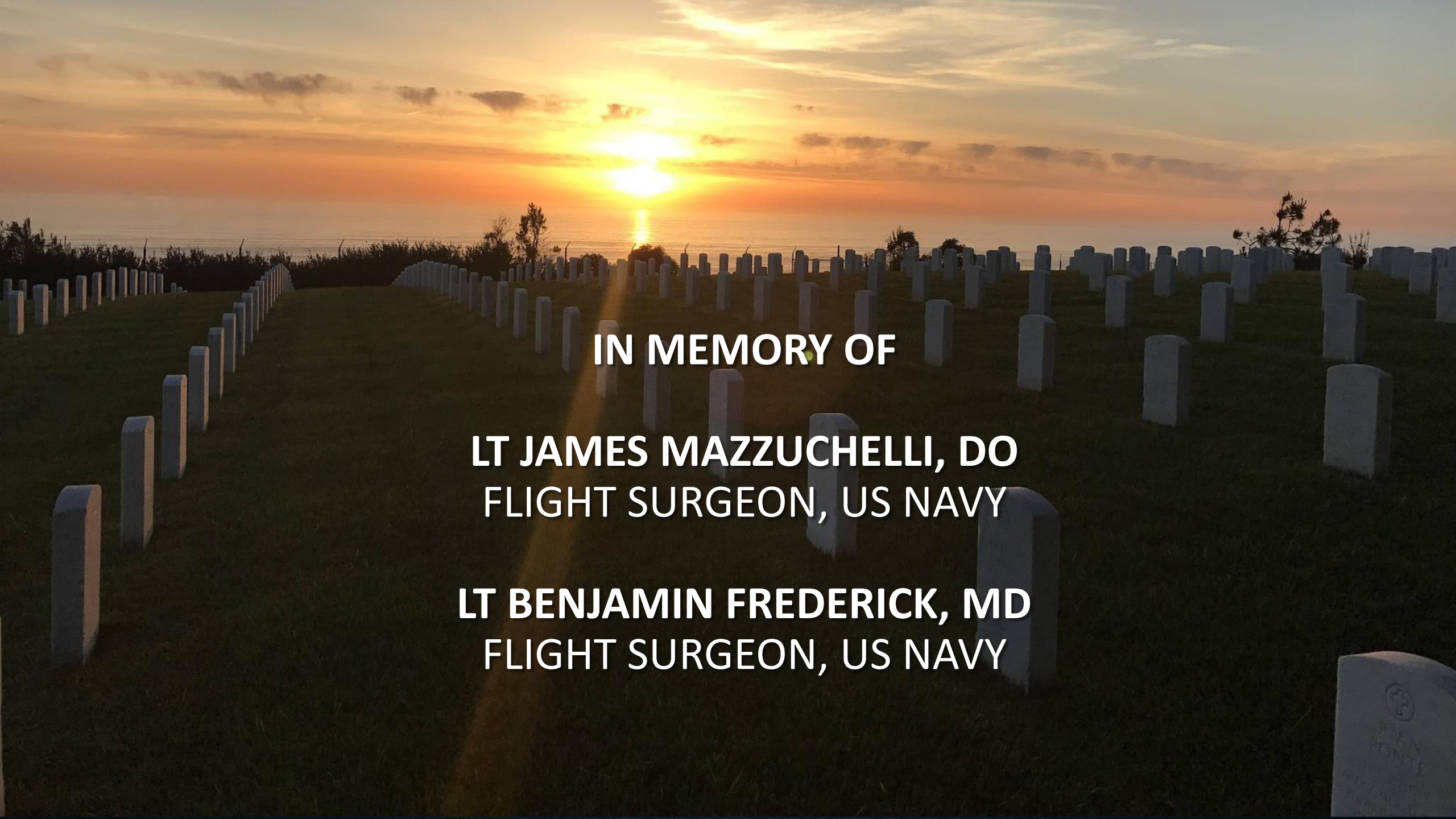
WILDERNESS MEDICINE TRAINING

- Certifications and classes: WFR, WEMT, AWLS,
- Societies: WMS, NOLS
- Fellowships: WMS, 1 yr in person residency fellowships (U of U)
- Diplomas: DiMM, DiDM

WILDERNESS MEDICINE

"IS THERE A DOCTOR IN THE HOUSE?"

- YOU ARE ALL WILDERNESS MEDICAL PROVIDERS!
- YOU HAVE TRANSLATABLE SKILLS
- WILDERNESS MEDICINE = EDUCATION for our patients


IN MEMORY OF
LT JAMES MAZZUCHELLI, DO
FLIGHT SURGEON, US NAVY
LT BENJAMIN FREDERICK, MD
FLIGHT SURGEON, US NAVY

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