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School of Medicine, Dept. of Pathology

On-Premise Artificial Intelligence Decision Support for Prolonged Field Care in Contested Environments: Field Care GPT

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Computational Pathology and AI Center of Excellence (CPACE)

August 5, 2026

Disclosures

- Board member, Association for Diagnostics and Laboratory Medicine (ADLM)
- Immediate Past Chair, Point-of-Care Testing Division, ADLM
- Member, Data Analytics Steering Committee, ADLM
- Member, Continuous Glucose Monitoring Working Group, International Federation for Clinical Chemistry
- Co-Inventor, MILO-ML, Inc
- Co-Inventor, Pitt-GPT-Plus and Field Care GPT
- Pitt-GPT-Plus and its derivatives are University of Pittsburgh intellectual property

Prolonged Field Care is a Reality

- Western militaries historically achieved “golden hour” evacuation
- Enabled by aeromedical evacuation and forward medical assets
- Modern conflicts increasingly make the “golden hour” unattainable

Death of the Golden Hour

Adapting the Army Health System for Denied Environments

By Sgt. Maj. Eric Pelkey, Master Sgt. Leann Miller, and Master Sgt. Peter Stednick

Article published on: July 1, 2025, in the July 2025 Issue of The Pulse of Army Medicine.

Read Time: < 9 mins

Banner source: U.S. Air Force by Senior Airman Vernon R. Walter III

https://www.lineofdeparture.army.mil/Journals/Pulse-of-Army-Medicine/Archive/July-2025/golden-hour/, Accessed on June 28, 2026

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Prolonged Field Care is a Reality

Drone attacks expand the “kill zone”

- FPV drones surveil and strike evac routes
- Movement in daylight becomes high-risk
- Medics/vehicles increasingly targeted

Prolonged field care (delayed evacuation)

- “Golden hour” often unattainable
- Longer stabilization, pain control, hemorrhage mgmt
- Higher infection/complication risk

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EMCON: limited RF emissions

- Radios/phones can be geolocated (DF/targeting)
- Reliance on low-signature tactics
- Preplanned brevity, wired/line-of-sight options

Comms + GPS denied (electronic warfare)

- Jamming/spoofing disrupts navigation & coordination
- Harder to cue evacuation & coordinate fires
- Workarounds: maps, inertial, relays/mesh

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Needs Statement

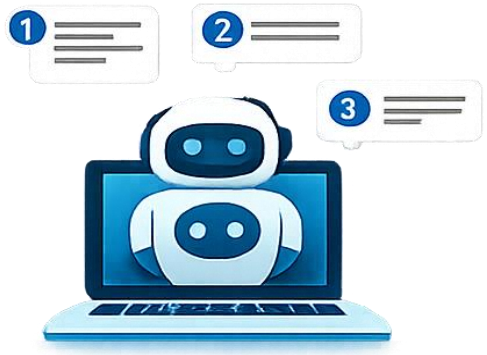
Modern warfighters require reliable access to actionable medical guidance to support prolonged field care in communication-limited, emission-controlled, and electronically contested environments.

Specifications:

- Solution should enable the average soldier to quickly access battlefield medicine knowledge in the field.
- Should be man portable and not require wireless connectivity
- Minimize hallucinations for safety
- Stakeholders want a “90% solution”.

Multi-Agentic Platforms

Single Agent Chatbot



- Simple Responses
- Easy to Manage
- Focused Expertise

VS

Multi-Agentic Chatbots

- Complex Responses
- Specialized Functions
- Collaborative Capabilities

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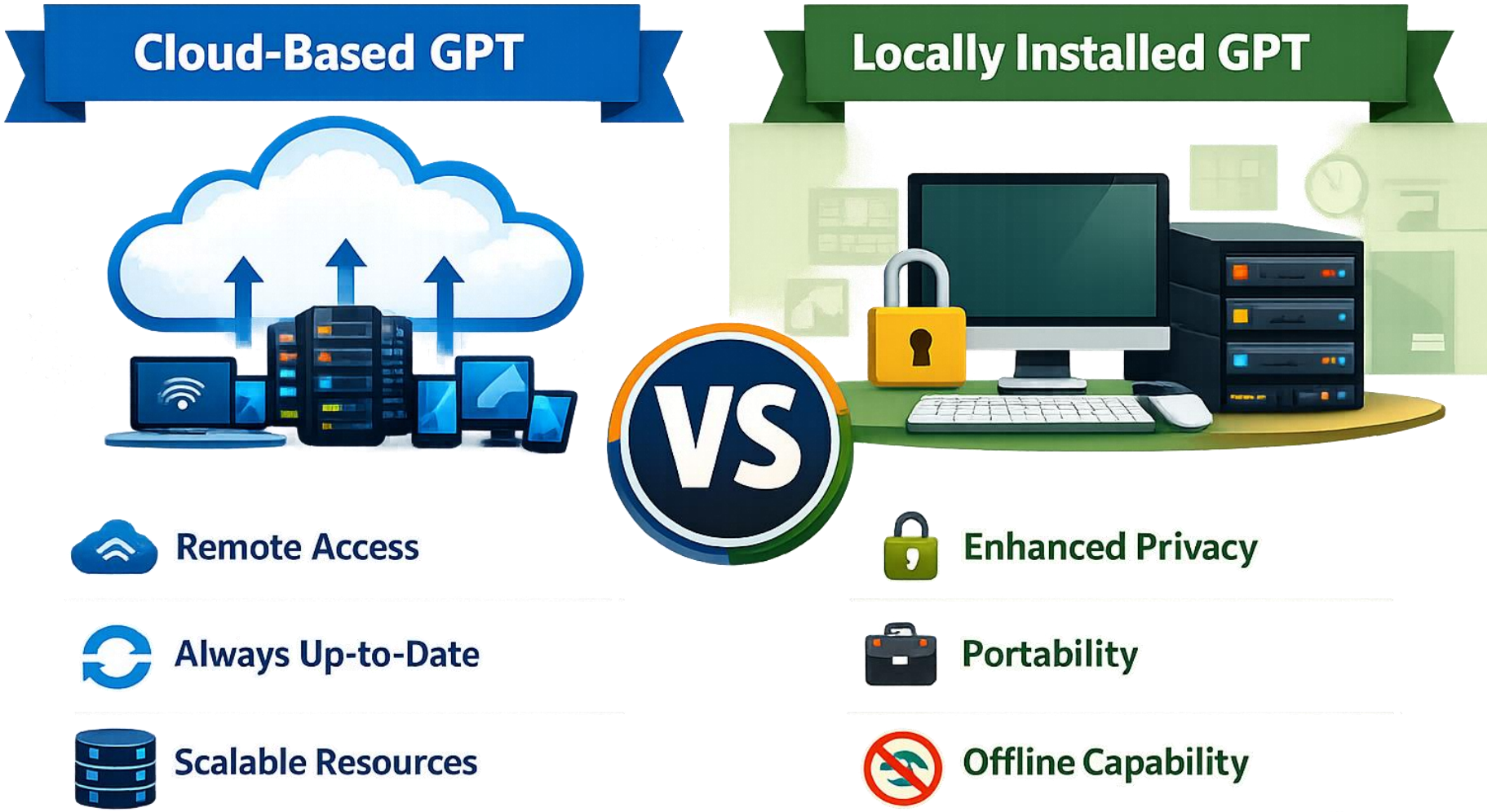
Local- vs. Cloud-Based GPTs



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Introducing Field Care GPT (FC-GPT)

- CPACE has introduced Pitt-GPT-Plus, a multi-agentic private and local custom chatbot.
- Collaboration with the Center for Military Medicine Research – CPACE has adapted Pitt-GPT-Plus for combat casualty care.
- The platform can be employed on a high-performance laptop, **does not require internet connectivity**, and is **only trained on the desired source material**.

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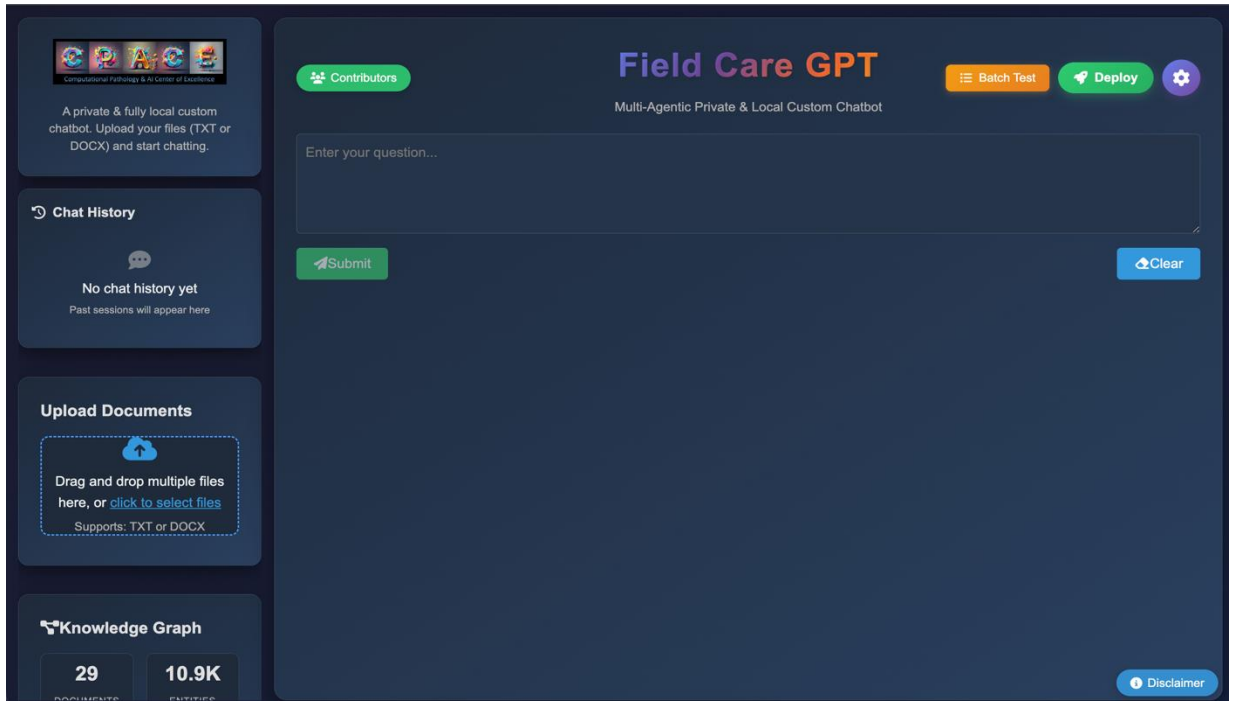
Field Care GPT

- Completely local – no WiFi!



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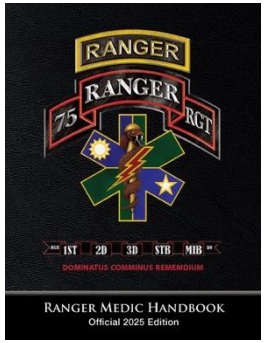
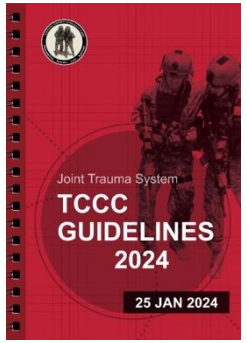
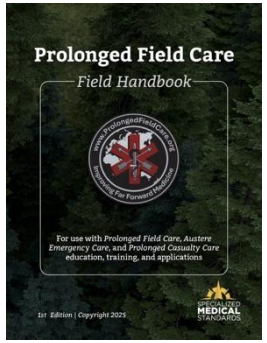
Field Care GPT

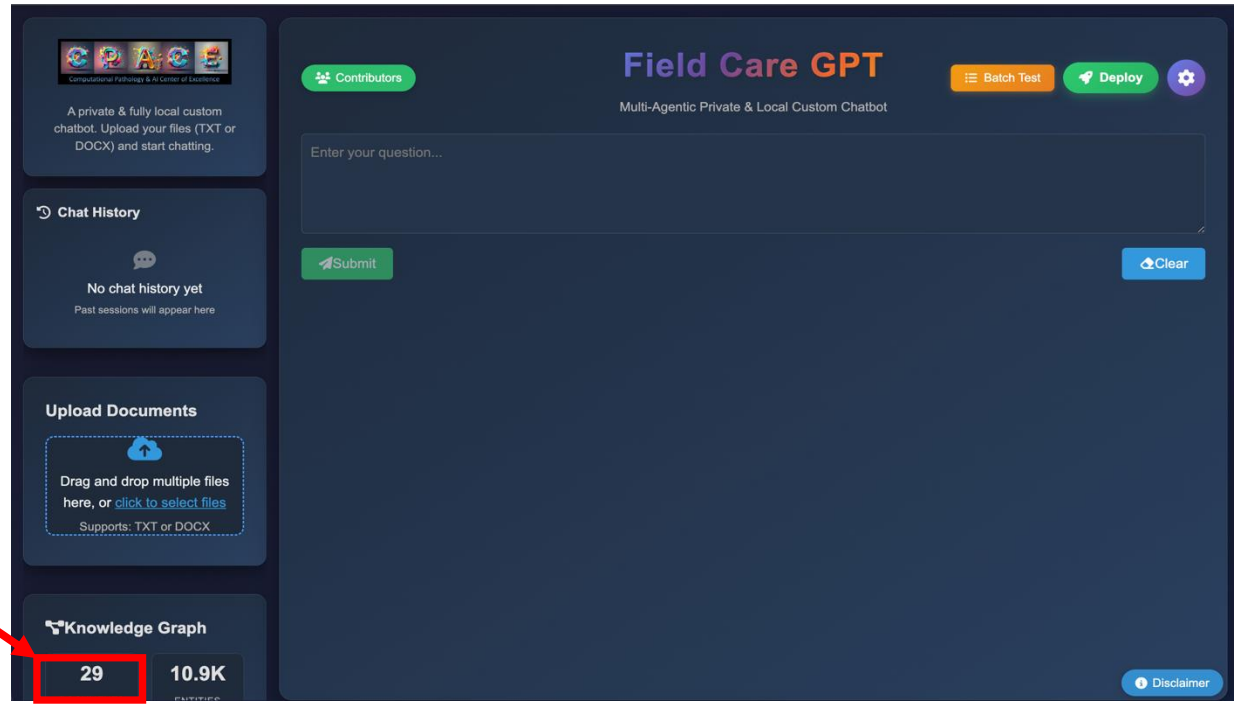
- Completely local – no WiFi!

- Pitt-GPT-Plus was trained on 29 curated human military medical literature









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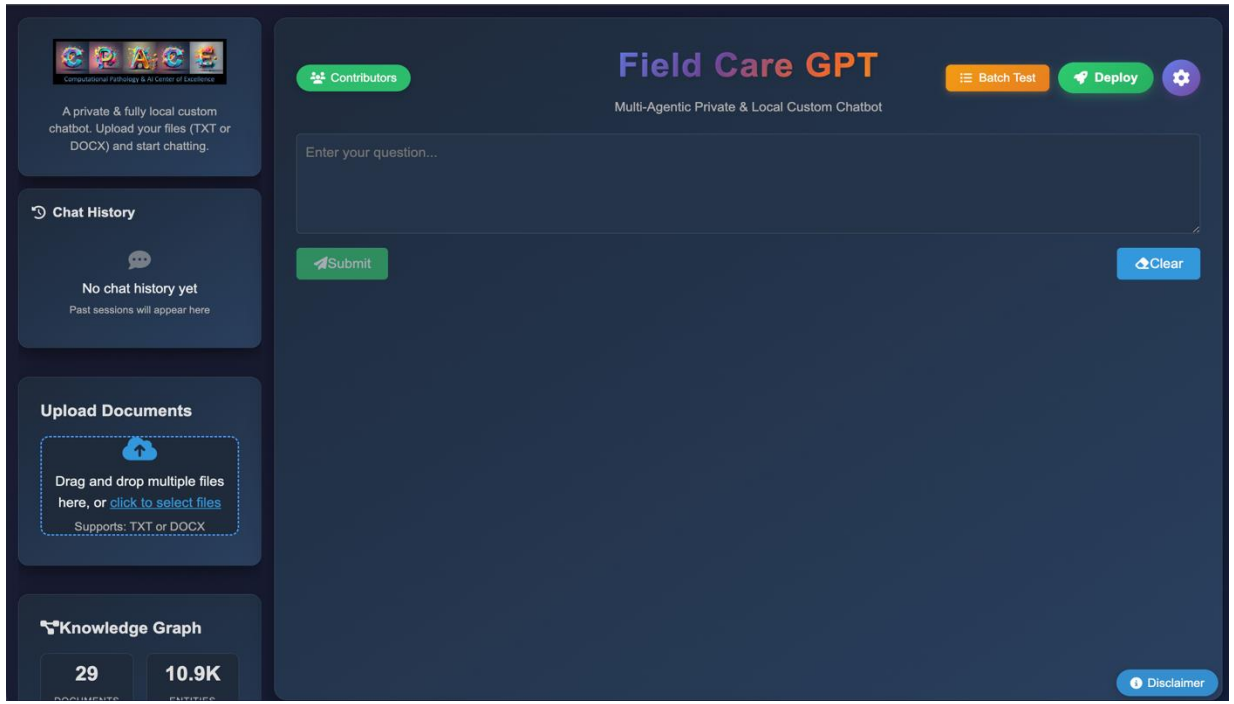
Field Care GPT

- Completely local – no WiFi!
- Pitt-GPT-Plus was trained on 29 curated human military medical literature
- Platform was evaluated by:
  - Military and emergency medicine physicians, intensivists, and trauma surgeons.
  - Former Army Special Forces Medical Sergeant (MOS 18D) and emergency medical technician.



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A private & fully local custom chatbot. Upload your files (TXT or DOCX) and start chatting.

Chat History

No chat history yet

Past sessions will appear here

Upload Documents

Drag and drop multiple files here, or click to select files

Supports: TXT or DOCX

Knowledge Graph

29	10.9K

Contributors

Field Care GPT

Multi-Agentic Private & Local Custom Chatbot

Batch Test

Deploy

Enter your question...

Submit

Clear

Disclaimer

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Multi-Agentic Private & Local Custom Chatbot

Batch Test | Deploy

Records chat history and has memory to continue a conversation

Chat History 1

I've been shot in the che...
Just now 2 msgs

Enter your question.

Submit | Clear

6. **Monitor oxygen saturation** – Use pulse oximetry if available; a sudden drop may indicate worsening pneumothorax or a pulmonary embolism (DVT/PE management section).
7. **Get definitive care as soon as possible** – Even after you have sealed the wound and, if needed, performed needle decompression, you must be evacuated to a medical facility for further evaluation, possible chest tube placement, and surgical treatment (Hemothorax section: "Rapid evacuation to surgical capability… is indicated").

Summary of steps you can take now

1. Keep your airway open and stay conscious.
2. Cover any visible chest wound with a vented chest seal; if none, use a non-vented seal and "burp" it.
3. If breathing does not improve, insert a 14-gauge, 3.25-inch needle with catheter into the second intercostal space (needle decompression).
4. Watch for worsening breath sounds or shock – treat as possible hemothorax and request immediate evacuation.

All of these actions are drawn directly from the provided combat casualty care guidance.

Verification: 100% (High) | View verification breakdown | View sources used

View retrieval insights

Upload Documents

Drag and drop multiple files here, or click to select files

Supports: TXT or DOCX

Knowledge Graph

29	10.9K
DOCUMENTS	ENTITIES

Time accelerated for presentation (real world time 68 seconds)

Expert Referee Review

- Pilot studies involved 14 questions including penetrating trauma, blunt trauma, burns, smoke inhalation, poly trauma, crush injury, etc.
- Prompts and FC-GPT responses were provided to expert referees to determine if FC-GPT produced an acceptable suggestion.
- Percent acceptable vs. unacceptable responses were calculated.
- Mean time from prompt to response was also recorded.

Category	Prompt
Penetrating Torso Trauma	I've been shot in the left side of my chest with both entrance and exit wounds. I'm breathing fast and it feels harder every minute. I can barely hear breath sounds on that side. What should I do right now to stay alive until evac
Lower Extremity Blast Injury	My leg was blown off above the knee by an explosion. A tourniquet is on and the bleeding seems controlled, but I feel dizzy and sweaty. What are the next steps to prevent shock while I wait for evacuation?
Traumatic Brain Injury (Blunt)	I was knocked down by a blast. I don't remember exactly what happened and I keep asking the same questions. I'm walking but feel off-balance. What should I do, and is it safe to keep moving?
Junctional Hemorrhage	I've got a shrapnel wound high in my groin and it's bleeding badly. A normal tourniquet won't work here. What's the best way to stop the bleeding right now with what I might have on me?
Burn Injury (Thermal + Blast)	I was in a vehicle fire. My arms and neck are burned and my nose hairs are singed, but I can still breathe. What should I do immediately to treat the burns and protect my airway?
Open Fracture – Upper Extremity	I took shrapnel to my forearm and the bone is sticking out. It's bleeding but I still have a pulse in my hand. How do I stabilize this and prevent infection until I get help?
Abdominal Penetrating Injury	I've got a fragment wound to my lower right abdomen. My stomach feels hard and I'm getting weak and fast-heart-rate. There's not much bleeding outside. What should I do to survive this?
Eye Trauma	Something hit my eye during a blast. I'm tearing a lot, can't see well, and there's a cut near my eye. What should I not do, and how do I protect my vision until evacuation?
Smoke Inhalation Injury	I was inside an armored vehicle fire. I'm coughing, have soot in my mouth, and my breathing feels tight. What are the warning signs I need to watch for and what can I do now?
Spinal Injury (Blunt)	I was thrown from a vehicle and now I can't move or feel my legs. I don't see any bleeding. What should be done to prevent making this worse while waiting for rescue?
Multiple Casualties – Polytrauma	I took shrapnel to both legs and think my ribs are broken. I feel confused and lightheaded. Bleeding isn't massive but I feel worse by the minute. What should I prioritize first?
Hypothermia After Prolonged Evacuation Delay	I've been in cold rain and wind for hours. I'm shivering hard and my speech is slurred. What should I do immediately to prevent this from getting worse?
Crush Injury	I was pinned under collapsed concrete. My chest looks deformed and it hurts to breathe. I'm worried about internal injuries. What should be done before and after I'm freed?
Embedded Shrapnel – Neck	I have shrapnel lodged near my neck muscle with some slow bleeding. I can breathe and talk fine, but I'm worried about a blood vessel injury. What's the safest way to manage this right now?

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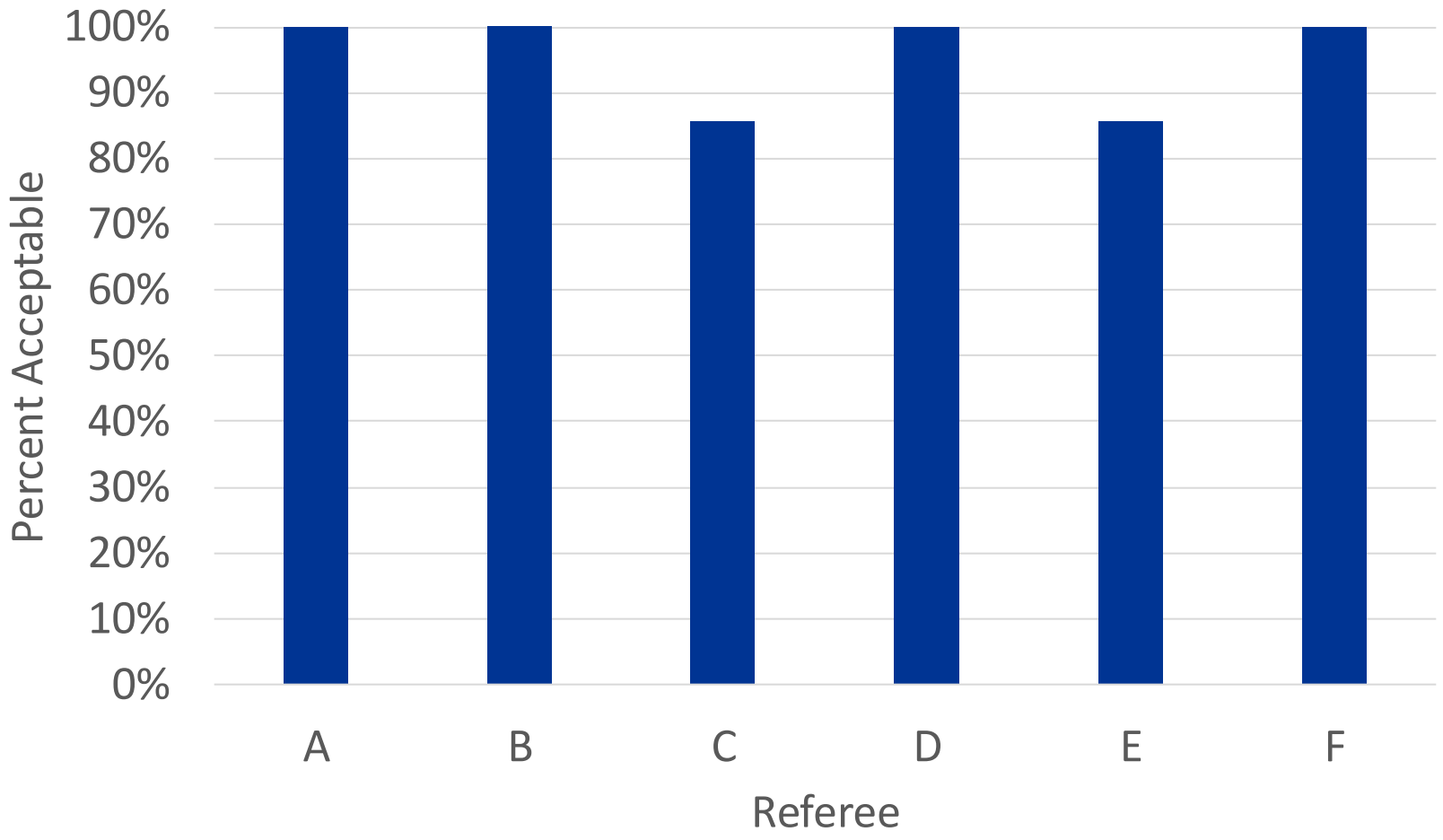

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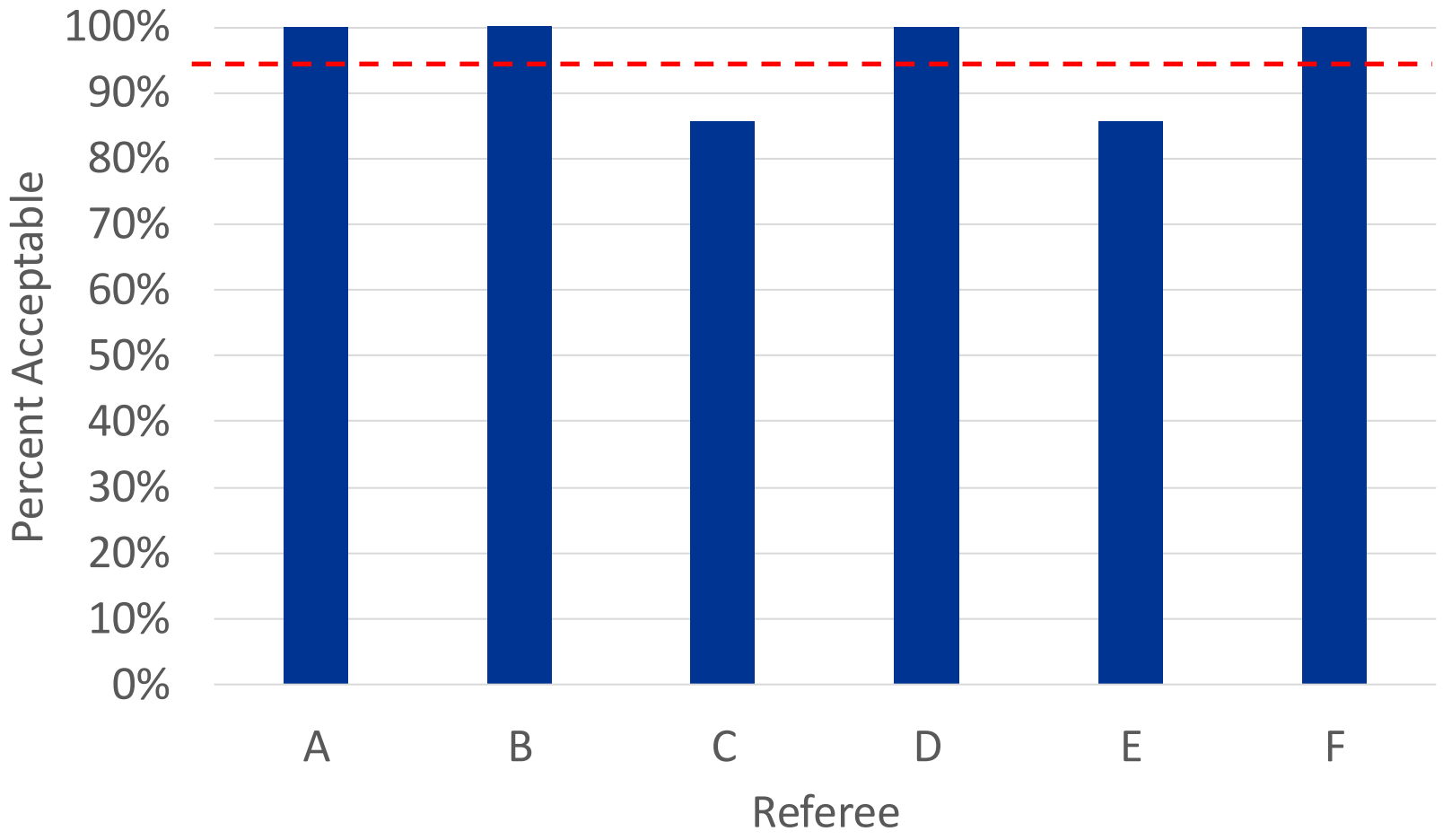

Mean: 95.2% (SD: 7.4%)

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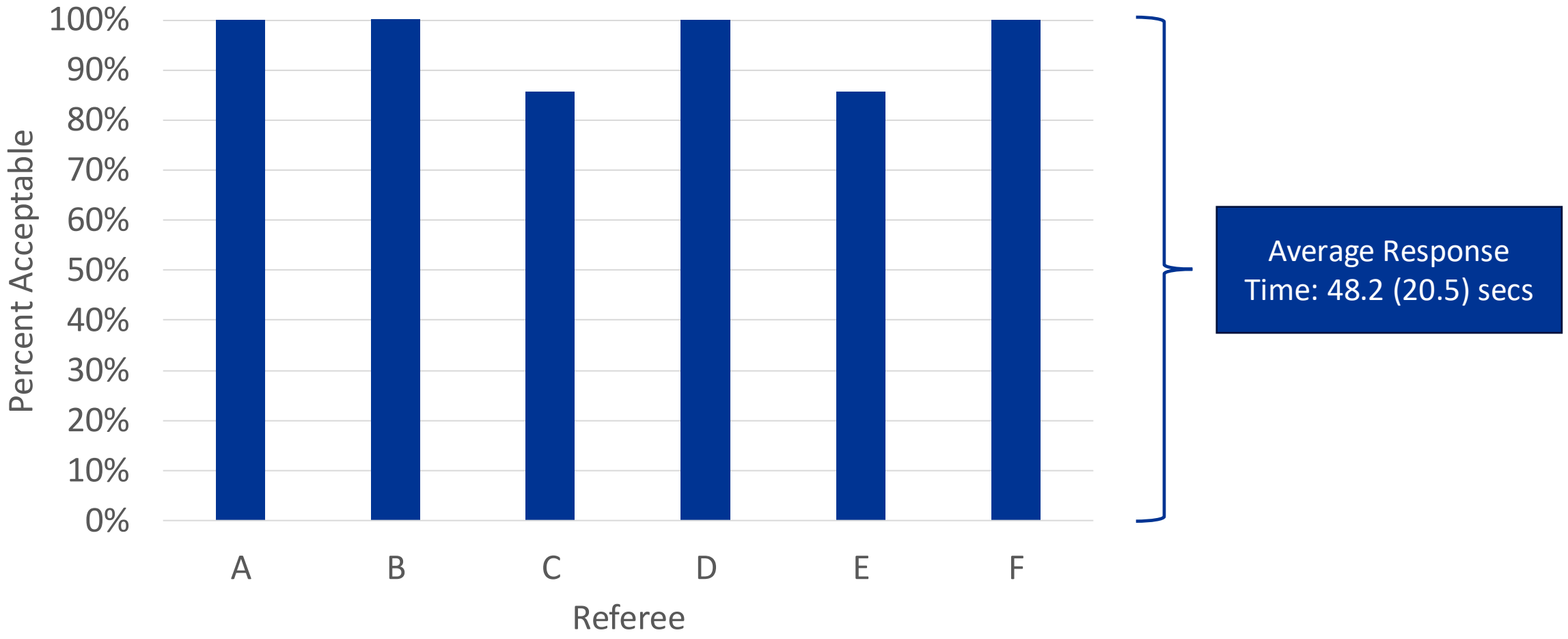

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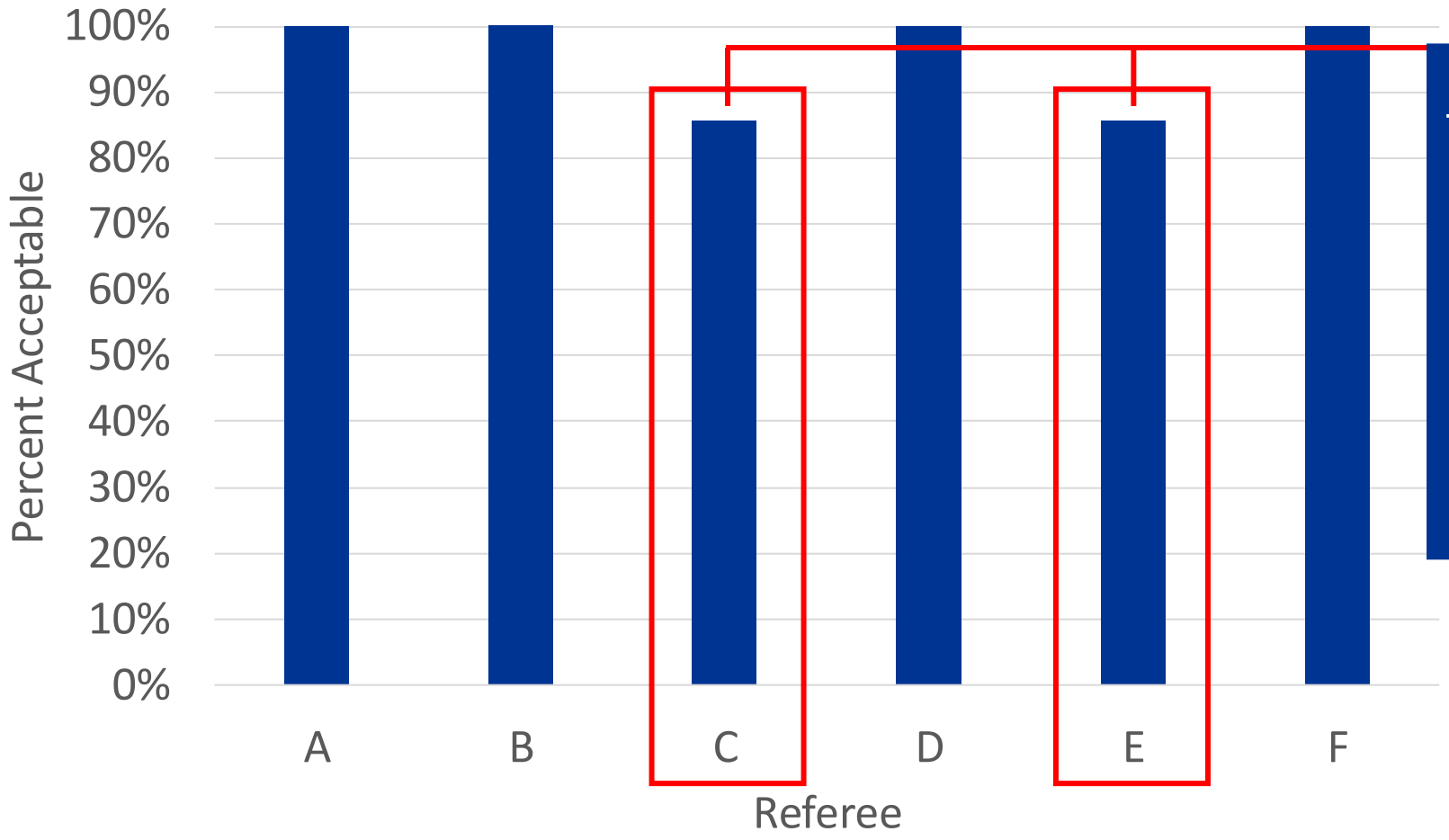

Reasons:

- Recommended some wording changes for 2 of the responses.
- Recommended order of responses could be improved.

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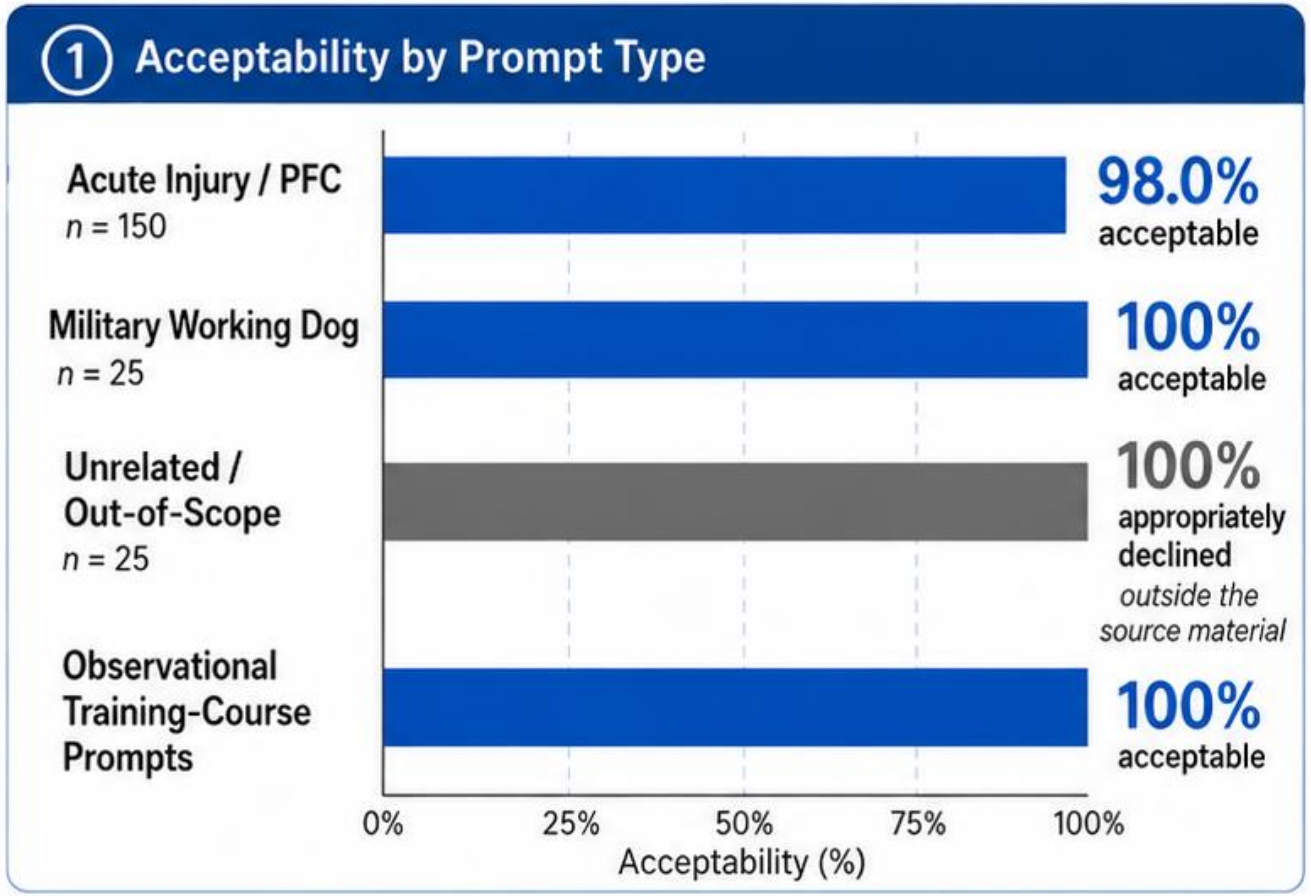
Formal Validation Studies

Formal studies were initiated generating 200 prompts to evaluate performance over a range of tactical combat casualty care topics. This was augmented by observational use in field training exercises.



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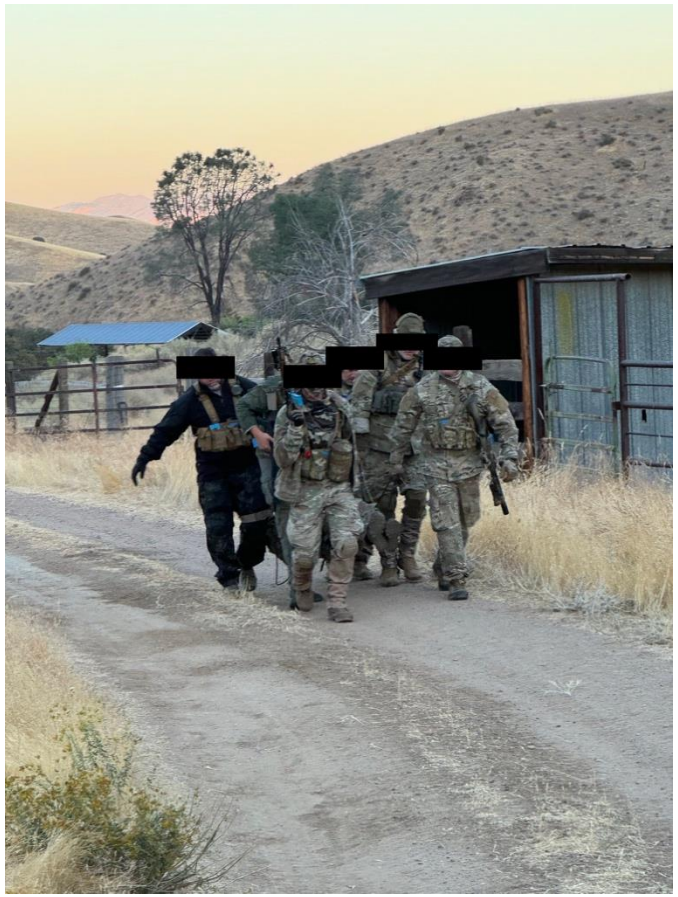
Ad hoc Field Testing Part I

- Deployed at a LEO TCCC/TECC/rural operations course in CA.
- Simulated CASEVAC from a rural area without any cellular connectivity.
- FC-GPT ran in parallel as first responders administered aid in the field.
- No incidents if inappropriate responses.
- All responses within 60 seconds.
- Responders asked: "*Can I get a copy of this software*?".



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Ad hoc Field Testing Part II

- Participated in LEO K9 TCCC course let by veterinarians trained in emergency medicine.
- Included several K9 handlers from Sheriff's Departments, Fish & Wildlife, and Explosive Ordnance Disposal units in Northern California.
- FC-GPT used in parallel to training of LEO.
- Accuracy was 100% for K9 topics paralleling 75th Ranger Regiment Medic Handbook material.

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Are MacBooks Ready for the Battlefield?

- MacBooks and other high-performance PCs are already used in the battlefield.
- Recent reported incident of a MacBook in Ukraine that still functioned after being hit by shrapnel.

https://www.tomshardware.com/laptops/macbooks/ukrainian-soldiers-m1-macbook-air-takes-direct-shrapnel-hit-still-works-despite-battle-damage-screen-cracked-and-letter-k-missing-but-laptop-remains-functional. Accessed on June 28, 2026

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Are MacBooks Ready for the Battlefield?

- MacBooks and other high-performance PCs are already used in the battlefield.
- Recent reported incident of a MacBook in Ukraine that still functioned after being hit by shrapnel.
- Future may lie with wearable and/or portable high-performance computers.

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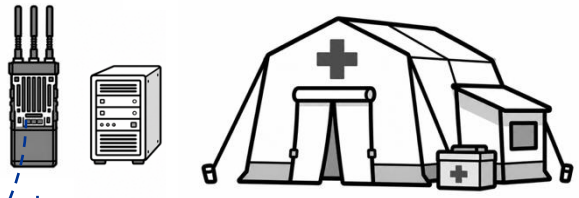
FC-GPT OVER MANET?

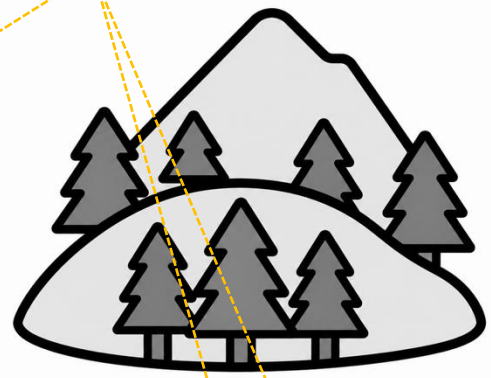
FC-GPT Remote Access by EUD

2 UAS

5 Combat Support Hospital



FC-GPT Server



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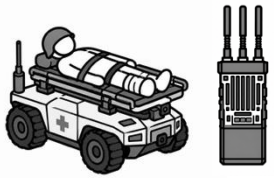

UGV CASEVAC

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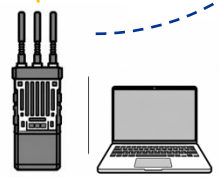
Prolonged Field Care



FC-GPT Laptop

4

Fireteam

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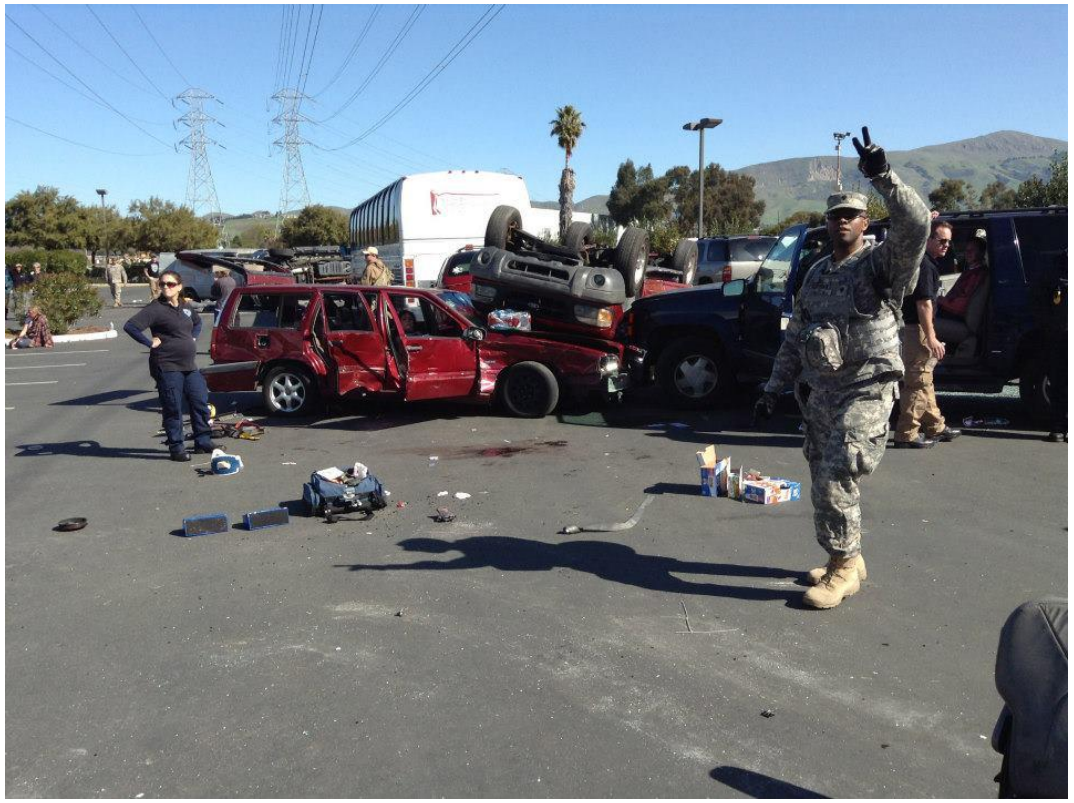
Its not just the battlefield…



Rural, field, disaster care will also benefit form local AI chatbots trained on medical information (Photo: Operation Rolling Chaos – San Mateo County, February 2014)

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Summary

- FC-GPT provides TCCC/TECC recommendations using a local platform.
- Pilot runs with expert review **on average exceeds original expectation of a ”90%” solution** for combat casualty care.
- Local GPTs require high performance portable computing which is already in use in the modern battlefield.
- Future high-performance computing may become wearable and/or locally network over mobile ad hoc networks (MANET).
- FC-GPT can also be applied to non-military medicine settings such as rural, field, disaster care.

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Acknowledgements

- Dr. Ron Poropatich, Director, CMMR
- Dr. Frank Guyette, Professor, Emergency Medicine
- Dr. Travis Polk, Professor, Surgery
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- Samantha Mears, MHA, EMT, Program Director, CMMR
- Master Sergeant (Ret.) Brian Comte, U.S. Army Special Forces, formerly of 5th Special Forces Group (Airborne)

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Questions?