# A Discussion with the US Army Medical Capability Development Integration Directorate (MED CDID)

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# Medical, Biomedical & Biodefense: Support to the Warfighter and Veteran Symposium

Chapel Hill, North Carolina

September 24-25, 2025

https://mbb.ncmbc.us/event-info/

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*NC Biotechnology Center*
*Medical Technology Enterprise Consortium*

*Tactical to Installation Medicine & Services*
*R&D*
*Human Performance*
*How to & With Whom to Connect*

# A Discussion with the US Army Medical Capability Development Integration Directorate (MED CDID)

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# Disclaimer

The information in this presentation is based on information as of 06 Aug 2025 and is subject to change.

# Agenda

- Army Futures Command: Who we are
- MED CDID Mission
- Setting the Stage
- Future Operational Environment
- Discussion Topics / Areas of Interest
- We Don’t Know What We Don’t Know
- How to Reach Us

# Army Futures Command

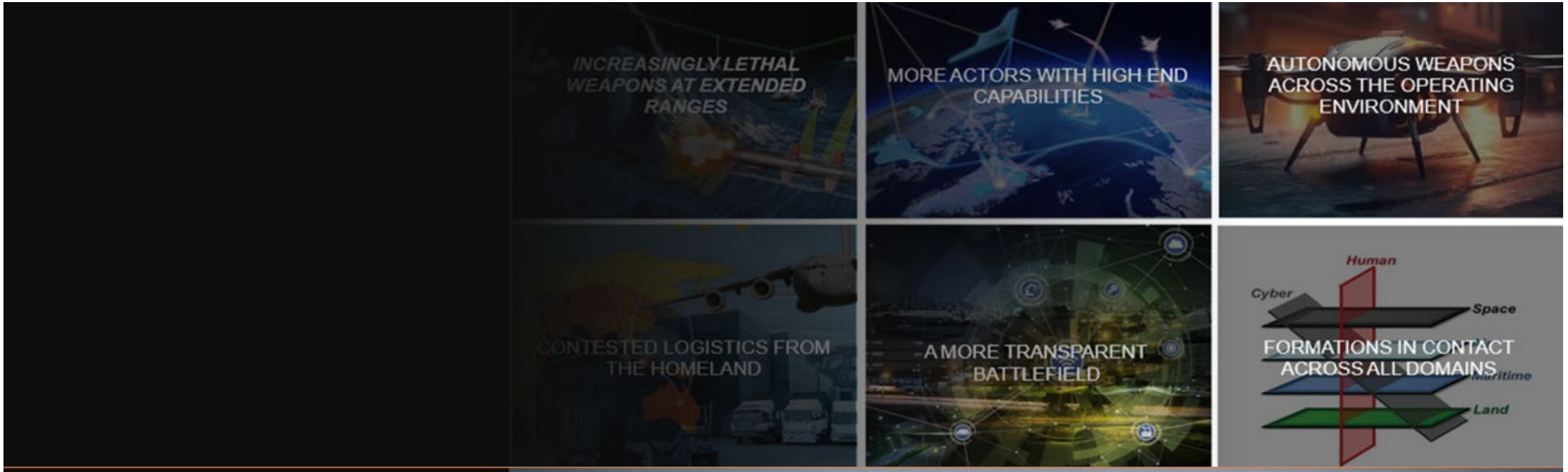

https://www.dvidshub.net/video/854552/army-futures-command

# Mission

MED CDID develops concepts, learns, and integrates capabilities to improve medical support to our Army and the joint force.

MED CDID's Science and Technology Branch finds current and emerging technologies to improve medical capabilities on the future battlefield 2040 and beyond.

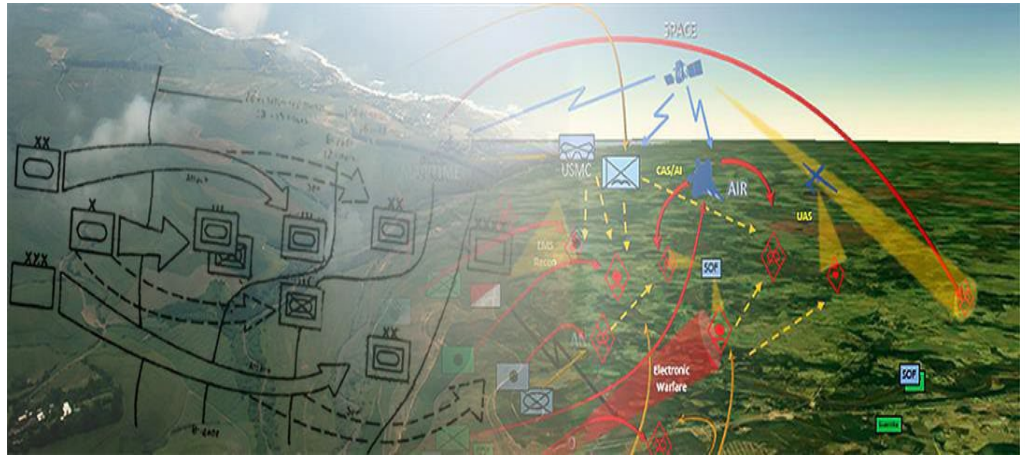
# Setting the Stage




https://www.youtube.com/watch?v=_vQJB6Qv-qQ

# Future Operational Environment

- Distributed, dynamic, and transparent battlefield
- Contested in all domains
- New weapons and employment strategies
- Survivability and resiliency
- Continuous physiological/psychological stressors
- Urban and underground terrain
- Novel diseases and chemical, biological, radiological, and nuclear (CBRN) threats

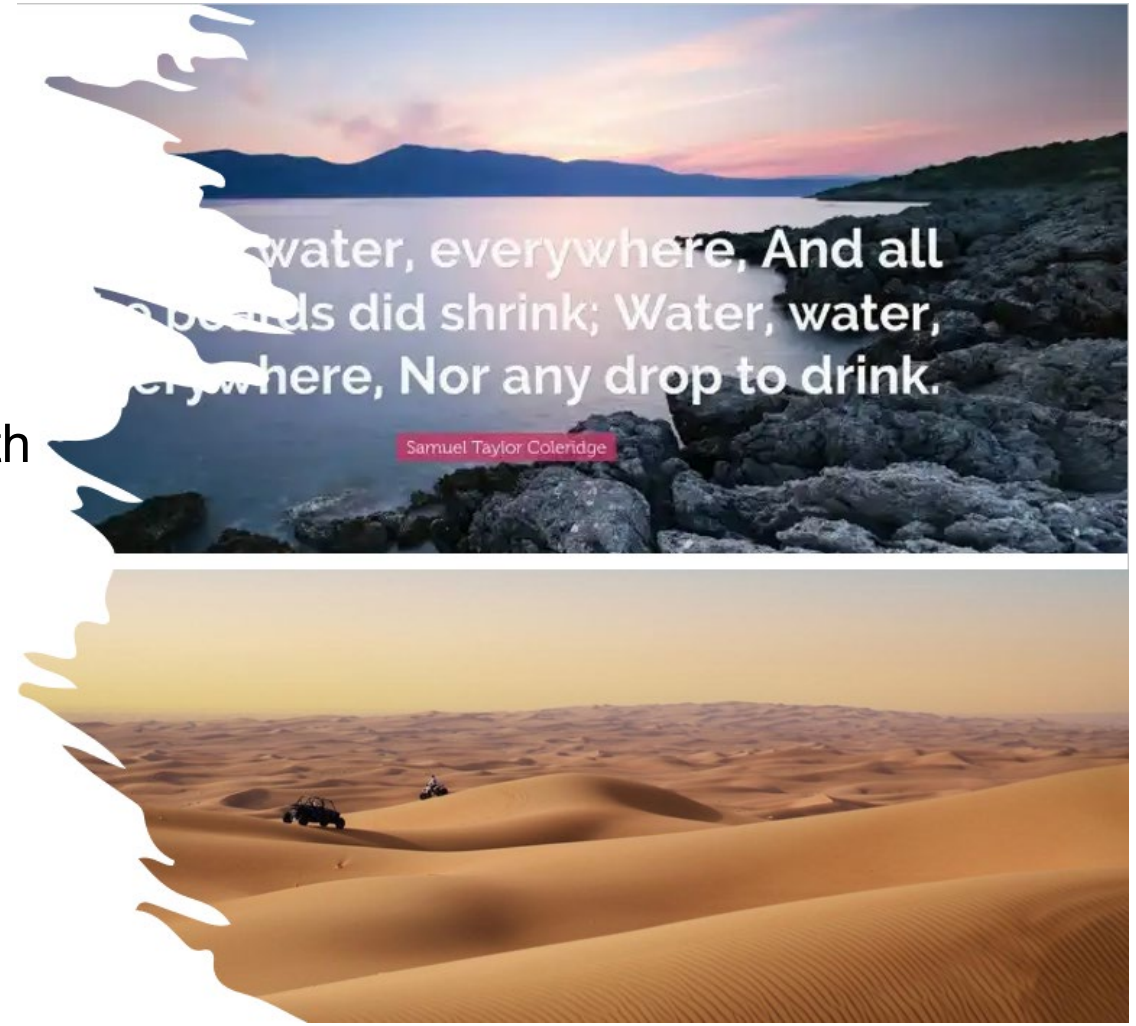



# Discussion Topics / Areas of Interest

- Water
- Clothing / Textiles
- Human Performance
- Synthetic Biology
- Medical Devices and Blood Products
- Robotics and Autonomous Systems

# Water

- How to acquire it in dry environments.
  - Water from air?
  - From other processes? Atomic energy?
- How to make available water potable
  - Reverse osmosis?
  - Filters (need to be able to dry out for use in both hot and freezing environments)
- How to make available water medical-grade
  - Water for IV's
  - Immunizations
- How to recycle water in austere conditions
  - Recycling water in a compact fashion
  - Energy signature of recycling process
  - Disposal of wastewater



# Clothing and Textiles

Clothing

- Warn Soldier of danger
- Monitor Soldier health
- Temperature regulation
- Keep cool in hot weather
- Keep warm in cold weather
- Durable and stain resistant

Camouflage

- Conceals heat signature
- Conceals electro-magnetic signatures


# Human Performance

Encompasses physical, cognitive, and emotional capabilities

Includes endurance (ability to keep going) and resilience (ability to bounce back)

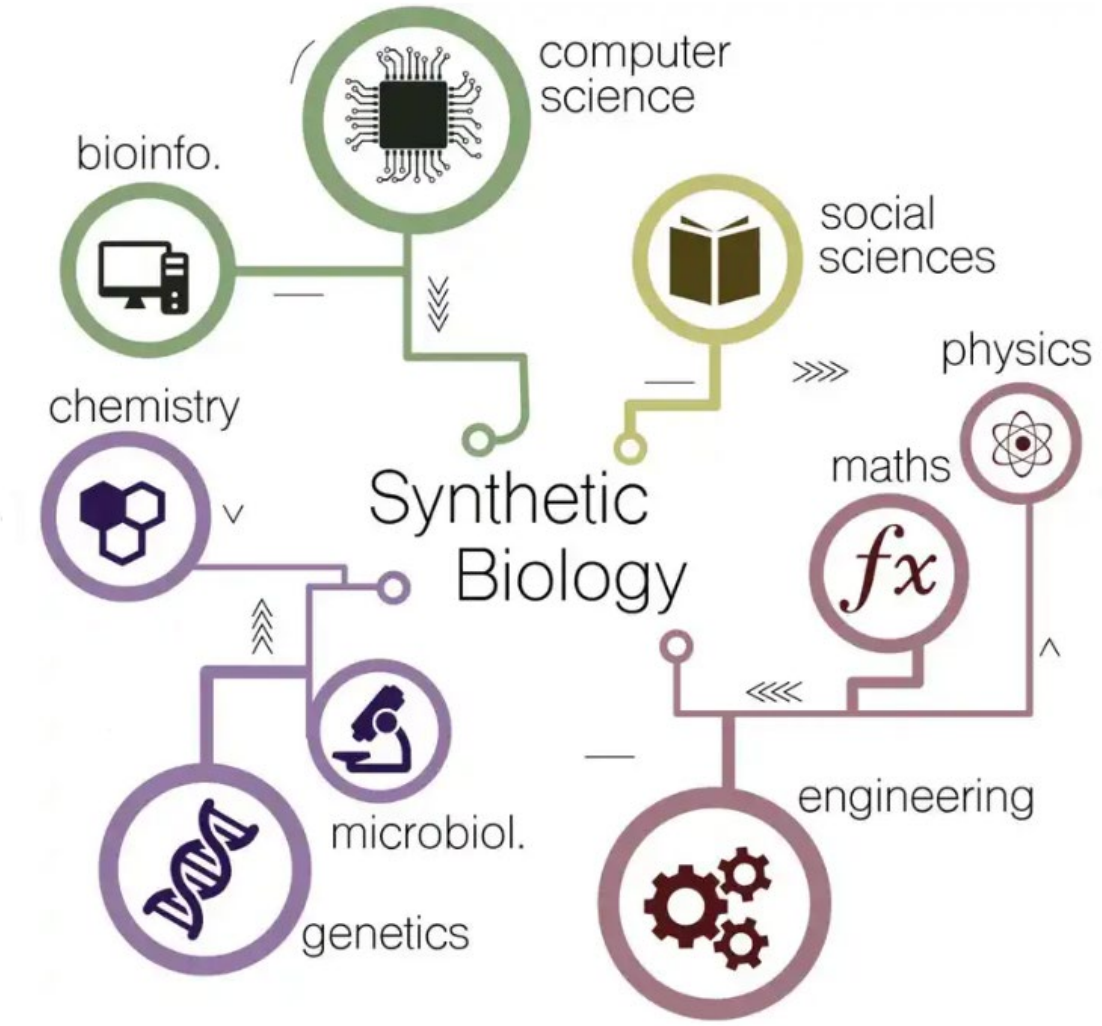
Focused on optimizing performance in various settings:

- Training and education
- Workplace
- Combat

Solutions that lighten physical and cognitive loads in stressful situations

# Synthetic Biology

- Medical treatments
  - New drugs
  - New therapies
  - New diagnostic tools
  - Tissue and organ generation
  - Gene therapy
- Biosensors
  - Detect chemical and biological warfare agents
  - Detect pollutants and toxins




Synthetic biology is an interdisciplinary research field that involves many different areas of knowledge

# Medical Devices and Blood Products


Goal: allow medical providers to attend to more patients without sacrificing quality of care.

Devices must be small, light, rugged, and have a low demand for power / energy.

Challenge: collect, store, transport, administer blood.

Possible solutions: synthetic blood; blood that does not need refrigeration; administer blood without causing hypothermia.

# Robotics and Autonomous Systems

- Autonomous / semi-autonomous platforms
- Integrating all available evacuation vehicles
- Multimodal (air, ground, maritime) evacuation platforms

# We Don’t Know What We Don’t Know

- Are there other approaches to mitigate our challenges?
- Are there other technologies available (now or in the near future)?
- How can artificial intelligence and machine learning help?

# How to Reach Us

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To submit technology for consideration:

- If you do not have a Vulcan account, create one at:
https://www.vulcan-sof.com/login/ng2/auth/access/government?requestedUrl=%2Fsearch%2Ftechnologies

- Submit your technology to the MED CDID Broad Agency Announcement (BAA):
https://www.vulcan-sof.com/login/ng2/submission?collectionUuid=5417cc3c-2b60-446a-addf-c0bea38cd0b1