



Establishing the Demand Signal Transforming Care into Combat Power

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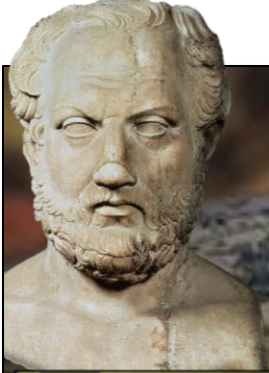


Feature	Military Modernization	Military Transformation
Core Idea	Upgrading existing capabilities.	Creating fundamentally new capabilities and new ways of operating.
Guiding Question	"How can we do what we do now, but more effectively and efficiently?"	"Are we organized and equipped to win future wars, and if not, how must we change?"
Focus	Equipment-centric. Focuses on replacing aging platforms and systems with newer, more capable versions of the same thing.	Concept-centric. Focuses on changing doctrine, organization, training, leadership, and culture to enable new warfighting approaches.
Nature of Change	Evolutionary and Incremental. It's a linear progression along a known path.	Revolutionary and Disruptive. It's a non-linear leap that can make old ways of fighting obsolete.
Scope	Narrow. Often focused on a specific system (e.g., a new fighter jet) or a single military service. (Material focused)	Broad. Affects the entire joint force, spanning multiple services, domains, and even government agencies. (DOTMLPF-P focused)
Risk Level	Lower Risk. The outcomes are generally predictable because the new equipment fits into existing structures and doctrines.	Higher Risk. The outcomes are uncertain. Transformation can fail, be resisted by the institution, or be based on flawed assumptions about the future.

The Nature War and Character of Warfare

“War is complex.” – Clausewitz

Thucydides



Kautilya



Sun Tzu



Machiavelli



Clausewitz



Jomini



Douhet



L. Hart



Nature- Not Changing

- Human actors – Thucydides
- Violence – SunTzu , Jomini
- Interactions – politics, alliances (Kautilya)
- Drivers – fear, honor, interests (Thucydides)
- Fog and Friction (Clausewitz)

Character- Changing

- Context – globalization, gray-zone warfare
- Techniques – biological threats
- Domains – cyber, space, information
- Technologies – advanced tech, AI, drones
- Constraints – politics

Fear, honor, and interests are irresistible impulses felt by all political communities.

Alliances are temporary; interests are permanent.

The nature of war is constant change.

Politics must be separated from morality.

War is a continuation of politics by other means.

Diplomacy, strategy, grand tactics logistics, engineering, and minor tactics.

Victory smiles upon those who anticipate the change in the character of war.,

The unexpected cannot guarantee success, but it guarantees the best chance of success.

The military and medicine are at inflection points. It's harder to predict events. The norms of society are shifting.

All nations are compelled by nature to pursue what they deem is their self interest. – Thucydides



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Combat Power- Joint Definition

- The total means of destructive and disruptive force that a military unit/formation can apply against an enemy at a given time
- Key medical concepts
 - Warfighting
 - Lethality
 - Survivability
 - Optimization

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- Marine Corps Doctrinal Publication on Warfighting
 - The total destructive force we can bring to bear on our enemy at a given time
 - Some factors are quite tangible and easily measured such as superior numbers, which Clausewitz called “the most common element in victory.”
 - Some are less easily measured such as the effects of maneuver, tempo, or surprise; the advantages conferred by geography or climate; the relative strengths of the offense and defense; or the relative merits of striking the enemy in the front, flanks, or rear
 - ***Some may be wholly intangible such as morale, fighting spirit, perseverance, or the effects of leadership***



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Combat Power versus Performance- NATO

- Combat performance includes combat effectiveness and combat power
- Combat effectiveness: The capacity or performance of a military force to succeed in undertaking an operation, mission, or objective
 - Force composition: a combination of advanced technology, comprehensive training, and experienced leadership
 - Joint operations: the ability to synchronize land, air, sea, space, and cyber capabilities
 - ***Physical & Moral Components: while the physical component (weapons/equipment) generates raw power, the moral component (will to fight, leadership) impacts endurance and persistence***
 - Interoperability: the ability of forces from different nations to operate together effectively
 - Situational awareness: provided by Joint Intelligence, Surveillance and Reconnaissance to improve understanding of the operating environment

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Drones, AI, Hypersonic Weapons, Constant Observation



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Magura V6

Not previously reported, the V6 was first seen during the REPMUS 25 (Robotic Experimentation and Prototyping) exercise in Portugal. It is similar to the V7 (below) and can carry the Sea Dragon air defense system with either Sidewinder or AA-11 ARCHER missiles.



Magura V6, participating in NATO exercise REPMUS 25 in Portugal in September 2025.



Russia's Thermobaric Weapons Employment in the Ukrainian Conflict

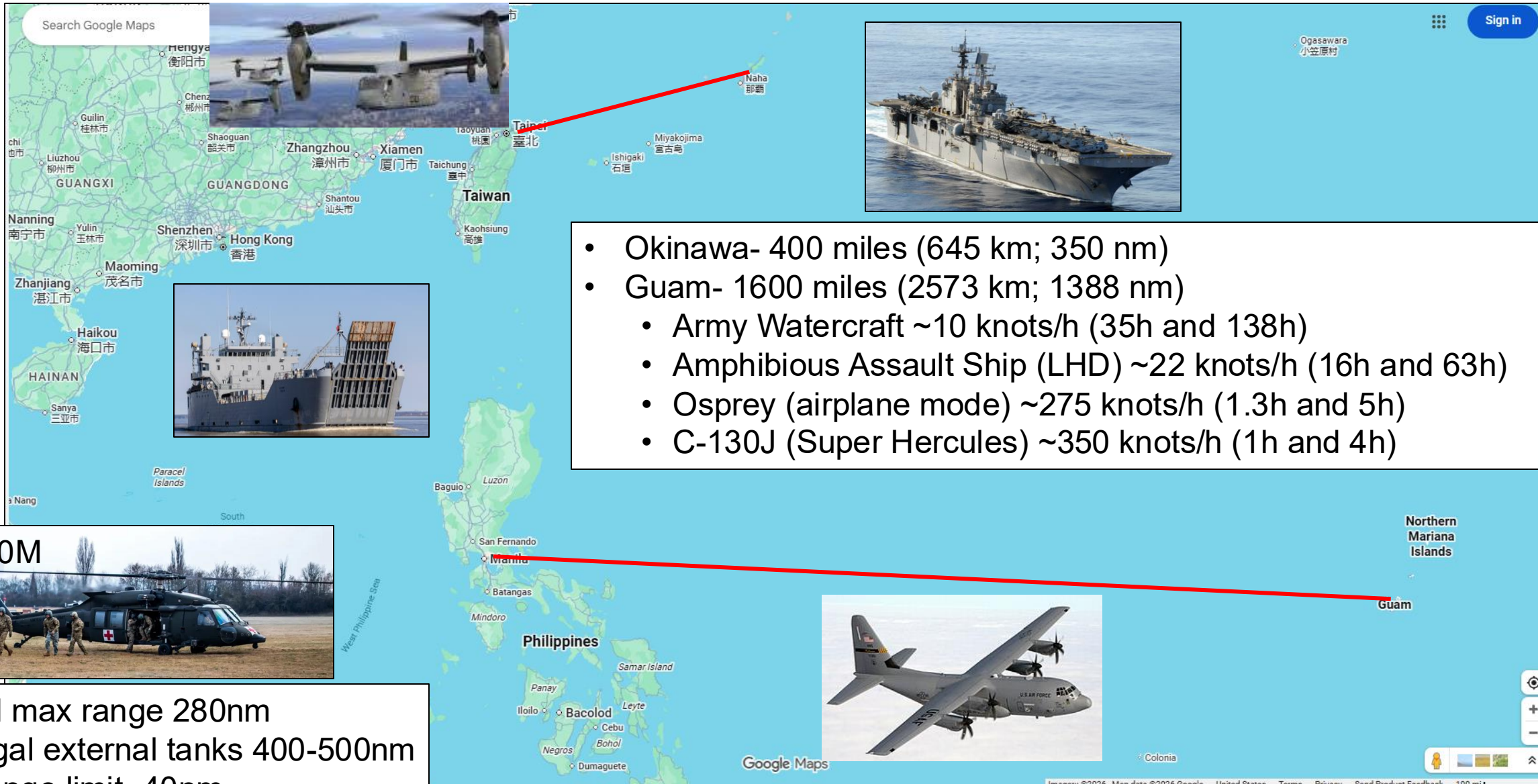


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Tyranny of Distance, A2/AD- Global Integration



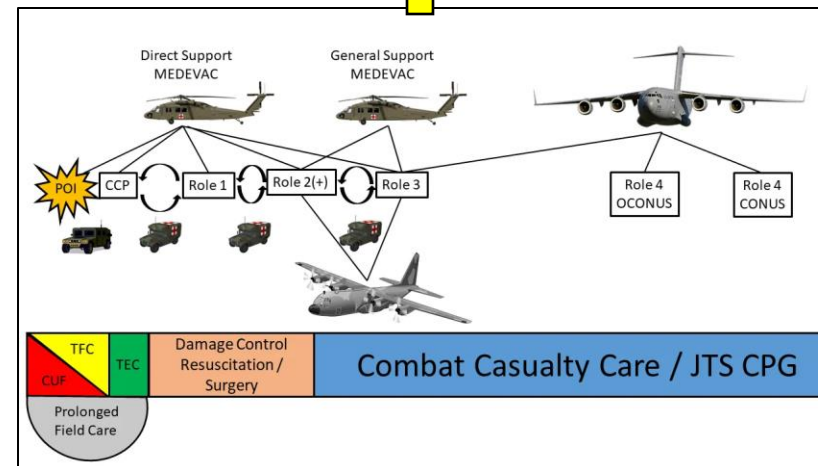
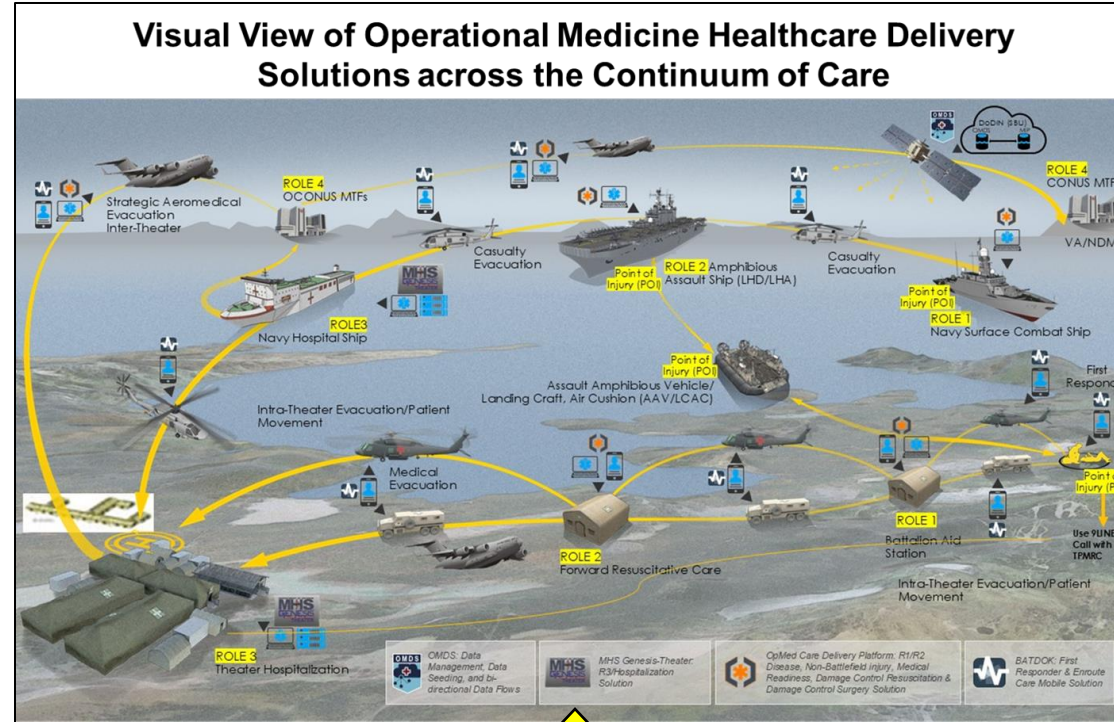
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Continuum of Care is

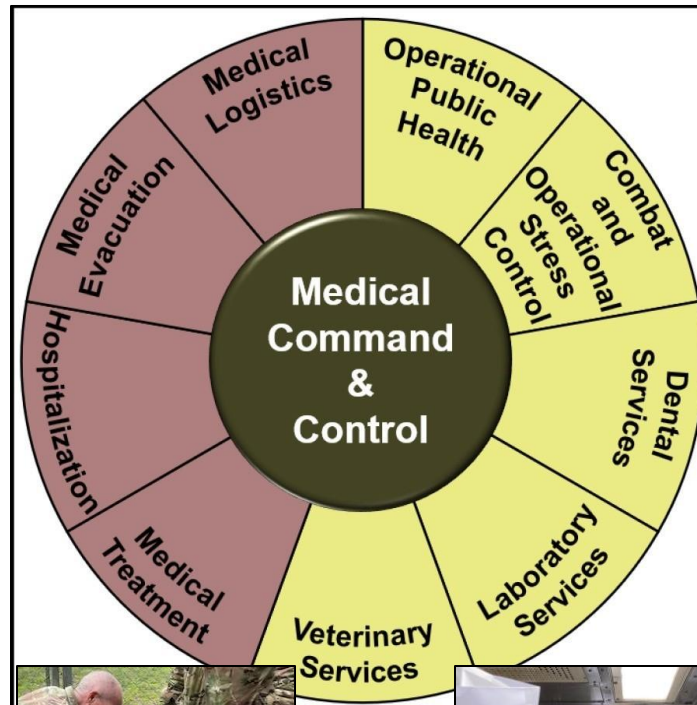
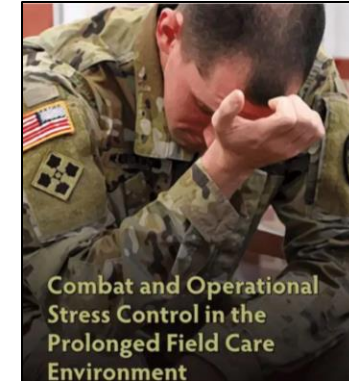
Transitioning to a Disaggregated Web and then Mesh that is Pulsed





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10 Medical Functions



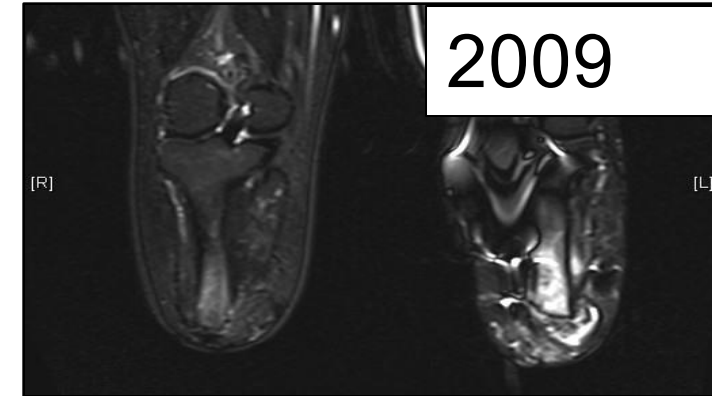
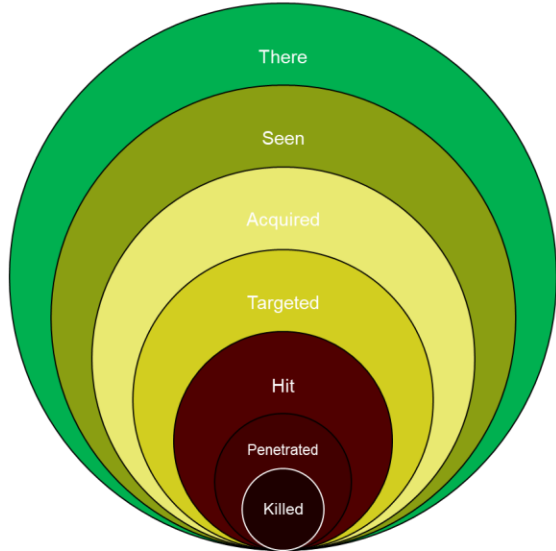
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Survivability Onion

Don't Be



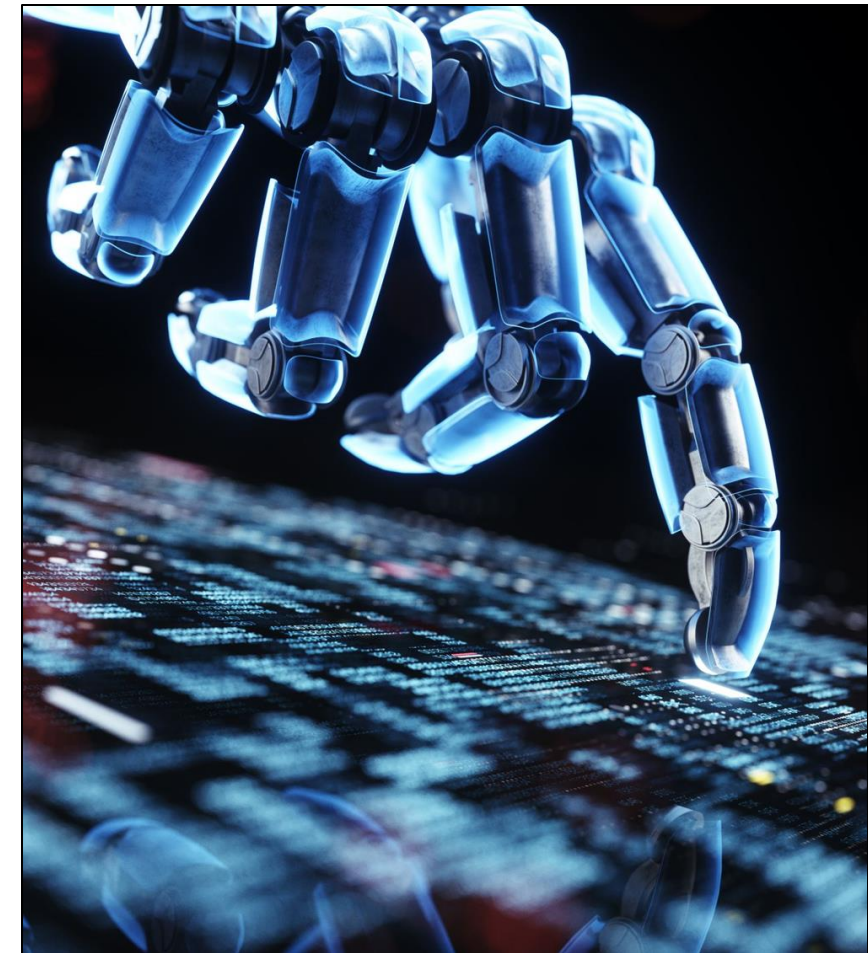
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Future Weapon Systems

- First kinetic contact should not be a human (bloodless first contact)
- How far in the rear is in the rear especially in an MDO fight
- Weapon system changes
 - Now
 - Directed energy weapons
 - Hypersonic weapons
 - Drone swarms
 - Future
 - AI-driven autonomous swarms
 - Bio-Cyber and neurological weapons
 - Nanotechnology
 - Ethno-/genetic-weapons



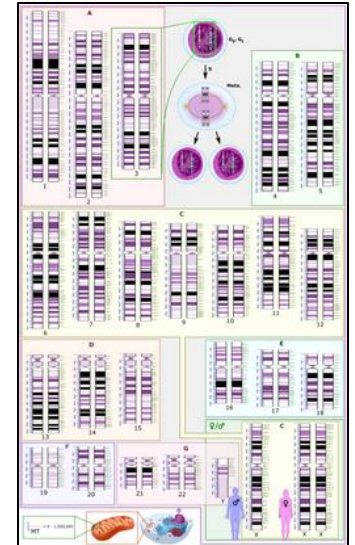
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2040 Transformation- Medicine

- Highly personalized, predictive, and participatory model moving to prevention and wellness
- Driven by a convergence of technologies
 - Artificial intelligence (AI)
 - Genomics
 - Digital health leading the way (sensors)
- Personalized and precision medicine
 - Treatments will be tailored to an individual's unique genetic makeup, lifestyle, and environment
 - Genomic medicine with gene editing
 - The Virtual Twin: a "digital twin," a virtual model of an internal/external patient's body, will be used to simulate and predict the outcomes of different treatments and surgical interventions



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2040 Transformation- Military Medicine

- Proactive, predictive, and highly autonomous system
- Fusion of artificial intelligence, robotics, ubiquitous biosensors, and unmanned systems
- Push advanced medical capabilities to the absolute front edge of the battlefield, often intervening before a soldier is even aware they are in danger
- The digitized soldier: a networked sensor
 - The individual soldier will become a "human as a sensor" platform, with their uniform and gear seamlessly integrated with a suite of advanced wearable technologies
 - AI-powered algorithms will analyze this data in real-time, creating a personalized health baseline and intervention for each soldier
 - Genetic or immunologic enhancement



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2040 Transformation- Military Medicine

- Predictive health and injury prevention: beyond simple monitoring to predict and prevent injuries- gait analysis, core temperature/stroke volume monitoring
- Autonomous evacuation and logistics: semi-autonomous robotic platforms with on-stretchers life support like mobile ICU beds with snake-like robotic arm to perform diagnostics and provide life support



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2040 Transformation- Military Medicine

- Robotic surgery at the point of injury
 - The "Trauma Pod": a compact, mobile operating room housed within an armored vehicle or a large drone
 - Remote and AI-assisted surgery: surgeon located safely miles away performing complex procedures using a robotic system enhanced 3D vision with precision
- Challenges and the road ahead
 - Strict human-in-the-loop protocols will be essential, especially for any system capable of making life-or-death decisions
 - Technological and logistical hurdles: issues like signal delay in remote surgery, immense power sources for directed energy weapons and advanced systems, and the sheer cost of these technologies



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Questions



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