

The Joint Infection System (JIS): A Learning Biodefense Capability to Enhance Joint Force Readiness and Survivability

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Conflict of Interest/Disclosure

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2026
MILITARY HEALTH SYSTEM
CONFERENCE

J-DNBI-S proposal was presented, with very positive reception, at the recent MHS Conference. Following the conference, the new proposed title is the Joint Warfighter Medical System (includes both the J-DNBI-S and the Joint Trauma System (JTS)).

The Joint Disease Non-Battle Injury (DNBI) System

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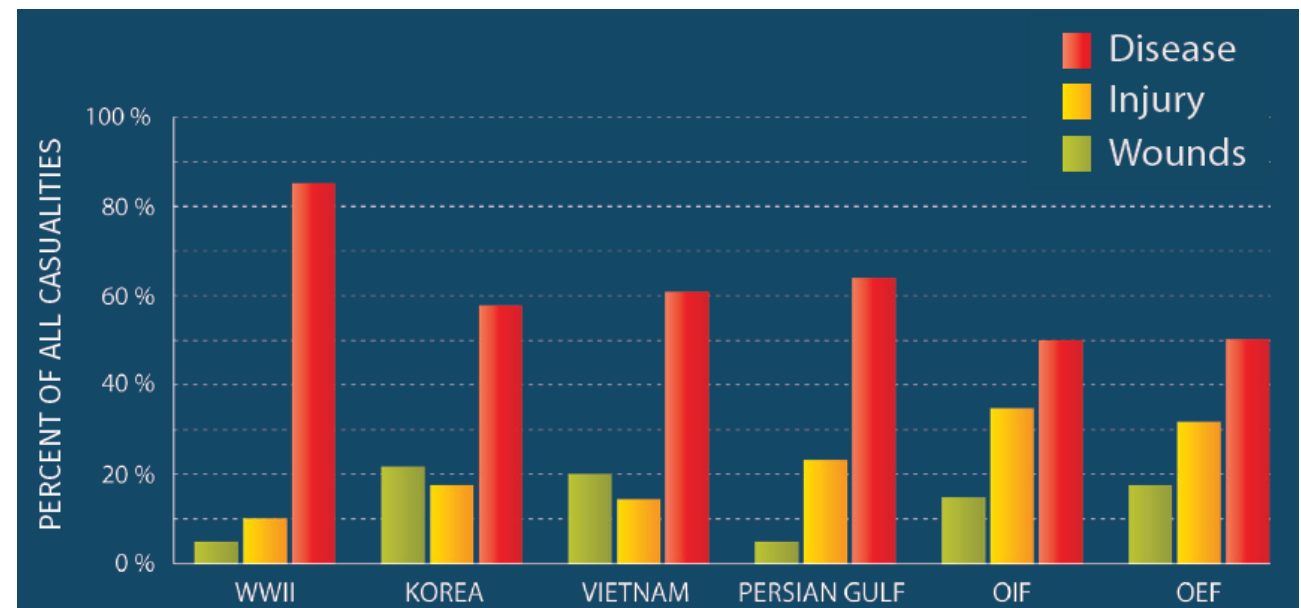
Learning Objectives

1. Describe the key gaps in the Department of War's historical approach to managing infectious disease threats.
2. Describe capability requirement and strategic oversight of the proposed Joint Infection System (JIS).
3. Discuss how the JIS will integrate clinical practice, public health, and research to create a “learning biodefense capability”.

Disease Non-Battle Injury

- DNBI has remained the leading cause of morbidity in conflicts involving the U.S. Military over the last 20 years but is not studied in detail compared to battle injury.
- One third of the casualties and 12% of all deaths in Iraq and Afghanistan from 2003 through 2014 were caused by DNBI.
- Between 2003 and 2011, 82% of over 50,000 service members evacuated from Iraq were because of DNBI.

DNBI historically has been under-captured (particularly in ambulatory forward care). Granular data regarding specific mechanisms of injury, diagnosis, and outcomes is still unavailable.



Critical Vulnerabilities

Degraded Medical Capability: High DNBI volumes overwhelm deployed medical assets, reducing their ability to handle combat casualties

Elevated Non-Deployable Rates: DNBI are a leading cause of personnel being unable to deploy, impacting unit readiness

Delayed Return-to-Duty: Inconsistent non-evidence-based treatments for DNBI lead to longer recovery periods and lost time

A Vulnerable Force: Without systematic surveillance and response plans, commanders cannot make informed decisions and health professionals will not have the tools to protect the force from health threats

Infectious Disease Threats

Disease Outbreaks (Endemic and Epidemic Threats)

High risk when sanitation breaks down during conflict

Each geographic region carries unique challenges

Frequent in congregate setting (recruit training centers, deployed personnel)

Multidrug Resistant Organisms

Caused significant morbidity and mortality during OIF/OEF

Increased wound infection rates with prolonged evacuation times

Increased MDRO colonization with long MEDIVAC chains

Impact across a range of high-impact ID syndromes and pathogens

The Biowarfare Threat

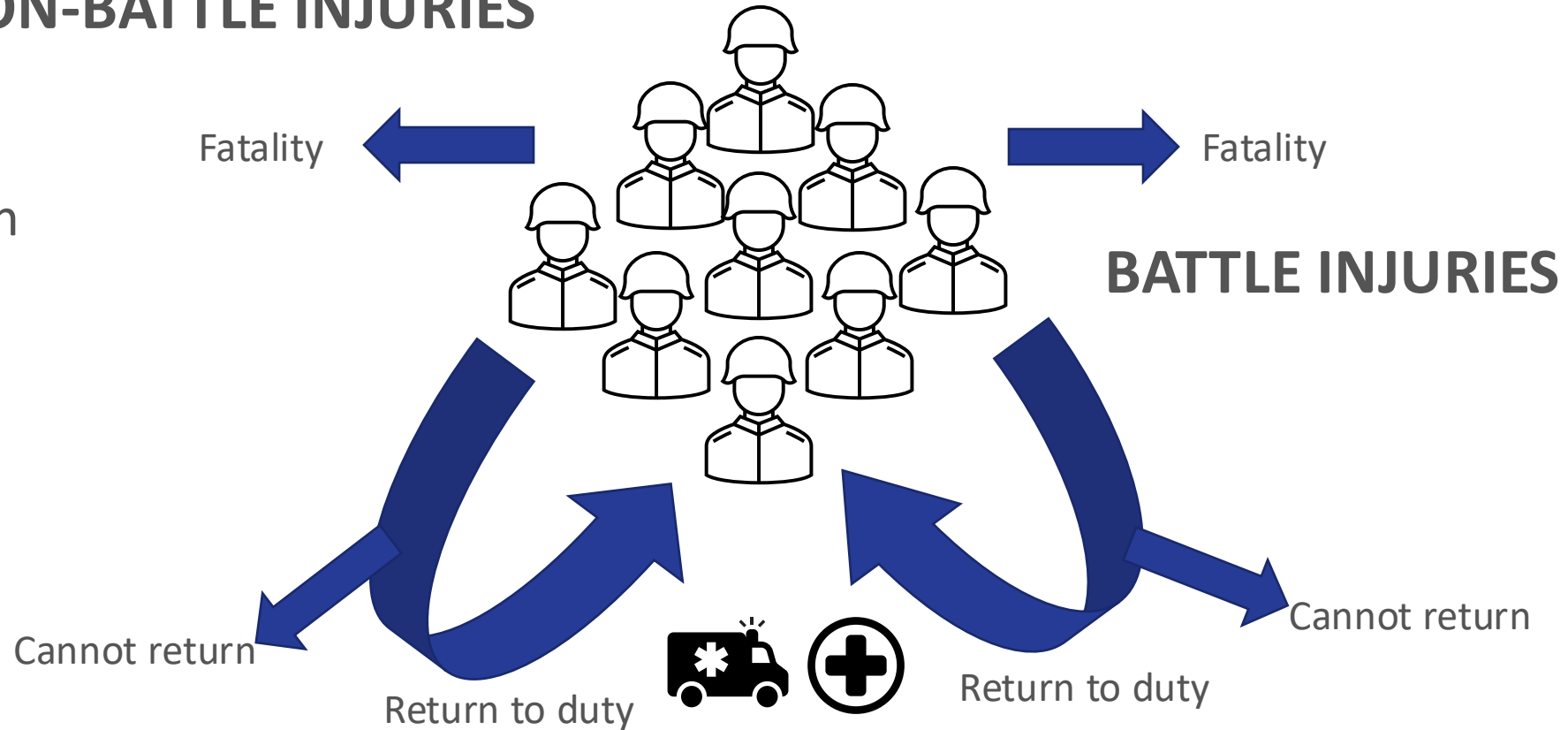
Engineered biothreats are now a reality

All Losses Matter

DISEASE NON-BATTLE INJURIES

Infection
Injury
Mental health
Other
dental
environmental
medical

The Fight



Shared Evacuation and Healthcare Resources

Historical approach to managing infectious disease threats

Opportunities for Improvement



- The U.S. military has lacked a unified, timely, and coordinated system to address infectious disease threats, most notably in forward environments
- This gap has resulted in the following:
 - Fragmented efforts across clinical, public health, health policy, and research prioritization and implementation
 - Limited military-specific clinical practice guidelines for healthcare professionals in operational settings
 - Lack of an effective “knowledge-to-action” capability needed in a dynamic health system that must operate across far-forward field operations and into fixed medical facilities

Proposed solution: Develop and implement the Joint Infection System (JIS), as a component of the Joint Warfighter Medical System, to improve the detection, prevention, and treatment of infectious diseases impacting the Joint Force.

JIS CORE FUNCTIONS



A learning healthcare system that integrates clinical practice, public health, and research to inform policy and practice guidance to rapidly respond to infectious disease threats.

What the JIS Delivers	
Evidence Synthesis	Generate Clinical Practice Guidelines, Policy, & Practice Recommendations
Implementation Science	- Evaluate and Incorporate the latest research and products into practice - Clinical Performance Improvement
Goal Directed Research & Development	Ensure research investments are addressing key threats to force readiness
Surveillance & Data Analysis	- Perform advance analyses and threat prioritization - Develop standardized metrics
Data & Sample Repositories & Registries	Curate and validate data/sample collections to analyze longitudinal clinical outcomes
Education & Training	- Develop courses and training programs that incorporate practice recommendations - Ensure consistency in training and practice



A Joint Infections System

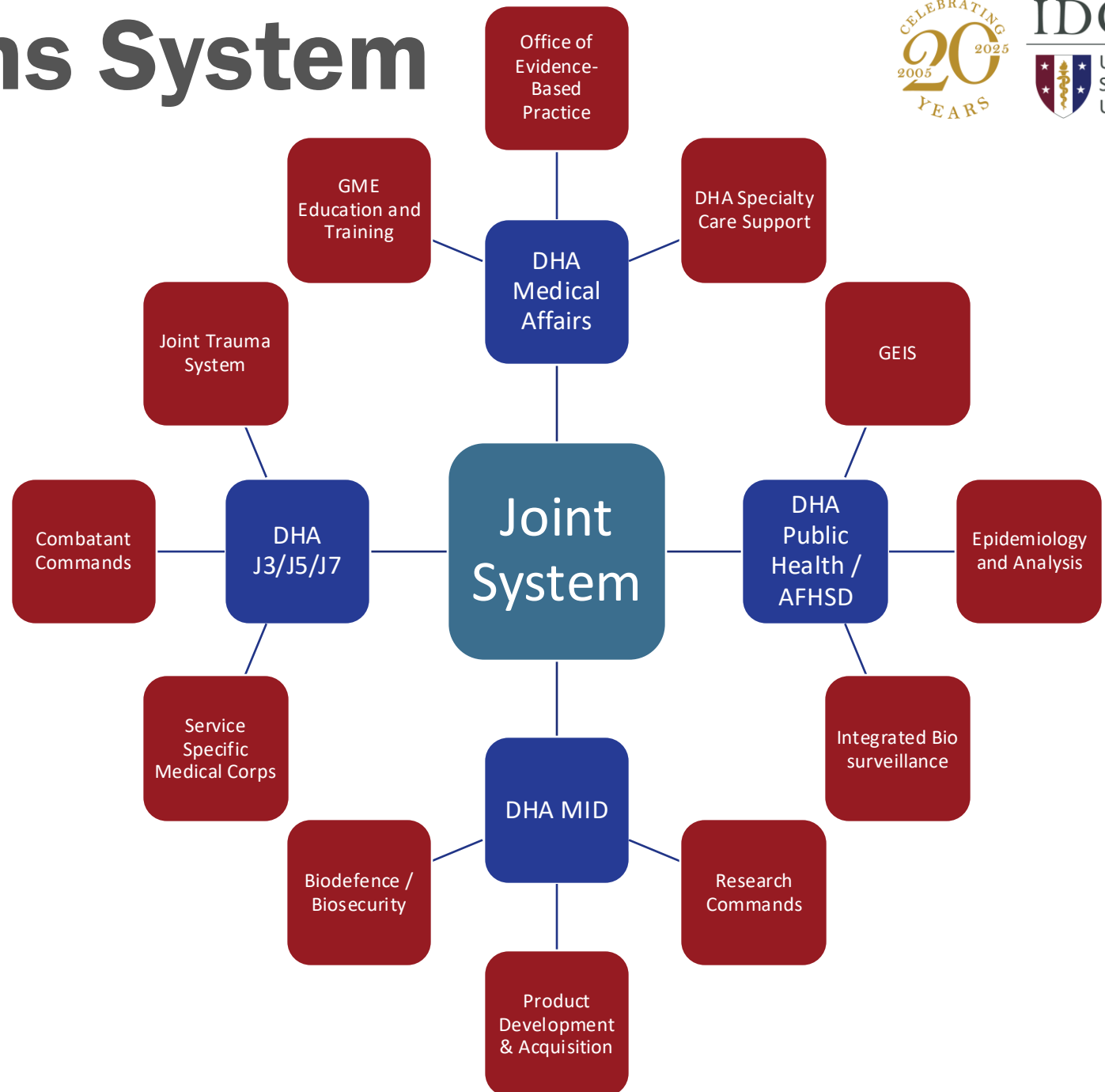
Lines of Communication

Central Oversight – DHA J3/J5/J7

IDCRP/USU – implementing partner

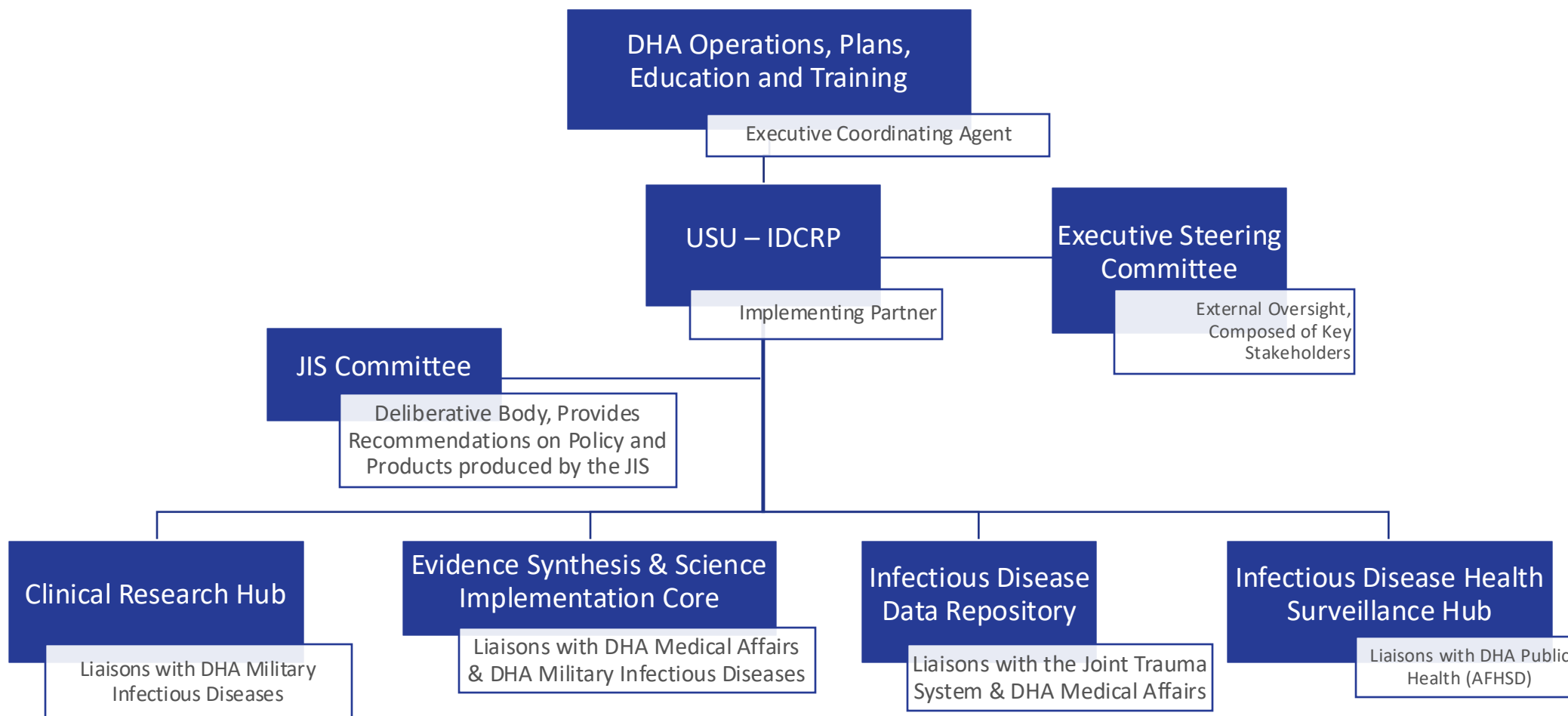
Supports:

- Centralized Clinical Research Hub
 - Knowledge & Material Solutions
 - Promote Translational Research
- Evidence Synthesis
 - Identify Knowledge/Capability Gaps
- Science Implementation
 - Clinical Practice Guidelines
 - Policy Development
- Infectious Disease Data Repository
 - Data Abstraction
 - Specimen Library
- Infectious Disease Health Surveillance
 - Health Threat Advanced Analyses
 - Policy Validation
 - Health Threat Prioritization



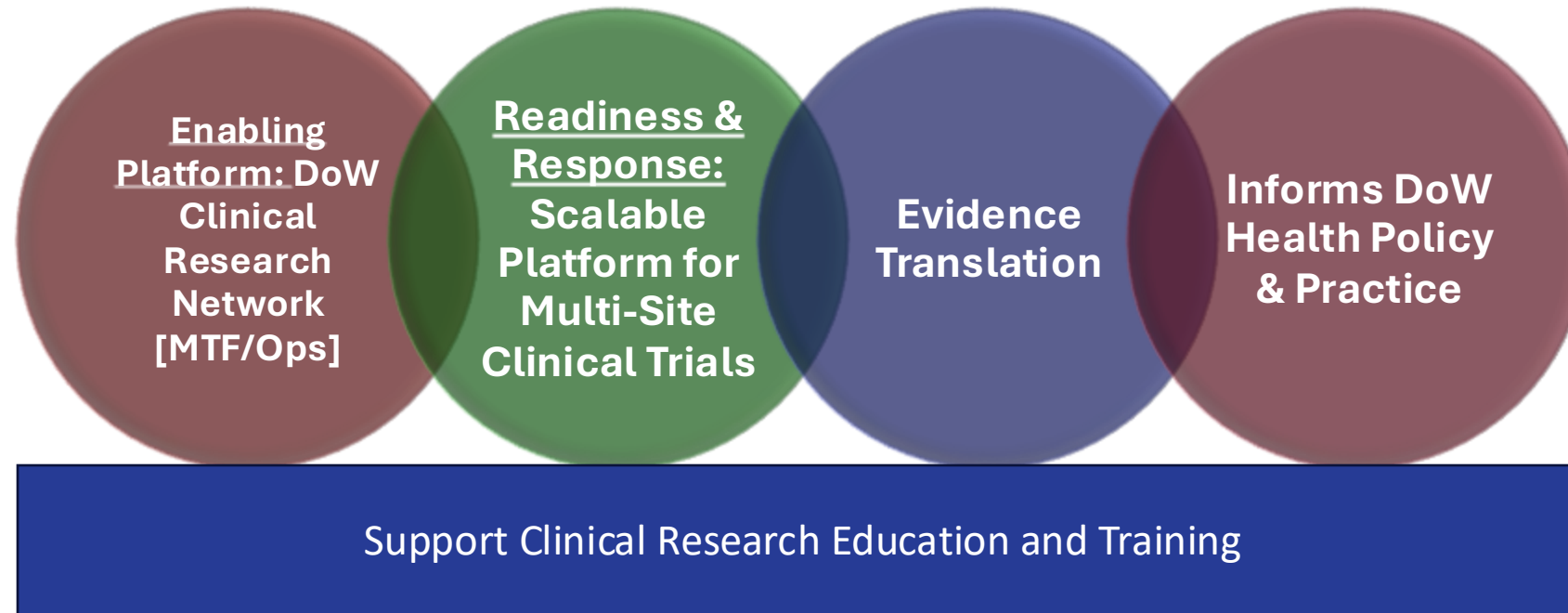
Implementing Partner (IDCRP/USU)

Proof of Concept Example: The Joint Infection System

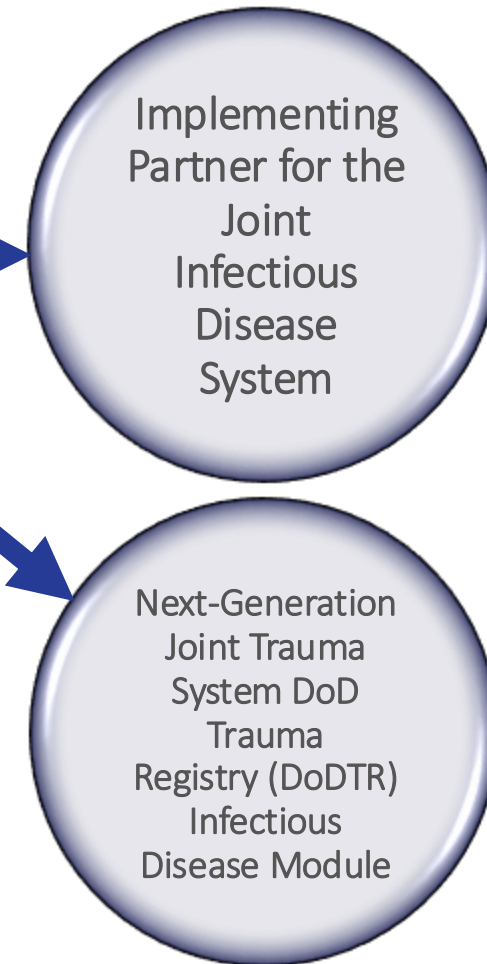


Core Functions of IDCRP

PRESENT



FUTURE



The future seeks to leverage new surveillance technologies and AI tools to inform research priorities and identify information gaps

IDCRP EVIDENCE SYNTHESIS CORE

A Proposed Approach to Clinical ID Military CPG Development



- **IDCRP-EC CPG Development Manual v1.2 (DRAFT, pending final approval)**
 - Based on IDCRP Operational Steering Committee-approved Evidence Synthesis Core new concept
 - Strongly modeled on IDSA CPG development handbook
 - Includes very specific 'how-to' steps for IDCRP development
 - Includes specifics on DHA and MHS aspects of CPG development and implementation
- **Appendix A** - IDSA CPG Handbook
- **Appendix B** - GRADE framework
- **Appendix C** - AGREE reporting checklist
- **Appendix D** - Example LOE and non-personnel resource requirements
- **Appendix E** - Example of an initial CPG topic/scope for formal working group development

Key Takeaways

- **DNBI is a primary drain on combat power**, not a secondary concern AND infections continue to have recurring impact on health and readiness.
- **Even "minor" issues have a major impact**; a single soldier out of the fight can cripple a small team.
- **Force Health Protection is Force Preservation**; preventative measures are critical.
- As demonstrated by the Joint Trauma System, **standardized military-specific CPGs** improve health outcomes. Military ID CPGs are critically lacking. Evidence-based guidance on Detect, Prevent, and Treat lead to more rapid return to duty, optimized use of available resources, and improved health outcomes.
- Integrated clinical and public health ID rates with outcomes that incorporate consequences of infection on servicemember health, readiness, and mission impact best inform **gaps requiring research prioritization**.
- **The future battlefield may look like the past**; we must prepare for a resurgence of infectious diseases in new environments. The JIS is a critical component of the overarching Joint Warfighter Medical System and requires rapid development and implementation.



Questions?

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