



# Preventing Injuries in Combat Through Actionable Analysis

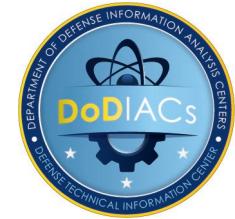
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Joint Trauma Analysis & Prevention of Injury in Combat  
**JTAPIC**  
Preventing Injuries Through Actionable Analysis



DSIAC is a DoD Information Analysis Center (IAC) sponsored by the Defense Technical Information Center (DTIC), with policy oversight provided by the Office of the Under Secretary of Defense (OUSD) for Research and Engineering (R&E). DSIAC is operated by the SURVICE Engineering Company.



# JTAPIC Authorities

- The Secretary of the Army (SECARMY), the Department of Defense Education Activity (DoDEA) for blast injury research, delegated EA authority to The Surgeon General, who delegated the Medical Research & Materiel Command (MRMC) Commanding General as the authority to act as the DoDEA responsible official.
  - JTAPIC supports the DoDEA's responsibility to maintain and use a joint database to collect, analyze, and share information on the efficacy of personal and vehicle occupant blast injury protection systems (DoDD 6025.21E, para 5.3.4, 5 July 2006).
- JTAPIC Charter was signed by SECARMY on 21 March 2013.
- DoDI 6490.11 directs combatant commands (CCMDs) to report monthly potentially concussive events to JTAPIC; the Project Management Office (PMO), in turn, provides analysis of the data to the Defense Health Agency and the Services.
- Update capability development document (CDD) through the Army Futures Command Requirements Working Group.

# The JTAPIC Partnership

## Materiel



# What does JTAPIC do?

- JTAPIC is a DoD unique capability that links operational combat data with medical injury data for Service members killed or injured in the deployed environment.
- JTAPIC data collection and analyses addresses the performance and subsequent medical outcomes of the personal protective equipment (PPE) Service members wear and the vehicles and aircraft that deliver them to and from the battlefield when engaged with the enemy.
- JTAPIC integrates subject matter experts from 10 partner organizations representing the medical, intelligence, materiel, operational, and information technology communities.
- Prior to JTAPIC, operational, intelligence, medical, and material data resided in respective organizational stovepipes. Integration of events, their effect on materiel, the Service member, with the specific threat, and by whom has saved time, money, and lives.
- JTAPIC Data and Analysis:
  - **Informs** material community of current injury-linked platform performance, validates proposed modifications, and provides context for future requirements.
  - **Assists** units of action with Combat Incident Analysis Reports involving unit personnel for pre-deployment training development and after-action reviews.
  - **Communicates** contextualized injury trends to CCMDs and senior leaders.
  - **Provides** material modeling validation and test parameter context to live-fire test and evaluation community.
  - **Engages** international partners regarding collection and analysis of ballistic evidence.
  - **Stores** incident data, analysis products, and ballistic evidence within a centralized database.

# Where Does JTAPIC information Go?

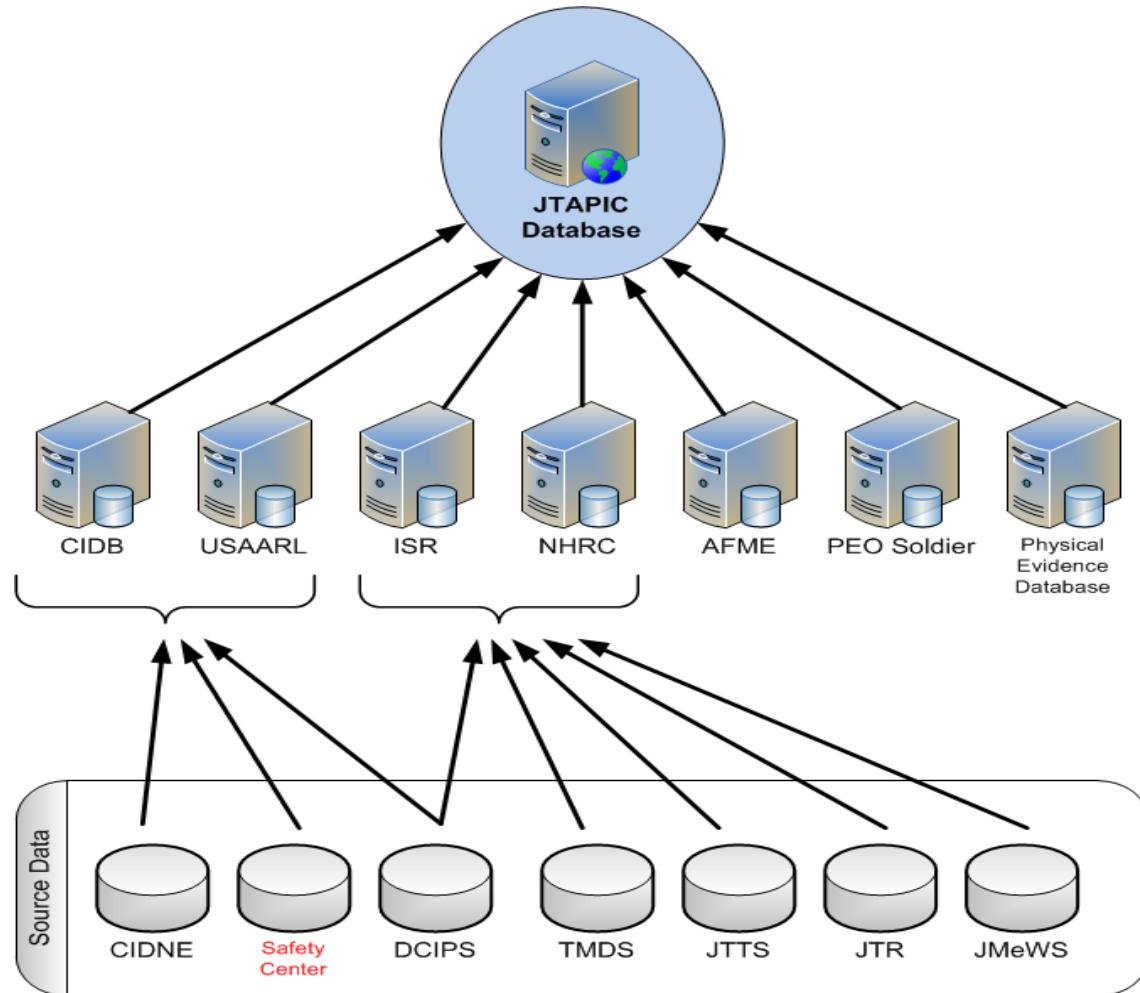
- Decision Support to Ground Combat Systems Cross Functional Team (CFT) – Weapons Damage to Ground Vehicles – Analysis of U.S. ground platforms damaged/destroyed in casualty-causing, hostile-fire incidents from 2001 to present by threat to prioritize data collection and threat algorithms for the multimission unmanned aerial systems payload task.
- Decision Support to Future Vertical Lift (FVL) CFT – Comprehensive analysis of two rotary wing platforms (Blackhawk & Apache) examining injuries sustained by U.S. Service members in combat aviation events in the context of specific event circumstances. These products provide FVL CFT with combat-driven data for risk reduction and technology maturation efforts.
- Combating Terrorism Technical Support Office Lethal Ground-Based Sensor Requirement – JTAPIC analysis of geographical proximity in special operations casualties prompted the development of a requirement for a lethal ground-based sensor. Technical requirements (classified) are forthcoming to industry for procurement.
- Current Operation Incident Reporting (COIR) - The COIR is a detailed operational and injury report of casualty-causing combat incidents. JTAPIC analyzed 48 combat incidents (June-Sept. 2019) integrating medical, materiel performance, operational, and intelligence data and distributing weekly to stakeholders. Modified mission planning; alteration of tactics, techniques, and procedures (TTPs); and more accurate after-action reporting is recounted by Special Operations Forces (SOF) end users.
- Special Operations Partnership - The SOCOM Surgeons Office requires JTAPIC case study presentation in the Special Operations Combat Medic Skills and Sustainment Course and its recertification pathways. Additionally, SOF receive JTAPIC case studies as part of pre-deployment education and training to provide insight to recent enemy TTPs in relevant geographical areas.
- Pre/Post-deployment engagement - Special operations groups now conduct pre/debriefs with JTAPIC to collect additional information regarding any combat incidents and to share lessons learned.
- The Technical Cooperation Program (TTCP) - Significant contribution and progress made by the TTCP Land Systems toward understanding fragment threats to personnel and safeguarding the techniques needed to do this in the future. JTAPIC conducted the comparative analysis of combat data. As a result, TTCP nations now have the capability to define and test personnel protection measures to standards, ensuring the minimal necessary burden for the most appropriate level of physical protection.

# JTAPIC: Saving Lives, Money and Time

Associated Risk	Problem	Customer/Year	JTAPIC Effort	Impact
Joint Light Tactical Vehicle (JLTV) Static Stability Factor (SSF) of .82-.88. SSF of 1 or less correlates to >40% probability of rollover per single vehicle crash.	High risk of rollover identified in JLTV testing. JLTV capability production document (CPD) requires enhanced vehicle control. Electronic stability control (ESC) would lower risk, but was not included in LRIP JLTV program.	2016 - Marine Corps Combat Development Command	With 2 weeks' lead time, JTAPIC provided data on 280 high-mobility, multipurpose, wheeled vehicle and mine-resistant, ambush-protected (MRAP) accidents, associated injuries/fatalities and determined cause of rollover.	Initiates a post Milestone B decision to include ESC at \$1K/unit vs. retrofit of \$11K/system for 49K units. Savings: \$490M.
Heavy loading contributes to one-third of medical evacuations in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) due to spinal/connective tissue/musculoskeletal injuries (twice that of combat injuries).	Body armor weight reduction without compromising survivability.	2017 - Combat Capabilities Development Command/Data and Analysis Center	Analyses examining injuries/fatalities within actual operational contexts drove computational and laboratory experiments for back face armor blunt trauma.	Army approves changing back face deformation requirement from 44mm to 58mm, driving lighter body armor and reduced costs and load, without compromising survivability.
Perceived high risk of injury based on multiple clinical presentations in a short period of time.	<i>Military Medicine</i> journal article claimed MRAP automatic fire extinguishing system (AFES) caused inhalation injury/fatalities and recommendation for "improvements in MRAP vehicle design, fire suppression system protection, and development of alternative extinguishing agents."	2015-Army Public Health Command	JTAPIC conducted case report reviews, live fire test and evaluation with surrogate MRAP hull and threat, looked at inhalational injuries across OEF, and determined that the claim was unsubstantiated.	TARDEC determined that a priority investigation and potential redesign of the fielded AFES was not warranted and that life cycle modernization schedules did not need to be altered in response. Savings: \$40M.
The majority of OEF burn casualties are mild/moderate severity and to body areas covered by the combat uniform.	Gap in understanding of flame-resistant protection needs for current and future environments.	2018 - Natick Soldier Research, Development and Engineering Center	JTAPIC provided multiple analyses products trending thermal injuries in theater, by mission, and military occupational specialty in the deployed environment.	This information will directly impact CDDs and CPDs for current programs including FRACU, ACS, ACP, A2CU, ICVC, FREE, EPS, Improved Ghillie Suit, and Jungle uniform efforts.



# JTAPIC Information Streams



# JTAPIC PMO Information Systems

- JTAPIC Database
- JTAPIC Analysis and Collaboration System
- JTAPIC Concussive Exposure Reporting System
- Physical Evidence Database
- Combat Incident Analysis Team Database



**JTAPIC Information and Collaboration System (JINCS) Initial Operating Capacity Late FY20**

# JINCS Features

- Web-based NIPR and SIPR interfaces
- DoD PKI access control
- RFI Module
- Product Library
- SIPR Database
- Analytical Tools
- Full Metrics Suite

The screenshot shows the JINCS web application interface. At the top, there's a banner with the JTAPIC logo and the text "JINCS JINCS Information and Collaboration System". Below the banner, the page title is "Home Page". A navigation menu on the left includes links for Home, RFI, Product Library, Users/Roles, Assignments, Workflow Mang, Metrics, Olandress Test, Jeff Test, FAQ List, Announcements, Meeting Request, Helpdesk, Change User, and Logout.

The main content area contains several sections:

- JTAPIC Announcements:** A box containing a link to "Test Permissions".
- Assignments Activated Since Last Login:** A table with columns for "Workflow Title", "Step Activate Date", and "Active Step". One entry is "Non Rfi Product Approval - Jeff test" with "2020-Feb-21" and "Non Rfi Product Approve/Deny".
- Your Active RFI:** A table with columns for "Title", "Date", and "Status". Entries include:

Title	Date	Status
ASDAT Retro. Study: Chinook	2017-Oct-17	In-Progress
18-020N	2018-Jul-10	In-Progress
Impact of IEDs to Vehicles and Personnel	2019-Jun-24	In-Progress
Test Standard Map 1-28-20 3:41	2020-Jan-28	In-Progress
Test VBA 1-28-20-12:35	2020-Jan-28	New
Jeffery Test	2020-Jan-29	In-Progress
Test RFI Discussion 1-29-20	2020-Jan-29	In-Progress
Generic Test 1-30-20 8:45	2020-Jan-30	In-Progress
VBA test 1-30-20 9:03	2020-Jan-30	New
Push Product 1-30-20 9:10	2020-Jan-30	New

# Conclusion

- **Historical and ongoing JTAPIC data collection and analyses impacts:**
  - Current and future military vehicles, aircraft, and PPE development
  - Real-time, relevant operational training for both combat arms and support personnel
  - Mortality and morbidity
  - Combat lessons learned
- **Updated JTAPIC Information and Collaboration System will:**
  - Combine and house disparate data sources and analytical tools
  - Employ highest standards of data protection
  - Create efficiencies for system users

# JTAPIC Contact Information

- For more information about JTAPIC or to submit an analysis request:  
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