



USAMRDC JTAPIC

JOINT TRAUMA ANALYSIS AND PREVENTION OF INJURY IN COMBAT

MISSION

The Joint Trauma Analysis and Prevention of Injury in Combat program analyzes data and information to address Warfighter vulnerabilities and increase survival rates. The chief goal is to develop better tactics, techniques, training, procedures and DOTMLPFP non-materiel and materiel solutions that will prevent or mitigate traumatic injuries.

BACKGROUND

Through a partnership among the intelligence, operational, materiel, and medical communities, the JTAPIC program collects, integrates, and analyzes combat operations, threat, and injury data. Operations and threat data analysis defines the combat incident as it unfolded. Analysis of casualties incurred and the injuries they received define the consequences of the engagement. Analysis of damage to personal protective equipment (PPE) and platform armor aids in evaluating equipment performance, as well as clarifying threat capabilities. The knowledge gained from this integrated analysis feeds into computer modeling and simulation to replicate and confirm operational events. Integration of these efforts provides a holistic view of potential friendly force vulnerabilities and illuminates opportunities to improve procedures and protective systems in future.

JTAPIC helps evaluate weapon systems (design, capabilities, and force protections) and provides analyses that help program managers make sound acquisition decisions.

JTAPIC also provides actionable information to combat vehicle program managers, some of which has led to modifying vehicle equipment, such as force-attenuating seats to prevent or mitigate combat injuries. As materiel improvements are fielded, continuous tracking and analysis of combat incidents provides data to developers to analyze and evaluate effectiveness over the long term. JTAPIC also evaluates autopsy information, after-action reports, and medical injuries; assesses vehicle damage reports and ballistic studies; and conducts computer modeling and simulation to replicate and confirm operational events.

JTAPIC's analysis improves the military's understanding of its vulnerabilities to threats and enables it to improve tactics, techniques, training, procedures and materiel solutions to prevent or mitigate combat related injuries. Analyses lead to longer-term changes that impact the broader military community, such as doctrinal changes that guide military operations or Warfighter training programs.

Through a partnership of intelligence, operational, materiel, and medical organizations, the JTAPIC program collects, integrates, and analyzes operational, threat, and injury data to inform solution to prevent or mitigate combat injury



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QUESTIONS & ANSWERS

What is JTAPIC?

JTAPIC is a partnership among DoD intelligence, operational, medical, and materiel development communities that collects, integrates, and analyzes injury and operational data. The goal is to leverage the integration of each of these communities as a multidisciplinary team to better understand vulnerabilities to threats and to improve tactics, techniques, training, procedures and materiel solutions to prevent or mitigate traumatic injuries. When was JTAPIC launched?

JTAPIC was established at USAMRMC at Fort Detrick in July 2006 to fulfill the joint database and information-sharing intent outlined in the 2006 National Defense Authorization Act and in the DoD Directive “Medical Research for Prevention, Mitigation and Treatment of Blast Injuries.”

What did the military do in the past to improve Warfighter survivability before the creation of the program?

Before JTAPIC, military organizations focused on improving Warfighter survivability from their individual perspectives. The medical community focused on battlefield medicine. The individual body armor testers focused on performance specifications and development of process improvements under testing conditions because few articles were returned for analysis. Vehicle developers had no interpretive medical information regarding combat injuries to guide or evaluate modifications made to fielded vehicles. Likewise, combatant commander, materiel developers, or the capability generators at the centers and schools had no formal process for obtaining specific medical injury data to guide their decisions.

The Army's ability to assess and improve Warfighter survivability is a top priority. The JTAPIC program is a partnership among medical, intelligence, operational, and materiel development communities to improve strategies to prevent or mitigate traumatic injuries. The JTAPIC program provides actionable information and recommendations to combatant commanders, combat and materiel developers, and other stakeholders.

What are some of JTAPIC's accomplishments?

The JTAPIC program has made a difference in the way the Army protects Warfighters from combat related injuries. For example, the program has established an effective, near real-time process for collecting and analyzing data from combat incidents. Using this process and sophisticated fragment analysis procedures, the program was able to confirm the presence of prominent threat weapons of interest to the intelligence community. JTAPIC has also provided combat data to validate materiel modeling and new requirements for existing and new combat vehicles, and provides contextualized injury reports to combat commanders.

As the DoD continues to conduct combat operations, it is important to capitalize on opportunities to quickly identify weaknesses and vulnerabilities through incident analysis and trend analysis to adjust our tactics, techniques, and procedures and upgrade vehicles and protective equipment to reduce injury and save lives. Enhancing the Army's ability to adapt more quickly will maintain a tactical advantage on the battlefield.

How specifically does JTAPIC help the Warfighter?

The DoD has used the actionable information provided by JTAPIC to change the way it protects Warfighters from combat injuries. Modifications and upgrades have been made to vehicle equipment and protection systems, such as seat design, blast mitigating armor, and fire suppression systems. Combatant commanders have altered their tactics, techniques, and procedures in the field as a result to the incident analyses and near real-time feedback on threats provided by the JTAPIC program.

JTAPIC has established a scientific discipline, process, and policy to systematically investigate combat - related trauma events to discover positive and negative attributes of equipment and vehicles in Warfighter survivability.



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QUESTIONS & ANSWERS

Who are some of your partners? And in what ways do they assist JTAPIC?

Partners include the following:

- **Office of the Armed Forces Medical Examiner:** Provides information, analysis, and subject matter expertise on Killed in Action.
- **U.S. Army Maneuver Center of Excellence – Combat Incident Analysis Team:** Provides operational and intelligence information and analysis of casualty causing combat events.
- **U.S. Army National Ground Intelligence Center:** Provides operational and intelligence information and analysis of mounted casualty causing combat events.
- **U.S. Army PEO Soldier:** Provides analysis of combat-damaged PPE.
- **U.S. Army Combat Capabilities Development Command, Data and Analysis Center:** Provides modeling and simulation expertise and analytic support.
- **U.S. Army Aeromedical Research Laboratory:** Provides analytic support.
- **Naval Health Research Center:** Provides information, analysis, and subject matter expertise on WIA.
- **U.S. Army Corps of Engineers, Engineer Research and Development Center:** Provides information technology and computing analysis support.

JTAPIC's analyses sound complex. What is your process for collecting and analyzing such a wide range of data?

JTAPIC has established a scientific discipline, process, and policy to systematically investigate combat-related events to discover positive and negative attributes of equipment and vehicles in Soldier survivability.

There are three key phases of JTAPIC research: cause, effects, and remediation. In the cause phase, JTAPIC gathers all the operational, medical and intelligence data from combat events. In the effects phase, JTAPIC marries the operational data with associated vehicle damage and protective equipment

damage and injury. In the initial portion of the remediation phase, JTAPIC integrates data into a collaborative work environment, and it establishes a framework for integrated multi-community analysis. In the final step of the remediation phase, the analysis products are shared with service materiel developers, surgeons, and general Training and Doctrine Command (TRADOC).

Has JTAPIC won any recognition for its work protecting the Warfighter?

Yes. In 2019 JTAPIC's efforts were recognized as a part of the Technical Cooperation Program (TTCP) Team Achievement Award. The team documented techniques for capturing and analyzing fragments from combat events, in order to characterize the fragment threat, and described how models can be used to define more realistic protection standards.

In 2008, JTAPIC and its partners received the Department of the Army R&D Laboratory of the Year Award for Collaboration Team of the Year. In addition, in fall 2010 the National Museum of Civil War Medicine honored JTAPIC with the Major Jonathan Letterman Medical Excellence Award for its innovative contributions to military medicine.

What's on the horizon?

The JTAPIC partnership will continue to collaborate with the international community of partner nations and provide actionable information to vehicle program managers and TRADOC capability managers to assist with force modernization decisions. In addition, JTAPIC will continue to provide targeted analysis and information in response to specific requests for information from DoD customers to help guide decisions.