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# **MEDICAL SITUATIONAL AWARENESS IN THE THEATER (MSAT)**

(Formerly titled “Force Health Protection”)

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## **WHITE PAPER**

### **For FY 05 New Start**

Prepared by DASD/FHP&R

Medical Situational Awareness in the Theater (MSAT) ACTD  
For FY 05 New Start

1. **Statement of the military problem.** Combatant Commanders lack timely, complete, actionable health information for operational decision-making, thereby putting troops at unnecessary risk to illness or injury and jeopardizing force strength and morale. The current stovepipe information systems do not provide timely trend analysis or immediate warning alerts that identify risks. Rather, these disparate systems require intensive human manipulation, which causes systems to be poorly used.

Current data domains that do not connect well include medical intelligence, occupational and environmental hazard reporting, chemical and biological threat warnings, trauma reporting, disease and non-battle injury (DNBI) data, personnel unit and location data, etc. These data are generally collected by different agencies, often sporadically, and not universally shared, making it an impossible task to sort, understand, and generate actionable knowledge within operational timeframes from the vast amount of raw data that could be used.

2. **Technologies that address the problem.** Technologies exist today that can begin to solve the problem, but the appropriate doctrine must be promulgated and the technology must be properly integrated and configured to implement that doctrine. Each of the Services has developed interim data capture capability in medical and non-medical areas pertinent to this ACTD. The analysis of the disparate data and the reporting of results will allow protective measures to be implemented and factored into the medical and operational status of a deployed Joint Force. Potential technology contributors include:

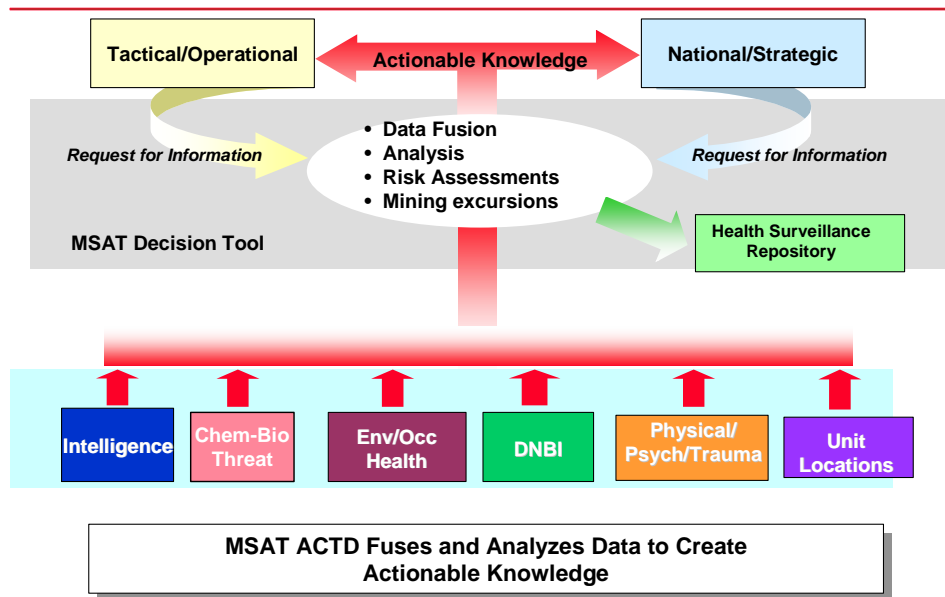
- Defense Occupational & Environmental Health Readiness System (DOEHRS)
- Defense Medical Surveillance System (DMSS)
- Global Command & Control System (GCSS)
- Global Expeditionary Medical System (GEMS)
- Shipboard Automated Medical System (SAMS)
- Defense Integrated Military Human Resources System (DIMHRS)
- Transportation Command Regulating & Command & Control Evacuation System (TRAC2ES)
- Joint Medical Workstation (JMEWS)
- Comprehensive Health Care System II – Theater (CHCS2-T)
- Medical Common Operating Picture (MEDCOP)
- Joint Biological Agent Identification & Diagnostic System (JBAIDS)
- Joint Warning & Reporting Network (JWARN)

Currently a number of commercial technologies exist or are being developed that may support the ACTD and they will be exploited; they include: Gemini/Modernized Integrated Database; fusion applications; artificial intelligence capabilities; web-enabling technologies; sensor and point-of-use data capture technologies; and technologies for the capture and analysis of physiological changes.

3. **Support to Joint operations.** The proposed ACTD supports Joint operations by providing Joint commanders and staff with enhanced knowledge of the health readiness of their forces by generating information on emerging medical threats and health-related trends during deployment, so that when warranted, operational plans may be adjusted on a real-time basis. It also supports the Joint Force commander by providing medical threat and trend information during pre-deployment as well as for application to follow-on forces prior to their deployment into the Joint Operational Area. Another significant benefit of collecting and archiving this information in a standard manner is that it can be used to develop support plans for future operations and to support post-conflict studies and research.

4. **Description of the demonstration.** The ACTD will fuse current and emerging technologies and apply artificial intelligence and computerized decision support systems to transform collected, scattered data into timely, actionable information and knowledge. Secondly, as a by-product, the ACTD will archive the data to establish a DoD repository for health surveillance information that provides reach back capability to Joint Force and Combatant Commanders, Joint Staff, the Services, the Office of the Secretary of Defense, and others. The ACTD CONOPS overview is depicted in the graphic below.

## *ACTD CONOPS Overview*



5. **Estimated schedule of the ACTD.** During the first year of the ACTD, we will refine the architecture and identify new and sufficiently mature technologies for possible insertion or integration into the ACTD concept. By the last quarter of the first year we will stand up the Medical Situational Awareness System and begin the first of a series of field trials to determine the utility of the technologies and the concept for the fusing, trending, and archiving of information, using a spiral development model to incrementally grow the architecture while eliminating nonviable alternatives and decreasing risk. These trials will continue through the second and third years (FY06 and FY07) with a full concept demonstration of the capabilities of the technology and associated tactics, techniques, and procedures in a Joint exercise or operation scheduled to begin the latter part of FY07.

6. **Estimate project cost.** The estimated cost of the ACTD is approximately \$50 million, broken out as follows:

- \$9M – concept and development
- \$18M – field trials
- \$7M – full demonstration
- \$16M – transition/extended user evaluation

7. **Risk assessment for the estimated technical and funding requirements.** The ACTD minimizes risk by leveraging on-going programs and by fusing information already being collected by various agencies, but not being shared systematically nor archived in any standard way. Additionally, the Medical Situational Awareness in the Theater ACTD supports the development and fielding of TMIP block III.

8. **Identification of potential measures of effectiveness and performance.** Measures of effectiveness will be developed for:

- Ability and time required to identify, communicate, and react to immediate and emerging medical and environmental health care threats.
- Ability to combine, transmit, and process data from currently disparate systems.
- Ability to provide situational awareness of health hazards to Joint Force commanders.
- Degree to which units and personnel assigned to those units can be identified with exposures to occupational and environmental hazards.

9. **Sponsors.**

- Lead Agency: Office of the Assistant Secretary of Defense, Deployment Health Support Directorate
- Technical Manager: United States Army Medical Research & Materiel Command
- Lead Investigator: Naval Health Research Center (NHRC)
- Operational Manager: PACOM Surgeon
- Transition Manager: PEO Joint Medical Information Systems Office

10. **Identification of potential residual assets/capabilities.** Products with military utility will remain for COCOM use; the sustainment funding and support mechanisms currently identified will ensure operational capability remains throughout the extended user period. Additional

residual capabilities include: continued refinements of the Medical Situational Awareness System; continued ability to populate the DoD Health Surveillance Repository and to share data with an emerging user base; capability to verify and adjust physiologically-based models that form the backbone of decision systems; and the availability of data for multiple longitudinal analyses (analysis of long-term health outcomes, new doctrine, enhanced training regimens, etc.).

**11. Preliminary transition strategy.** The ACTD will use spiral development to introduce and assess various capabilities over the period of field trials. Feasible technologies will be spun off for early field operational evaluation and implementation. Successful technologies and operational concepts may be transitioned early to an acquisition program of record for adoption and force structure fielding. The targeted program of record is the PEO Joint Medical Information System (JMIS). At ACTD conclusion, final recommendations on military utility will be provided to Combatant and Medical commanders in theater.

**12. Originator point of contact for the ACTD.** Mr. Anthony DeNicola, ODASD FHP&R, 1-800-497-6261, or [special.assistant@deploymenthealth.osd.mil](mailto:special.assistant@deploymenthealth.osd.mil).