Joint Biological Agent Identification and Diagnostic System (JBAIDS)

Executive Summary

- The Joint Biological Agent Identification and Diagnostic System (JBAIDS) is operationally effective for ground-based units. It has yet to be tested to determine if it is operationally effective for shipboard use. Timely identification of an agent (3-4 hours versus 24-48 hours from traditional culturing methods) aids in improved situational awareness, isolation of personnel, and reduced exposure to the agent.
- The system has suitability issues with respect to deployment, reliability, and safety hazards.
- Revised sample preparation protocols that eliminate the use of the large centrifuge to accommodate shipboard size and safety concerns will be evaluated in follow-on operational test and evaluation.

System

- The Services intend the JBAIDS to be a reusable, portable, biological agent identification and diagnostic system capable of identifying multiple biological agents simultaneously.
- JBAIDS is intended to satisfy a need to rapidly identify biological threat agents in clinical specimens and environmental samples, and may interface with computer warning systems.
- It consists of an analytical device, sample preparation kits, reagent kits, laptop computer, centrifuge, and other support equipment.
- The total system with supporting equipment weighs approximately 1,500 pounds and measures 227 cubic feet.

Mission

- Units equipped with JBAIDS can identify biological agents to support a commander's force protection decisions by providing timely information for determining appropriate treatment, effective preventive measures, prophylaxis, and operational decisions.
- JBAIDS is intended to be employed in units such as:
  - Army Area Medical Laboratories, Combat Support Hospitals, and Army Veterinary Service
  - Navy Environmental Preventive Medical Units, and aboard carriers and amphibious assault ships
  - Marine Corps Preventive Medicine units
  - Air Force Forward-Deployed or Forward-Positioned Biological Augmentation Teams
- JBAIDS provides enhanced capabilities to the warfighter against both conventional infectious organisms that occur naturally in the environment and biological weapons threats.
- JBAIDS provides the Services with confirmatory identification capability.

Activity

- The full-rate production decision on March 10, 2006, approved procurement of systems for ground-based units, but did not approve fielding until extraction and inhibition (process quality) controls are developed. JBAIDS was not approved for shipboard use due to the size of the centrifuge, which is being replaced by an alternate sample preparation protocol.
- Fielding to Air Force units is underway at the request of the Air Force Office of the Surgeon General. Fielding to Army units will begin upon completion of extraction and inhibition control in March 2007.
- Revised sample preparation protocols, which do not require a large centrifuge and can be certified for shipboard use, will be evaluated in follow-on operational test and evaluation.

Assessment

- JBAIDS is effective in identifying biological warfare agents in a timely manner (3-4 hours versus 28-48 hours from traditional culturing methods) and aids in improved situational awareness, isolation of personnel, and reduced exposure to the agent.
- Inclusion of extraction and inhibition controls will provide greater confidence on the part of operators and reduce false positive and false negative calls.
- There are suitability issues with the footprint (ancillary equipment and materials) being too large, particularly for shipboard use.
- The JBAIDS system will provide capability to identify ten Block I bio-warfare threat agents, but safety issues such as the requirement of Bio Safety Level II and III facilities

for analyses of some agents may preclude use in some forward-deployed laboratories.

Recommendations

- Status of Previous Recommendations. All FY05 recommendations were resolved except for the following: FY05 #3: Reagent kits have not been optimized to improve limit of detection of the JBAIDS instrument.
- FY06 Recommendations. None.