InterAgency Board (IAB)

2009 R&D Priority List Descriptions

This R&D survey was vetted through the IAB membership. The research and development items were assessed based on the following criteria: urgent need, life safety, mission performance, incident management, compatibility or interoperability, use by multiple responder disciplines, and use in day-to-day operations as well as major incidents.

To learn more about the IAB and the surveys, please visit *www.iab.gov*.

1. **Personal Bluetooth (like) Radio Interface:** Device would develop a personal interface between the wearer and their existing radios to provide wireless communications capability while wearing Personal Protective Equipment (PPE) and respirators.
2. **3-D Tracking of Personnel:** Technology for tracking location coordinates of personnel operating in a 3D environment.
3. **Hands-free Radio Intercom:** A portable radio/accessory combination that must allow for: 1. Hands-free, intercom style communications via portable radios amongst a small group of persons in close proximity to each other (≤30 feet), and 2. Simultaneous ability to listen to a command channel, and when keying a microphone, have the ability to talk on the command channel.
4. **Validated Performance Criteria and Certification Testing Methods for Wireless Personal Alert Safety Systems (PASS):** Designed to assist in locating fire fighters and other emergency services personnel who become incapacitated or are in need of assistance. Addresses the urgent need for the development of validated performance requirements and certification testing methods for "wireless" PASS devices.
5. **Noise-filtering Digital Speaker/Microphone for SCBA Facepiece:** Digital speaker/microphone that will clearly transmit spoken audio over radio communication systems while a responder is wearing an SCBA facepiece.
6. **Improved Single Detector for CWAs and TICs:** Single device that will detect multiple agents (including both chemical warfare agents and toxic industrial chemicals) instead of carrying two or more detectors.
7. **Emergency Responder Body Worn Integrated Electronics System Development:** Development of a body worn electronics system integrating enhanced communications capabilities, locations and tracking capabilities, situational awareness and environmental sensing capabilities, physiological status monitoring capabilities, and respiratory protective equipment status.
8. **CAD-to-CAD Interface Information Resources:** Requirement to establish a protocol (or suite of protocols) to permit the seamless transmission of information between disparate Computer Assisted Dispatch (CAD) Systems.
9. **Improved Explosive Detection Capability:** Requirement for user-friendly explosives detection by personnel with training that is capable of detecting the full range of IED materials. Should include the ability to determine type of explosive.
10. **Handheld Standoff Chemical Identifier:** Instrument capable of detecting and identifying chemical substances from outside of exposure or contamination zone, at long or safe standoff distances. Must be intrinsically safe, able to withstand temperature and humidity changes, and ruggedized for field use.

11. **Study and Standard Development of Incident Management Qualification:** Need to establish a training and qualification system that provides a focus on incident management across the country. It is difficult for responders to obtain access to training and continuing education for the purpose of obtaining/maintaining position(s) competency due to time, program availability, and incident experience. Therefore additional analysis is required to address: 1) The need to standardize qualification and training across responder disciples, and 2) Improved access to existing training in various formats and media.
12. **Multi-agent Biological Detection Field Assays:** A multi-agent biological detection field assay that meets AOAC standard(s) (if applicable). The assay shall have a single sample port providing results for all assays on a panel or in test and shall be sensitive, specific, and shall not require the use of a "reader". This assay shall be useable in a field or "downrange" all-weather environment and should have a long shelf-life, stored at room temperature.
13. **Vehicle Borne Improvised Explosive Device (VBIED) Render Safe Tool:** A tool to effectively and quickly render safe both small and large VBIED.
14. **Identification of Wildland Fire Fighting Respiratory Hazards and a Certification Standard for Wildland Fire Fighting Respiratory Protective Equipment:** Requirement for the development of performance standards for respiratory protection during wildland firefighting operations or while operating within the wildland firefighting environment.
15. **Device for Standoff Casualty Locator:** A portable device that provides the capability for standoff casualty triage that locates patients that are still viable.
16. **Research Feasibility of Air-Purifying Respirator (APR) Use During Late-stage Incendiary Incident Operations:** Requirement for research to establish guidelines for monitoring and decision-making that would identify the critical combustion by-products and permissible levels, as well as common hazards, together with specific criteria for transitioning from SCBA to APR. Result would be handbook-style publication.
17. **Rapid System(s) to Decontaminate Ambulance Interiors:** This requirement is essential for protection against contagious and infectious pathogens (capable of a pandemic spread). The primary focus of this requirement is bacterial and viral decontamination with the secondary focus being chemical and radiological decontamination.
18. **Modeling, Simulation & Gaming Software Evaluation Tool:** This proposed software tool will allow users to search for a model, simulation, simulator, or game appropriate for their particular requirement and receive recommendations based on the criteria developed, the user's constraints, and ranking of relative importance of those criteria.
19. **Improved Mass Decontamination Systems:** Mass decontamination systems must be capable of processing much larger numbers of people and operating in all hazard/weather conditions.
20. **Guide for Increasing Patient Transport Capability:** The development of a written guide on equipment, procedures, and standards for converting non-medical transportation assets to patient transport assets would improve the federal, state, and local patient and victim transport capability. The guide should focus on commonly available ground transportation assets (metro and school buses, vans, etc), but consideration should also be given to air transportation assets (fixed & rotary wing).
21. **Equipment/Supply Guide for Relocating Special Needs Evacuees:** Requirement for an equipment & supply guide for the transport and relocation of individuals in nursing homes, homecare, or with special medical needs, with emphases on safety, performance & planning standards, and sources for collaboration & reference.
22. **Enhanced Decontamination Capability for Special-needs Victims:** Requirement for equipment to decontaminate special-needs populations: bariatric, pediatric, service animals, etc. Current decontamination equipment is not available in pediatric sizes or large enough to accommodate morbidly obese non-ambulatory victims.