



STRENGTHEN PREPARE RESPOND

THE INTERAGENCY BOARD
FY 2017 ANNUAL REPORT



This report is dedicated to Retired Director **Jamie Turner**, a longtime IAB member and friend who dedicated his life to improving safety for first responders for over 50 years. He served in various public safety roles for the State of Delaware and 13 years as director of the Delaware Emergency Management Agency. His devotion and commitment to the State of Delaware and responders everywhere was admirable and genuine. His contributions and legacy will always be remembered.



“OUT OF **MANY,** **ONE,**”

Dedicated to those brave Americans who stand forever vigilant to protect this country from those who would attempt to deny us our freedom. May their strength give us strength.



PHOTO BY CHRIS SCHWARZ, CC BY-ND 2.0

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IAB CHAMPIONS

PHOTO COURTESY OF SEATTLE (WA) FIRE DEPT.



Alsip (IL) Fire Department
 American National Standards Institute
 ANSER Homeland Security Practice
 Arizona State Police, Department of Public Safety, Bomb Squad
 Arlington County (VA)
 Arlington County (VA) Fire Department
 ASTM International
 Bellevue (WA) Fire Department
 Bentonville (AR) Fire Department
 Branford (CT) Fire Department
 Boca Raton (FL) Police Department
 Boston (MA) Fire Department
 California Maritime Academy, Maritime Safety & Security Center
 Carrollton (TX) Fire Rescue
 Cecil County (MD) Department of Emergency Services
 Centers for Disease Control and Prevention
 Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry
 Centers for Disease Control and Prevention, National Center for Environmental Health
 Charleston County (SC) Sheriff's Office
 City of Las Vegas (NV) Office of Emergency Management
 City of Plantation (FL) Fire Department

City of San Antonio (TX) Fire Department
 City of Tulsa (OK)
 Clayton (DE) Fire Company
 Columbus (OH) Division of Fire
 Cook County (IL) Department of Homeland Security & Emergency Management
 County of Los Angeles (CA), Department of Public Health
 Department of Defense, Homeland Defense and Global Security
 Department of Defense, Joint Program Executive Office for Chemical and Biological Defense
 Department of Defense, Joint Program Executive Office for Chemical and Biological Defense, Joint Project Manager Guardian
 Department of Health & Human Services, Office of the Assistant Secretary for Preparedness & Response, CBRNE Branch
 Department of Health & Human Services, Office of the Assistant Secretary for Preparedness & Response, Office of Preparedness and Emergency Operations
 Department of Health & Human Services, Office of the Assistant Secretary for Preparedness & Response, National Disaster Medical System, National Veterinary Response Team 2
 Department of Homeland Security, Domestic Nuclear Detection Office

Department of Homeland Security, Federal Emergency Management Agency, CBRNE Programs
 Department of Homeland Security, Federal Emergency Management Agency, Grant Programs Directorate
 Department of Homeland Security, Federal Emergency Management Agency, National Preparedness Directorate
 Department of Homeland Security, Federal Emergency Management Agency, National Preparedness Directorate, National Integration Center
 Department of Homeland Security, Federal Emergency Management Agency, National Training and Education Division
 Department of Homeland Security, Federal Emergency Management Agency, U.S. Fire Administration
 Department of Homeland Security, Office of Health Affairs, BioWatch Program
 Department of Homeland Security, Office of Health Affairs, Medical First Responder Coordination Branch
 Department of Homeland Security, Office of Infrastructure Protection
 Department of Homeland Security, National Protection and Programs Directorate, Office of Infrastructure Protection, Emergency Services Sector-Specific Agencies
 Department of Homeland Security, Science & Technology Directorate



Department of Homeland Security, Science and Technology Directorate, Capability Development Support Group, Office of Standards

Department of Homeland Security, Science & Technology Directorate, Homeland Security Enterprise and First Responders Group

Department of Homeland Security, Science & Technology Directorate, Transportation Security Laboratory

Department of Justice, Office of Justice Programs, National Institute of Justice

Department of State

Department of Veterans Affairs

DeWitt (NY) Fire District

District of Columbia Fire and Emergency Medical Services

Emergency Response TIPS, LLC

Fairfax County (VA) Fire and Rescue Department

Fairfax County (VA) Police Department

Fairfax County (VA) Police Department, SWAT

Federal Bureau of Investigation, Technical Hazards Response Unit

Fire Department, City of New York

Fire Department, City of New York, Office of Medical Affairs

Forsyth County (NC) Emergency Services

Grand Rapids (MI) Fire Department

Homeland Security Studies and Analysis Institute

Huntingdon County (PA) Sheriff's Office

Indian Nation Fire & Emergency Management

International Association of Chiefs of Police

International Association of Emergency Managers

International Association of Emergency Medical Services Chiefs

International Association of Fire Chiefs

International Association of Fire Fighters

International Association of Women Police

International Personnel Protection, Inc.

International Safety Equipment Association

Intertek, HP White Laboratory

Joint Improvised-Threat Defeat Agency

Justice Technology Information Center

Kentucky Army National Guard

Lake County Technical College

Lake Ozark (MO) Fire Protection District

Lawrence Livermore National Laboratory

Las Vegas (NV) Fire & Rescue

London (UK) Fire Brigade

Long Island University

Los Angeles (CA) Fire Department

Los Angeles (CA) Police Department

Los Angeles (CA) County Sheriff's Department

Louisiana Poison Center

Massachusetts Department of Fire Services

Massachusetts Department of Public Health, Bioterrorism Response Laboratory

Merrionette Park (IL) Fire Department

Miami-Dade (FL) Police Department

Missouri FEMA US&R Task Force 1

Montclair (NJ) Police Department

Montgomery County (MD) Fire and Rescue Service

Montgomery County (MD) Police Department

Mt. Erie (WA) Fire Department

National Bomb Squad Commanders Advisory Board

National Fire Protection Association

National Guard Bureau

National Guard Bureau, Combating Weapons of Mass Destruction, J39

National Institutes of Health, National Institute of Environmental Health Sciences

National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory

National Institute of Standards and Technology, Standards Services Group

National Tactical Officers Association

Naval Hospital Twentynine Palms (CA)

Naval Postgraduate School, Center for Homeland Defense and Security

New Castle County (DE) Department of Public Safety, Emergency Medical Services Division

New York State Association of Chiefs of Police

IAB CHAMPIONS



New York State Police

North County Crime Analysis Center

National Institute for Occupational Safety and Health, Emergency Preparedness and Response Office

National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory, Conformity Verification and Standards Development Branch

Oldham County (KY) Emergency Management

Orange County (CA) Fire Authority and Health Care Agency Emergency Medical Services

Pacific Northwest National Laboratory

Park County (CO) Sheriff's Office

Pennsylvania Emergency Management Agency

Phoenix (AZ) Fire Department

Phoenix (AZ) Police Department

Pineville (NC) Fire Rescue Department

Placer County (CA) Health and Human Services

Port Authority of New York and New Jersey

Powell County (MT)

Prince George's County (MD) Fire & EMS Department

Ramsey County (MN) Sheriff's Department

Rhode Island State Department of Health Laboratory

Sacramento County (CA) Sheriff's Department

Safety Equipment Institute

San Marino (CA) Police Department

Santa Clara County (CA) Sheriff's Office

Sarasota County (FL) Fire Department

Sarasota County (FL) Sheriff's Office

Seattle (WA) Fire Department

Snohomish County (WA) Fire District #7

South Carolina Law Enforcement Division

South Central (PA) Regional Task Force

Story County (IA) Sheriff's Office

Technical Support Working Group, Combating Terrorism Technical Support Office

Toledo-Lucas County (OH) Health Department

Town of Hempstead (NY) Department of Conservation and Waterways

Town of Shirley (MA)

Underwriters Laboratories

Unified Police Department of Greater Salt Lake (UT)

United States Army Chemical Materials Activity

United States Army Research Laboratory

United States Army Training and Doctrine Command, Maneuver Support Center of Excellence

United States Capitol Police

United States Environmental Protection Agency

United States Forest Service, National Interagency Fire Center

United States Marshals Service

United States Northern Command, North America Aerospace Defense Command

University of California, Irvine, Center for Disaster Medical Sciences

University of Cincinnati

University of Connecticut

University of Tulsa

Upper Merion Township (PA) Police Department

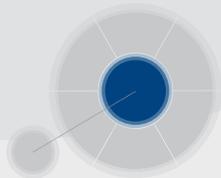
Virginia Beach (VA) Fire Department

Virginia Department of Emergency Management

Walker County (GA) Emergency Services

IAB

THE
**INTER
AGENCY
BOARD**



MISSION:

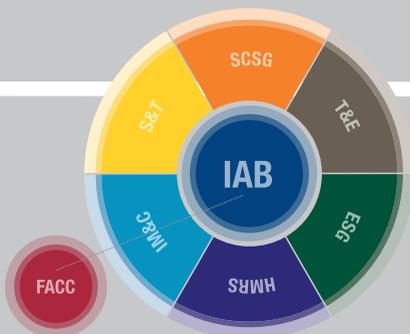
STRENGTHENING THE
NATION'S ABILITY TO
PREPARE FOR
AND
**RESPOND SAFELY
AND EFFECTIVELY**
TO EMERGENCIES,
DISASTERS,
AND CBRNE
INCIDENTS

— THE —
**INTER
AGENCY
BOARD**

The **InterAgency Board (IAB)** is a voluntary, collaborative panel of emergency preparedness and response practitioners whose members are from a wide array of professional disciplines. The IAB includes members from all levels of government and operational, technical, and support organizations. It provides a structured forum for the exchange of ideas among local, state, and federal response communities to improve national preparedness and promote interoperability.

Based on direct field experience, IAB members advocate for and assist with developing and implementing performance criteria, standards, test protocols, and technical, operating, and training requirements for all-hazards incident response equipment with a special emphasis on chemical, biological, radiological, nuclear, and high-yield explosive (CBRNE) issues. The IAB also provides subject matter expertise to inform the development of emergency preparedness and response policy, doctrine, and practice.

THE REMAINDER OF THIS SECTION ARTICULATES THE MISSION, VISION, VALUES, AND FOCUS OF THE IAB. IT SERVES AS THE BASIS FOR THE IAB'S ONGOING STRATEGIC PLANNING EFFORT. THIS INFORMATION IS NOT STATIC; IT EVOLVES AS THE IAB'S WORK PROGRESSES.



IAB ORGANIZATIONAL CHART

The InterAgency Board (IAB)
Federal Agency Coordinating Committee (FACC)
Equipment SubGroup (ESG)
Health, Medical, & Responder Safety (HMRS) SubGroup
Information Management & Communications (IM&C) SubGroup
Science & Technology (S&T) SubGroup
Standards Coordination SubGroup (SCSG)
Training & Exercises (T&E) SubGroup

MISSION

The mission of the IAB is to strengthen the nation's ability to prepare for and respond safely and effectively to emergencies, disasters, and CBRNE incidents.

The IAB accomplishes this by:

- Emphasizing interoperability, compatibility, and standardization
- Fostering a multidisciplinary perspective
- Facilitating effective intergovernmental partnerships
- Being a credible voice of the responder community
- Being proactive
- Sharing field operational experiences and practices

VISION

The IAB seeks to establish a repository of field perspective, operational knowledge, and technical expertise. The IAB will provide emergency responder insight to support development of policy, doctrine, practice, standard, research and development programs, and training and exercise programs that affect emergency preparedness response interoperability, compatibility, and standardization.

VALUES

The IAB is comprised of a very diverse body of emergency preparedness and response experts, unified by a set of core values. The core values frame the IAB's goals, shape its decisions, and guide its actions. These values are:

Ground truth. The IAB provides a communication channel to receive direct feedback from responders currently practicing in the field on the front lines of emergency response at all levels of government. The IAB offers responder's view of what they really do, what they really need, and how federal programs and policies affect them.

Independence. The IAB plays the role of an honest broker when aggregating the diverse views of responders. The IAB is unencumbered by particular professional or agency agendas because the IAB's goals and objectives are set by consensus of a representative membership of federal, state, and

local emergency response communities. The broadly representative membership is, therefore, able to voice the perspectives of responders nationwide without undue influence from any one discipline, organization, or professional association.

Credibility. The IAB convenes experts knowledgeable about emergency preparedness and response issues—particularly related to equipment—including requirements, standards, performance, operability, interoperability, and compatibility. This expertise informs agencies, associations, and manufacturers seeking to design, develop, test, evaluate, and deploy existing and new equipment and capabilities. We help organizations that sponsor research and development programs formulate grant guidance and evaluate program effectiveness. We help agencies make decisions about equipment by providing insight about performance and operational, training, and maintenance requirements.

Diversity. The IAB is a forum that brings diverse agencies and perspectives together. The IAB membership is broadly representative of professional response disciplines, sectors, and levels of government, explicitly shunning parochialism in favor of a true multidisciplinary perspective. The IAB is also wide-ranging in the size, type, and geographic location of organizations represented. This enables the diverse array of public safety professionals to come together as a unified and integrated emergency preparedness and response system.

Collaboration. IAB-hosted events allow people the opportunity to exchange information and work together to solve problems. The IAB fosters a culture of professional openness because, when acting as members of the IAB, players may interact freely, honestly, and without fear of retribution. Enhanced collaboration reduces redundancy, resolves conflicts, and thus improves the safety, efficiency, and effectiveness of programs.

Proactive orientation. The IAB identifies local, national, and global trends that affect the response community and seeks to understand the implications of policy and operational choices. This allows the IAB to develop resources on how to adapt early to emerging trends, address looming threats, and take advantage of promising opportunities.

FOCUS

In support of our mission and values, the IAB pursues the following areas of emphasis:

1. EQUIPMENT

- Participate in requirements development processes.
- Prioritize equipment needs.
- Identify gaps in capability.
- Continually update and sustain the Standardized Equipment List (SEL).

2. HEALTH, MEDICAL, AND RESPONDER SAFETY

- Identify gaps and needs for providing safe and effective care.
- Evaluate the efficacy and appropriateness of existing and future health and safety related products, processes, practices, and information.
- Serve on working groups that address health and safety.
- Develop recommendations about how to identify, control, reduce, or eliminate responder safety hazards to prevent injuries and reduce mortality.
- Develop a medical concept of operations comprised of planning for, managing, and recovering from incidents that cause harm.
- Analyze threat scenarios and make recommendations about how to protect the health and safety of responders and victims.

3. INFORMATION MANAGEMENT AND COMMUNICATIONS

- Identify needs and gaps in the responder information environment.
- Identify needs and gaps in available information technology needed to support responders.
- Identify needs and gaps in information management, including collection, administration, analysis, visualization, and dissemination of information that affects incident prevention and emergency preparedness and response.

- Identify needs and gaps in decision support material used for interoperable communications technologies, policies, and strategies.
- Participate in efforts to improve systems and strategies for information management.
- Educate emergency responders about the National Strategy for Information Sharing and Safeguarding, which provides strategic guidance on how to collect, receive, and share essential elements of information.

4. SCIENCE AND TECHNOLOGY

- Identify innovative government and industry-based technologies.
- Promote the transition of technologies.
- Participate in requirements development processes.
- Promote research, development, testing, and evaluation (RDT&E) agendas to meet emergency responder needs.

5. STANDARDS COORDINATION

- Identify and document standards applicable to emergency preparedness and response.
- Prioritize standards requirements and related interoperability and compatibility issues.
- Draft and disseminate studies, white papers, and other reports on standards, interoperability issues, and compatibility issues.
- Identify potential conflicting requirements and facilitate reconciliation of these issues.
- Participate in standards development and revision processes.
- Identify improvements to existing standards, performance requirements, and test methods.
- Recommend standards, equipment development, training, practices, or policies.

- Inform responders about relevant standards development activities, comment periods, and programs to increase awareness and/or community participation.
- Recommend and promote the adoption and appropriate application of standards.

6. TRAINING AND EXERCISES

- Identify performance improvement needs related to Emergency Support Functions.
- Advocate for standardized national guidance to support responder and equipment training and exercises.
- Provide subject matter expertise to support the development of training and exercise programs.
- Provide end-user guidance and operational lessons learned to support training and exercise program development and improvements.
- Facilitate the implementation of training and exercise programs and standards that support individual competencies and organizational capabilities.

7. STRATEGIC PLANNING

- Inform policymakers about operational requirements and environments.
- Provide insight about the field context, operations, and tactics of emergency response.
- Participate in forums working to develop or improve policy, doctrine, and practice.
- Help responders understand emerging policy, doctrine, and practice.
- Identify, share, and validate best practices and lessons learned.
- Assist with vetting, testing, evaluating, and launching emergency response initiatives.



STRUCTURE

The IAB is organized into a Leadership Team, an Executive Committee, and six SubGroups. The Federal Agency Coordinating Committee is chaired by a federal representative and comprises all supporting federal government partner representatives. Each SubGroup is co-chaired by a state and local first responder and a federal representative, who represent the SubGroup's interests on the Executive Committee. The SubGroups are staffed with members and subject matter experts (SMEs) in that group's area of expertise. In addition, each SubGroup is responsible for maintaining its subsection of the SEL.

This information reflects the IAB chairmanship for the majority of fiscal year 2017. Elections are conducted every June. For the current list of IAB Leadership Team members and Co-Chairs, please visit the IAB website at www.interagencyboard.org.

THE INTERAGENCY BOARD LEADERSHIP TEAM

The IAB Chair and Deputy Chairs are selected from the ranks of the state and local membership. These representatives administer, manage, and facilitate the actions of the IAB.

IAB CHAIR

Gerard Fontana, Boston (MA) Fire Department

DEPUTY CHAIRS

Dr. Sandy Bogucki, Branford (CT) Fire Department
Charles Cordova, FEMA
John Incontro, San Marino (CA) Police Department

FEDERAL AGENCY COORDINATING COMMITTEE

The Federal Agency Coordinating Committee is a coordination group that provides the interface between the IAB and the sponsoring federal government agencies. This committee brings together the interests and initiatives of the federal community with the first responder community.

FACC CHAIR

Michael Walter, Department of Homeland Security, Office of Health Affairs, BioWatch Program

EQUIPMENT SUBGROUP

The ESG addresses standardization and interoperability issues related to protection, operational, and support equipment for emergency responders. This SubGroup's responsibilities include maintaining and producing the IAB SEL, developing equipment-driven priorities for research and development and standards development, and coordinating with other SubGroups to ensure proper use of equipment in various mission environments.

STATE & LOCAL CO-CHAIR

Timothy Dorsey, Lake Ozark (MO) Fire Protection District/Missouri, FEMA US&R Task Force 1

FEDERAL CO-CHAIR

William Haskell III, National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory

HEALTH, MEDICAL, & RESPONDER SAFETY SUBGROUP

The HMRS SubGroup provides safety guidance on health, medical, and responder equipment, supplies, pharmaceuticals, operations, and training needed to respond to CBRNE events. This SubGroup reviews and makes recommendations to the IAB regarding needs for new or modified equipment performance and operational standards.

STATE & LOCAL CO-CHAIR

Jeffrey Race, Pineville (NC) Fire Department

FEDERAL CHAIR

Renée Funk, Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry

INFORMATION MANAGEMENT & COMMUNICATIONS SUBGROUP

The IM&C SubGroup develops and advocates protocols and technologies for effective, timely, accurate, and secure information management and communications capabilities.



PHOTO COURTESY OF SEATTLE (WA) FIRE DEPT.

The SubGroup considers CBRNE incidents and all phases of an operation. This SubGroup identifies gaps in responder information and communication capabilities and recommends mitigating solutions and standards.

STATE & LOCAL CO-CHAIR

Mark Hogan, City of Tulsa (OK)

FEDERAL CO-CHAIR

Mike Tuominen, National Interagency Fire Center, National Interagency Incident Communications Division

SCIENCE & TECHNOLOGY SUBGROUP

The S&T SubGroup identifies interagency first responder research and development requirements and innovative technologies that address CBRNE detection, individual protection, collective protection, medical support, decontamination, communications systems, information technology, and miscellaneous operational support. This SubGroup is responsible for developing and updating the IAB S&T Requirements Matrix for the SEL, reporting and assessing federal requirement initiatives, and producing the data for the annual Research & Development Priority List.

STATE & LOCAL CO-CHAIR

Adam Miller, Huntingdon County (PA) Sheriff's Office

FEDERAL CO-CHAIR

Gabriel Ramos, Technical Support Working Group, Combating Terrorism Technical Support Office

STANDARDS COORDINATION SUBGROUP

The SCSG coordinates standards projects within the IAB, external organizations, and the first responder community, and works to establish minimum performance standards to which critical equipment can be tested, evaluated, and certified. This SubGroup helps to provide first responders with objective guidance for making informed decisions regarding the purchase and proper use of that equipment to instill greater confidence in emerging technologies.

STATE & LOCAL CO-CHAIR

Martin Hutchings, Sacramento County (CA) Sheriff's Department, National Bomb Squad Commanders Advisory Board

FEDERAL CO-CHAIR

Cassandra Robinson, National Institute of Standards and Technology, Standards Services Group

TRAINING & EXERCISES SUBGROUP

The T&E SubGroup improves responder mission performance by conducting a cross-disciplinary review of—and providing end-user input on—training doctrine, standards, and guidance developed for the first responder community. This SubGroup is responsible for identifying performance improvement needs related to operational, training, and exercise activities, and facilitating the implementation of training and exercise programs that support individual competencies and organizational capabilities.

STATE & LOCAL CO-CHAIR

Edward Dadosky, University of Cincinnati

FEDERAL CO-CHAIR

Carol Mintz, Department of Homeland Security, Federal Emergency Management Agency, National Training and Education Division

STRATEGIC PLANNING

Members of the IAB leadership team, the Executive Committee, and former IAB leadership team are responsible for short-term and long-term Strategic Planning for the IAB. The Strategic Planning group formulates and updates an IAB Strategic Plan based on IAB core mission priorities, emerging responder issues, state, local and federal priorities and annual IAB funding.

LETTER FROM THE CHAIR

As I write this letter, the effects of Hurricanes Harvey and Irma are still devastating the great city of Houston, southeast Texas, and most of Florida. I am thinking of the brave and dedicated first responders who, in many instances, are risking their lives responding to the needs of the people they have promised to serve. Local responders are always on the front lines, ready to respond without the luxury of much more information than, “there’s a problem, this is your job, now go get it.” In many cases, local first responders across this nation are obligated to respond to disasters of historic proportions like Hurricanes Harvey and Irma with the same resources they have been using up to that point—the same personal protective equipment (PPE), the same response equipment, the same vehicles—and always the same basic mission of saving lives.

Is there a clearer picture of why the IAB is important? I can’t come up with one. The IAB has improved safety for first responders in the areas of equipment selection, operations, industrial hygiene, safety practices, and new technology. Although much has changed since the advent of the IAB, there is still much to do. The IAB must remain on the front lines of new technology and ideas that improve the safety of first responders, especially during the critical transition period from normal operations to major disaster response. Although the IAB’s main emphasis is on CBRNE response, much of what we do has positive transitory effects on other response types as well.

We are all witnessing the implementation of unmanned aerial devices for public safety operations, improved detection capabilities, and lighter, more flexible PPE that offers better protection. As these advances become more widely used, identifying best practices and

procedures for their effective implementation will be essential. The IAB is a proven forum by which state and local responders can work directly with their federal partners to address issues relating to life safety and operational effectiveness. IAB reports on Ebola virus, fentanyl, and Active Shooter/Hostile Event have been well received in the field. The IAB’s goal going forward is to remain productive in a real-time environment, contributing valid information in on-demand situations.

As the IAB deals with the current government transition, we must remain patient and become more flexible in the way we operate. We have the people, expertise, and the experience that our nation needs to make a difference. The resiliency of the IAB lies within the common vision of all of its members.

I would like to end this letter by thanking the Leadership Team and the entire Executive Committee. The work of the Co-Chairs is always incredible. Deputy Co-Chair Chief Charles Cordova has retired from the Seattle Fire Department and has taken a position with FEMA; we wish him well and hope he can remain with us while in his new position. I would also like to thank the FACC and Mike Walter for his guidance as our FACC Chair. Lastly, I wish to thank the entire membership for their dedication to the IAB and improving safety for our responders throughout the United States.

Thank you,



Gerard Fontana
IAB Chair
Chief of Operations,
Boston (MA) Fire Department

PHOTO BY KIRK KELLERHALS - VBFD MULTIMEDIA SERVICES



GERALD FONTANA
IAB CHAIR

Boston (MA) Fire Department

Chief Fontana is the Chief of Operations for the Boston Fire Department. Born and raised in Boston, Massachusetts, Chief Fontana has served the department for more than 33 years. He began his career in 1984 as a firefighter and has attained every rank until his appointment as Chief of Operations in 2014. Chief Fontana is a graduate of the University of Massachusetts and the National Fire Academy's Executive Fire Officers Program. He obtained additional education at the Naval Postgraduate School's Executive Leadership Program. Chief Fontana has also served as the Emergency Management Director for the City of Boston. As Chief in charge of the Office of Field services, he coordinated the special operations division and established the victims' assistance unit taking care of the immediate needs of victims displaced by fire. The department recognized him with the Gerard G. Molito Award for Professional Excellence for making major improvements to firefighting operations and enhancing the safety of the firefighting forces.

Chief Fontana is the proud father of three adult children and recently became a proud grandfather.

DEPUTY CHAIRS



SANDY BOGUCKI
IAB DEPUTY CHAIR

Branford (CT) Fire Department

Sandy Bogucki, M.D., Ph.D. has been a Connecticut-certified firefighter and a sworn member of the Branford Fire Department for 20 years. She currently serves as Fire Surgeon and Medical Director. She has published extensively on firefighter health and safety, EMS, and emergency preparedness topics. Dr. Bogucki currently serves as EMS Medical Director for the 12 towns and 23 provider agencies (325 paramedics and over 800 emergency medical technicians [EMTs]) in the New Haven area. She holds several positions of leadership in the fire service and EMS communities. She is a principal member of the National Fire Protection Association, serving on the Fire Service Occupational Safety and Health National Fire Protection Agency 1500 Technical Committee and chairing the NFPA 1582 Task Group. She served on the Board of Visitors for the National Fire Academy, and conducted on-site investigations of firefighter

line-of-duty deaths for National Institute for Occupational Safety and Health (NIOSH). She serves on the editorial board of *Prehospital Emergency Care*. Dr. Bogucki also completed two terms on the Board of Directors of the National Association of EMS Physicians, and 16 years on the Board of Directors of the National Registry of EMTs, including serving as Chairman of the Board from 2007 to 2009. Dr. Bogucki is currently the co-Principal Investigator on a grant from the Centers for Medicare and Medicaid Services evaluating the use of EMS providers to facilitate medical follow up and access to community resources for elderly patients who fall. She is an associate professor in the Department of Emergency Medicine and the School of Public Health at Yale, with a master's degree from Tulane University School of Public Health, a Ph.D. from Texas A&M, and M.D. from Yale.



CHARLES CORDOVA
IAB DEPUTY CHAIR

FEMA

Charlie is currently assigned to FEMA's Region X Incident Management Assistance Team (IMAT) as the Operations Section Chief (OSC). As part of its regular duties, the IMAT must remain ready to deploy to emergency sites with little notice. The duties of the OSC include management of operations in support of state, tribal, and local governments; coordinating and supervising the Operations Section organizational elements; supervising personnel and ensuring they are briefed on relevant information and receive proper training and support; coordinating with FEMA program leads (IA, PA, HM) to ensure high quality, consistent delivery of the programs to meet customer needs in accordance with the Stafford Act and FEMA policies.

Charlie joined FEMA in 2017 after serving 34 years with the Seattle Fire Department (SFD). He retired as an Assistant Chief. During his tenure with the SFD, he was active in homeland security at the local, state, and national levels. He served as a member and Deputy Chair of the InterAgency Board, the International Association of

Fire Chiefs Hazardous Materials Committee, and National Fire Protection Association Technical Committees. He also was active with FEMA, having served on the Urban Search & Rescue, Washington Task Force-1 as the Hazardous Materials Team Manager and HazMat Specialist. He was assigned to the US&R Incident Support Team as a HazMat Specialist. He volunteered for workgroups to work on the Target Capabilities and Resource Typing. Charlie also served as the FEMA Preparedness Grants Program Manager for the fire service in King County, to include UASI, SHSP, as well as the Port Security Grant Program.

Charlie holds a bachelor's degree in fire administration from Columbia Southern University. He attended the Executive Leaders Program (cohort 1002) at the Center for Homeland Defense and Security through the Naval Postgraduate School. He is married to Georgia, his lovely wife of 32 years. They have three adult children and one grandchild. They reside in Edmonds, Washington.

DEPUTY CHAIRS



JOHN INCONTRO IAB DEPUTY CHAIR

San Marino (CA) Police Department

Chief John N. Incontro began his law enforcement career in 1976 as a Cadet with the Glendale Police Department. In 1979, John joined the Los Angeles Police Department (LAPD). His tenure with the LAPD included significant experience in patrol operations, administrative duties, training, and special operations. One significant assignment was his selection as Acting Director of the Department of General Services, Security Services Division, following the terrorist attacks on September 11, 2001. From October 2004 until December 2014, John served as a Captain with the LAPD and held command assignments leading Patrol and Training Division operations in Pacific and Mission Areas, and leading the elite Metropolitan Division and Emergency Services Division. Following his retirement from the LAPD, he was appointed the Chief of Police for the San Marino Police Department in December 2014.

John has been an instructor and presented at several conferences in the areas of leadership, use of force, crowd management, tactics, school safety, and other policing subjects to numerous agencies and organizations. Those groups have included the Department of State and

Department of Homeland Security, along with various other state and local agencies. He has been an instructor for over 20 years in the LAPD's Leadership Program and in the Los Angeles Fire Department Leadership Program.

John is currently a member of the InterAgency Board and serves as a Deputy Chair. He is a member of the Homeland Security Committee for the International Association of Chiefs of Police. Additionally, he is a member of Rotary International, San Marino Chapter, the California Police Chiefs Association, and the Los Angeles County Police Chiefs Association.

While working for the LAPD, John obtained his bachelor of science from California State University, in Los Angeles, and a master of science in leadership and management from the University of La Verne, in La Verne, California. He has completed the Police Executive Research Forum's Senior Management Institute for Police, the Federal Bureau of Investigation's National Academy, Sherman Block Supervisory Leadership Institute, and the LAPD's Leadership Program.



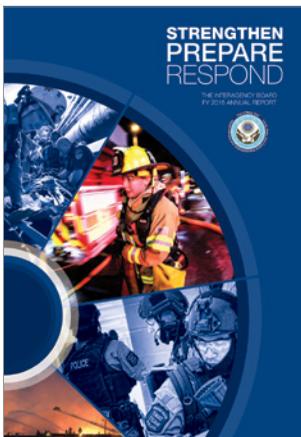
PHOTO COURTESY OF FIRSTNET.GOV

PHOTO BY STAFF SGT. DAVID MCLEAN, NONG PAO RALEIGH

PHOTO BY STAFF SGT. DAVID MCLEAN, NONG PAO RALEIGH

FY 2017 HIGHLIGHTS

(OCTOBER 2016 – SEPTEMBER 2017)



Throughout the year, IAB members collaborate on position papers, white papers, and briefs on pertinent issues and emerging threats facing the first responder community:

- » *Proposed Model for Bioterrorism Response: Initial Operations and Characterization* (January 2017)
- » *Training Trigger: Tourniquet Use Under Medical Protocols* (February 2017)
- » *Training Trigger: Operational Security and Mobile Devices* (May 2017)
- » *Training Trigger: Wildland Fire Fighting/Urban Interface* (August 2017)
- » *Recommendations on Selection and Use of Personal Protective Equipment and Decontamination Products for First Responders Against Exposure Hazards to Synthetic Opioids, Including Fentanyl and Fentanyl Analogs* (August 2017)

The IAB also released its annual publications:

- » *FY16 Annual Report* (December 2016)
- » *Standardized Equipment List (SEL)*
- » *Research & Development Priority List*



PHOTO COURTESY OF FIRSTNET.GOV

Presented the following previously identified and prioritized standards for development to various federal, standards development, and first responder organizations:

1. Performance standard for protective helmets
2. Performance standard for protective shields
3. Standard(s) for robot operator self-evaluation and training program
4. Performance standard for protective gloves
5. Standard test method(s) for body armor designed for females
6. Standard test method(s) for localization and tracking systems

For an update on the status of these standards, please reference the “Previously Identified IAB Standards Development Priorities” section of the Standards Coordination SubGroup on pg. 71.

Assembled special project groups from IAB membership to respond to priority first responder concerns:

- » Provide Evidence-Based Guidelines for Operational Responses Involving Synthetic Opioids
- » Mental Health & Wellbeing for First Responders

OCTOBER | NOVEMBER | DECEMBER

OCTOBER 2016

Launched the IAB 2016 R&D Priority Survey internally. Distributed IAB Request for Standards Assistance letters to federal agencies, standards development organizations, and stakeholder organizations. Released 2016 SEL to the public.

Presented the IAB Active Shooter Guide at the 2016 IACP Conference in San Diego. Participated in ACEP Meeting in Las Vegas, Nevada.

NOVEMBER 2016

Published and distributed the FY16 IAB R&D Priority List to membership and stakeholders.

Held IAB Strategic Planning Meeting and Executive Committee Meeting in Arlington, Virginia.

The IAB Leadership Team met with the National Guard Bureau, the Department of Justice / National Institute of Justice, the DHS S&T Chemical Biological Defense Division, and the DHS Office of Health Affairs to discuss responder issues and projects.

DECEMBER 2016

Participated in the December First Responder Technology Coordinating Council Meeting in Arlington, Virginia. Participated in ANSI Meeting in Washington, DC and C-TECC Meeting in Arlington, Virginia.

JANUARY | FEBRUARY | MARCH

JANUARY 2017

Published and distributed new IAB Publication: *Proposed Model for Bioterrorism Response: Initial Operations and Characterization.*

FY 2017 HIGHLIGHTS

CONTINUED

Participated in the UAS Meeting in Quincy, Massachusetts. Participated in NFPA Meeting on Hazardous Materials Response in Atlanta, Georgia. Participated in DHS Systems Approach to Biodefense Workshop in Laurel, Maryland. And, participated in ASTM E54 Committee Meeting in Norfolk, Virginia.

FEBRUARY 2017

Published and distributed IAB *Training Trigger: Tourniquet Use Under Medical Protocols*.

MARCH 2017

Provided IAB review and comments on the ASPR TRACIE "DRAFT" EMS Highly Infectious Disease Transport Playbook. Provided IAB review and comments on ASPR TRACIE Exchange: Disaster Behavioral Health.

Responded to request from DHS U.S. Customs and Border Protection for three new SEL/AEL items.

APRIL | MAY | JUNE

APRIL 2017

Facilitated IAB Strategic Planning Meeting in Crystal City, Virginia. The IAB Leadership Team met with DHS FEMA Grants Program Directorate and the National Integration Center on new preparedness and response initiatives.

MAY 2017

Published and distributed IAB *Training Trigger: Operational Security and Mobile Devices*.

Participated in TECC Meeting in Charlotte, North Carolina.

JUNE 2017

The IAB Leadership Team met with National Security Council staff to discuss emerging issues in the response community.

Participated in ASTM E54 Committee Meeting in Toronto, Canada. Participated in TECC Meeting.

JULY | AUGUST | SEPTEMBER

JULY 2017

Held IAB Board Meeting, Executive Committee Meetings, FACC Meeting, and fentanyl working group session in Columbus, Ohio.

AUGUST 2017

Launched IAB Standards Priority Survey to membership.

Published and distributed the IAB Publication: *Recommendations on Selection and Use of Personal Protective Equipment and Decontamination Products for First Responders Against Exposure Hazards to Synthetic Opioids, Including Fentanyl and Fentanyl Analogs*.

SEPTEMBER 2017

Completed Standards Priority Survey and Standards Adoption process internally. Launched R&D Priority Survey to IAB membership and SMEs.

Finalized IAB publication *Recommended Best Practices to Minimize Emergency Responder Exposures to Synthetic Opioids, Including Fentanyl and Fentanyl Analogs* in preparation for public release in October.



PHOTO COURTESY OF FIRSTNET.GOV

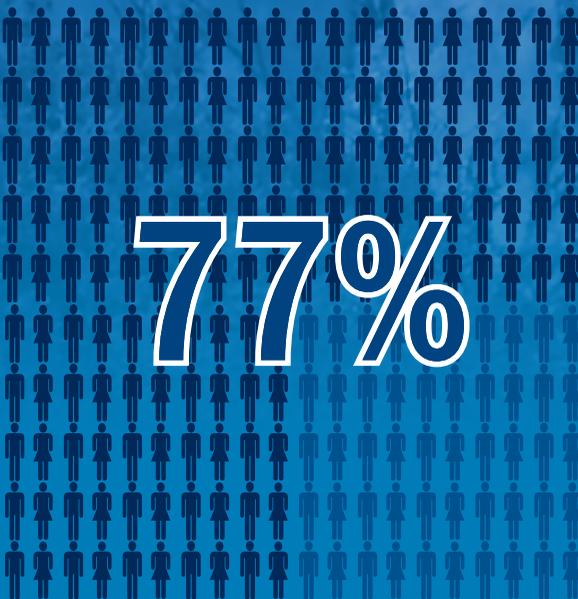
Members and subject matter experts participated at various conferences and working groups:

- » IAB Presentation at IACP – San Diego, CA (October 2016)
- » American College of Emergency Physicians Scientific Assembly – Las Vegas, NV (October 2016)
- » American National Standards Institute – Washington, DC (December 2016)
- » Committee for Tactical Emergency Casualty Care – Arlington, VA (December 2016)
- » National Fire Protection Association – Quincy, MA (January 2017)
- » National Fire Protection Association – Atlanta, GA (January 2017)
- » DHS Systems Approach to Biodefense Workshop IV – Laurel, MD (January 2017)
- » ASTM E54 Committee Meeting – Norfolk, VA (January 30–February 1, 2017)
- » Tactical Emergency Casualty Care – Charlotte, NC (May 21–22, 2017)
- » ASTM E54 Committee Meeting – Toronto, Canada (June 12–17, 2017)
- » National Security Council – Washington, DC (June 29, 2017)

DEMO GRAPHICS

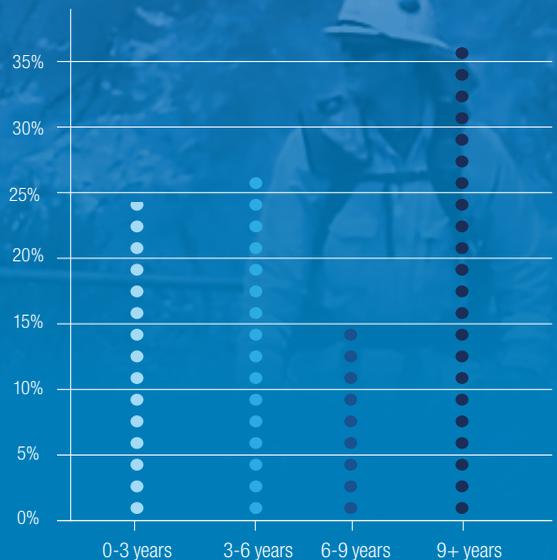
Every year, the IAB conducts the annual demographics survey to capture in-depth information about participants. The results of the 2017 IAB Demographics Survey are shown in this section.

The IAB is comprised of approximately 200 dedicated professionals. Roughly 77 percent of IAB participants have first responder backgrounds.



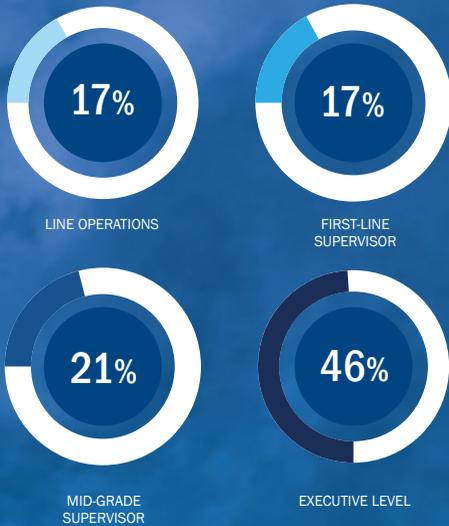
LENGTH OF SERVICE WITH THE IAB

The majority of participants have served the IAB for three or more years.



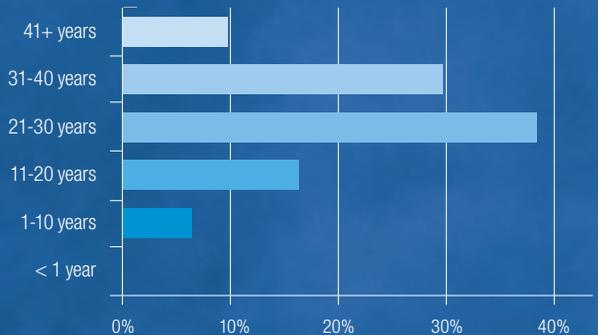
ACTIVE FIRST RESPONDER OPERATIONAL LEVEL

More than 50 percent of IAB participants hold mid-grade to executive level jobs, which includes Chief, Deputy Chief, or Emergency Manager positions.



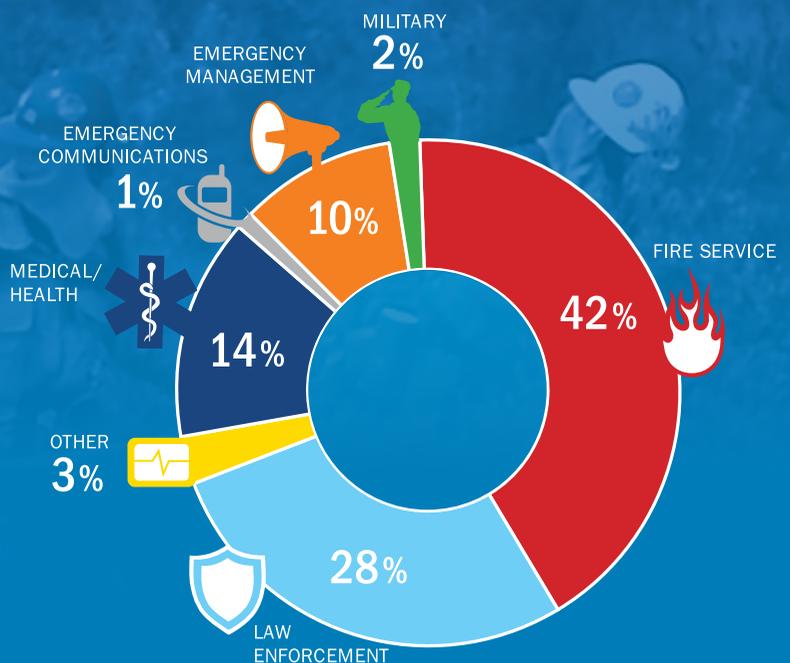
ACTIVE FIRST RESPONDER LENGTH OF SERVICE

The majority of first responders have been in service for more than 21 years and work in jurisdictions with populations greater than 1 million.



ACTIVE FIRST RESPONDER DISCIPLINE BREAKDOWN

State, local, and federal responders from various disciplines, as defined by the Homeland Security Presidential Directives, are represented in the breakdown below. Roughly 70 percent of IAB participants work in fire service or law enforcement.



*Other includes: Intelligence, Transport ALS, and Multi-Discipline (Emergency Management, All-Hazard Incident Management Teams)

NON-FIRST RESPONDER PRIMARY PROFESSIONAL ROLE DISCIPLINE BREAKDOWN

The 23 percent of IAB participants who are not first responders provide invaluable expertise in a wide array of disciplines.



GOVERNMENTAL

46%



VOLUNTEER

3%



BUSINESS AND INDUSTRY

4%



PROFESSIONAL ASSOCIATIONS

15%



ACADEMIA

19%



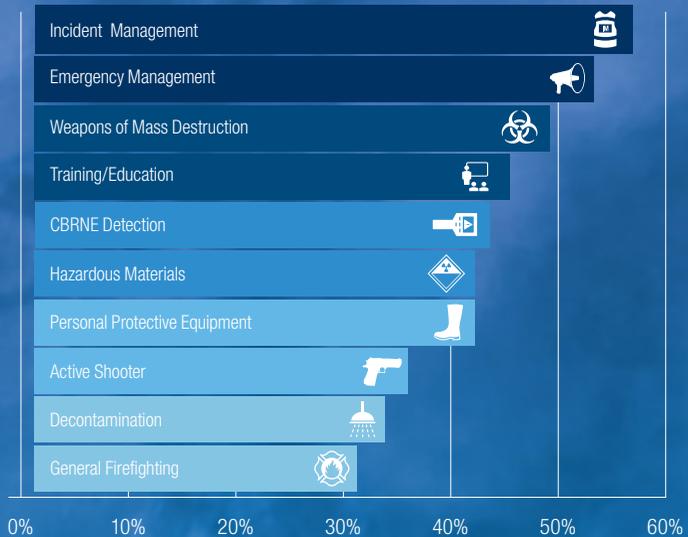
OTHER

12%

* Other includes: Public Health, Training, and Crime Analysis

GENERAL AREAS OF EXPERTISE (ENTIRE IAB COMMUNITY)

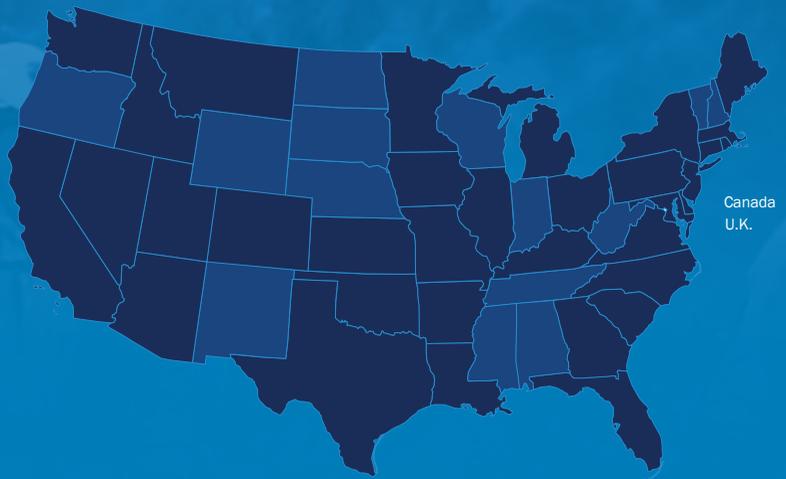
IAB members and subject matter experts maintain a wide range of expertise within the emergency response field.



*Others include: Biological Materials, Communications, Confined Space Rescue, Disaster Recovery, Radiological Materials, Pre-hospital Emergency Medical Care, Search and Rescue, and Tactical Operations

IAB PARTICIPATION (MEMBERS/SMES)

IAB participants are located across the nation, Canada, and the U.K. in order to best represent diverse populations, departments, and perspectives.





PHOTOS COURTESY OF FIRSTNET.GOV



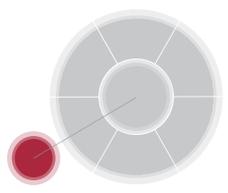
PHOTO COURTESY OF AIR STATION PORT ANGELES



FACC

FACC

FEDERAL
AGENCY
COORDINATING
COMMITTEE



FACC



PHOTO BY RAY SMITH, VIRGINIA BEACH FIRE DEPT.



FACC

FEDERAL
AGENCY
COORDINATING
COMMITTEE



CHAIR

MICHAEL WALTER

*Department of Homeland Security,
Office of Health Affairs, BioWatch*

The Federal Agency Coordinating Committee (FACC) provides the interface between the IAB Chair and Deputy Chairs and the sponsoring Federal Government agencies. It coordinates the interests and initiatives of the federal community with the first responder community.



ROLE AND FUNCTIONS

The Federal Agency Coordinating Committee provides the interface between the IAB Chair and Deputy Chairs and the sponsoring Federal Government agencies. It coordinates the interests and initiatives of the federal community with the first responder community.

The FACC provides the funding to operate the IAB. Continued representation by multiple federal agencies allows the IAB to maintain its independence as an organization while tapping into

the resources and expertise of the federal community. Those agencies and departments that fund the IAB have voting rights as part of the FACC.

Upon unanimous agreement between the federal partners, Department of Homeland Security (DHS) Office of Health Affairs (OHA), Mike Walter continued to serve as the FACC Chair of the IAB during FY 2017. The FACC Chair is elected on an annual basis. The FACC leverages ongoing federal RDT&E efforts

to meet responder requirements as identified by the IAB. The IAB Chair, Deputy Chairs, and the FACC work together to prioritize initiatives within the IAB and the federal community. The FACC also coordinates ongoing IAB initiatives within the federal community to ensure task completion and to prevent duplication of efforts. This interagency relationship benefits both the IAB and the federal community by improving protection and response.

MEMBERSHIP

WILLIAM HASKELL III

National Institute for Occupational Safety and Health-National Personal Protective Technology Laboratory

KAREN HOUSE

Joint Program Executive Office for Chemical and Biological Defense, Joint Project Manager Guardian

DONALD LAPHAM

Office of the Assistant Secretary of Defense, Department of Defense Domestic Preparedness Support Initiative

PHILIP MATTSON

Department of Homeland Security, Science and Technology Directorate, Capability Development Support Group, Office of Standards

RAYMON MOLLERS

Department of Homeland Security, Office of Health Affairs, Medical First Responder Coordination Branch

MILTON NENNEMAN

Department of Homeland Security, Science and Technology Directorate, First Responders Group

MARGARET SOBEY-SANTOS

Joint Program Executive Office for Chemical and Biological Defense

DEBRA STOE

Department of Justice, Office of Justice Programs, National Institute of Justice



PHOTO COURTESY OF SEATTLE (WA) FIRE DEPT.

PHOTO COURTESY OF U.S. CAPITOL POLICE

The FACC reviews and approves the annual operating budget of the IAB and maintains a support staff to facilitate operations. The FACC meets with the IAB Chair and Deputy Chairs on a regular basis to review SubGroup recommendations and action items.

REVIEW OF FY 2017 WORK PLAN

A critical component of the IAB strategic planning process is to set the agenda for the upcoming fiscal year. The final product of this process, referred to as the work plan, represents a formal approach to develop, plan, document, and prioritize a set of projects that meet the needs and mission of the IAB. The FACC is integral to this process. Each FACC sponsor submits a list of priorities that are vetted among all FACC sponsors and aligned with the SubGroup priorities, as appropriate. At the end of each fiscal year, the Executive Committee and the FACC participate in a two-day meeting to complete the work plan process and draft the upcoming fiscal year's work plan. Following the meeting, the FACC members have a clear understanding of the IAB focus areas and priorities. The work plan draft is reviewed and approved by all the SubGroups to create a final work plan. This work plan is tracked and updated throughout the fiscal year as needed.

The FACC is pleased with the support received from the SubGroups and the work accomplished to date. They are encouraged by the work plan schedule and progress and look forward to IAB initiatives in 2018.

FEDERAL GOVERNMENT AGENCIES

Department of Defense (DOD), Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD)

The Joint Program Executive Office for Chemical and Biological Defense is responsible for the acquisition and advanced development of chemical and biological (CB) defense systems and materiel. The CB defense capabilities support the diverse requirements of military operations supporting national security as well as homeland security missions.

Through the Joint Project Managers, the JPEO-CBD has significantly strengthened protection of DOD installations against chemical, biological, radiological, and nuclear (CBRN) threats. These programs are diverse, and many include providing equipment and

training to DOD personnel who respond to CBRN events alongside civilian emergency responders. As one of the founding organizations of the IAB, the DOD and the JPEO-CBD continue to support all facets and areas of the IAB. Personnel from DOD serve on the FACC, participate in developing the overall IAB strategy, and attend IAB SubGroup and Committee sessions.

Department of Defense, Combating Terrorism Technical Support Office (CTTSO), Technical Support Working Group (TSWG)

The mission of CTTSO is to identify and develop capabilities to combat terrorism and irregular adversaries and to deliver these capabilities to DOD components and interagency partners through rapid research and development, advanced studies and technical innovation, and provision of support to U.S. military operations. The CTTSO is charged with providing a forum for interagency and international users to discuss mission requirements to combat terrorism, prioritize these requirements, fund and manage solutions, and deliver capabilities. The CTTSO accomplishes these objectives through rapid prototyping of novel solutions developed and field tested before the traditional acquisition systems are fully engaged. This low-risk approach encourages interdepartmental and interagency collaboration, thereby reducing duplication, eliminating capability gaps, and stretching development dollars.

The CTTSO accomplishes its mission in three ways. First, CTTSO takes operational requirements from warfighters, incorporates policy priorities of the DOD civilian leadership, and rapidly identifies, develops, and delivers advanced capabilities for Special Operations Forces and General Purpose Forces to improve the DOD's capacity to combat terrorism and irregular adversaries. Second, CTTSO collaborates with and supports related requirements of non-DOD U.S. government agencies and state/local/tribal governments to understand those users' priorities and requirements, to share expertise, and to

develop mutually beneficial capabilities. Third, CTTSO works with partner country ministries of defense under bilateral arrangements to conduct cooperative research and development, which allows the U.S. DOD to leverage foreign experience, expertise, and resources in the fight against terrorists and their infrastructure.

The mission of the TSWG is to identify, prioritize, and coordinate interagency and international research and development (R&D) requirements for combating terrorism. Through CTTSO and funding provided by other agencies, the TSWG rapidly develops technologies and equipment to meet the high-priority needs of the combating terrorism community and addresses joint international operational requirements through cooperative R&D with major allies.

Department of Defense, Homeland Defense and Global Security (HD&GS)

The Homeland Defense and Global Security office is responsible for policy guidance on homeland defense activities for the DOD. The Assistant Secretary of Defense (ASD), HD&GS, under the authority, direction, and control of the Under Secretary of Defense for Policy (USD(P)), serves as the principal civilian advisor to the Secretary of Defense and the USD(P) on homeland defense activities, Defense Support of Civil Authorities and homeland preparedness. The ASD HD&GS coordinates the transfer of dual-use technologies in support of homeland security. It provides overall supervision of homeland defense activities of the DOD, to include the Defense Critical Infrastructure Program; domestic antiterrorism; the Defense Continuity Program; other homeland defense-related activities; and the alignment of homeland defense policies and programs with DOD policies for counterterrorism and counternarcotics.

Department of Defense, Joint Program Executive Office for Chemical and Biological Defense, Joint Project Manager Guardian (JPMG)

The JPMG's mission is to develop, test, produce, field, and sustain timely and affordable Joint Integrated Force Protection, Chemical, Biological, Radiological, Nuclear, and high-yield Explosive Analytics and Response Capabilities to protect forces, the American people, U.S. assets, and interests at home and abroad from threats to national security in the face of a changing, complex, and uncertain global environment. The JPMG provides Army installations with decision support tools to enable timely and accurate decision making, as well as

warning and notification systems. The JPMG supports DOD Weapons of Mass Destruction Response Units by providing advanced analytics, information management, communications, and commercial off-the-shelf life cycle management across its portfolio, as well as protection, detection, identification, and survey and monitoring capabilities. The JPMG also supports programs that field integrated and interoperable physical security/force protection/CBRN protection and response capabilities to forward operating bases and deployable units. As the mission space for JPMG's stakeholder community frequently intersects with the civilian responder community, support to and from the IAB is an important aspect of good business practices.

Department of Homeland Security, Office of Health Affairs, BioWatch

The OHA is DHS's principal authority for all medical and health matters, providing health, medical, and scientific expertise to support DHS's mission of preparing for, responding to, and recovering from all threats.

The OHA serves as the principal advisor on medical and public health issues to the Secretary and the FEMA Administrator. The OHA leads the Department's workforce health protection and medical oversight activities, leads and coordinates the Department's biological and chemical defense activities, and provides medical and scientific expertise to support DHS's preparedness and response efforts.

BioWatch enables DHS to detect biological attacks by managing an early warning system that rapidly detects dangerous pathogens in the air. This program deploys detection devices in over 30 major metropolitan areas throughout the nation. The BioWatch program alerts public health experts to a biological agent release before exposed individuals become clinically symptomatic (i.e., ill). This "detect-to-treat" approach provides public health officials an opportunity to respond aggressively to eliminate or substantially mitigate the potentially catastrophic impact of a biological agent release on the population.

Department of Homeland Security, Science and Technology Directorate (S&T), Support to the Homeland Security Enterprise and First Responders Group (FRG)

The Support to the Homeland Security Enterprise and First Responders Group, commonly referred to as FRG, was established in October 2010 to strengthen



U.S. ARMY PHOTO BY SPC. ADELINE WITHERSPOON

U.S. AIR FORCE PHOTO BY KEMBERLY GROUE

PHOTO COURTESY OF SEATTLE (WA) FIRE DEPT.

the first response community's ability to protect the homeland and respond to disasters. Currently, three divisions (First Responder Technologies, Office for Interoperability and Compatibility, and the National Urban Security Technology Laboratory) and two cross-cutting programs (the Systems Assessment and Validation for Emergency Responders program and the Communications, Outreach, and Responder Engagement program) work together to carry out FRG's overall mission to strengthen first responder safety and effectiveness. By engaging with first responders at every stage, FRG pursues a clear understanding of their needs and requirements and develops innovative solutions to the most pressing challenges faced during both day-to-day incidents and large-scale emergencies.

In close partnership with the emergency preparedness and response community, FRG identifies, validates, and facilitates fulfilling their needs using existing and emerging technologies, knowledge products, and standards. The FRG focus areas include responder safety and effectiveness; voice and data communications; information sharing; alerts, warnings, and notifications; and radiological/nuclear response and recovery.

Department of Justice, Office of Justice Programs, National Institute of Justice (NIJ)

The NIJ is the research, development, testing, and evaluation arm of the Department of Justice. One of its missions is to conduct research to support the development of voluntary performance standards for public safety equipment. The NIJ has been developing standards for more than 40 years, has produced over 75 standards, and is best known for its *Ballistic Resistance of Body Armor NIJ Standard 0101.06*.

In 2014, 2015, and 2016, NIJ published the following standard revisions, respectively:

- *Criminal Justice Restraints NIJ Standard-1001.00*
- *Public Safety Bomb Suit Standard-0117.01*
- *Standard Practice for Measurement of Body Armor Wearers (newer version available via ASTM)*

The NIJ published a new standard, *Criminal Justice Offender Tracking System*, in 2017.

The following standards are currently under development:

- Duty Holster
- In-Car Video Systems
- License Plate Readers
- Interview Room Video

Revised standards soon to be published include the following:

- Walk-Through and Hand-Held Metal Detector
- CBRN Protective Ensemble
- Stab Body Armor
- Ballistic Body Armor

Through a collaboration between NIJ and ASTM International, public safety professionals (e.g., law enforcement, corrections, forensics agency, and emergency management) can get free access to relevant ASTM standard specifications, guides, practices, and test methods. This is part of a larger effort in which NIJ and ASTM International are working together to develop standards and test methods that address the needs of the public safety community. More information can be found at www.nij.gov/standards.

The following standards, test methods, procedures, and protocols are currently being developed through this collaboration:

- Blast Overpressure Testing of Bomb Suits
- Ballistic-Resistant Car Door Panels Used by Public Safety Officers
- Conformity Assessment of Protective Gloves Worn by Law Enforcement and Corrections Officers
- Ballistic-Resistant Protective Materials and Products
- Ballistic-Resistant Head Protection for Law Enforcement Applications
- Protective Gloves Worn by Law Enforcement and Corrections Officers While on Duty
- Performance of Head Protection for Law Enforcement Applications
- Ballistic-Resistant Shields

National Institute for Occupational Safety and Health (NIOSH), National Personal Protective Technology Laboratory (NPPTL)

The NIOSH mission is to maintain national and world leadership in preventing work-related illness and injuries. The efforts of NIOSH range from research and information to guidance and service. Its portfolio focuses on relevance, quality, and impact achieved by involving partners and stakeholders throughout the research continuum.

NPPTL was established in 2001 after Congress underscored the need for improved personal protective equipment and encouraged research for personal protective equipment and technologies. NPPTL is the preeminent Federal Government laboratory conducting research in this area of worker safety and health. NPPTL is also responsible for managing and conducting the NIOSH respirator certification program.

The NIOSH program portfolio is organized into 10 industrial sectors, including Public Safety, which includes the fire service, law enforcement, emergency medical service, corrections, and wildland fire-fighting. NIOSH is the steward and facilitator of the National Occupational Research Agenda (NORA), which is a partnership program to stimulate innovative research and workplace interventions. NORA is the research framework for NIOSH.

NPPTL manages the NORA Public Safety Sector Council, which includes members from academic institutions, state and federal government agencies, professional societies, and emergency responder labor unions. NPPTL is responsible for the development of the NORA National Public Safety Sector Agenda.

NPPTL manages the NIOSH Personal Protective Technology (PPT) Core and Specialty Program that exists to prevent work-related illness and injury by advancing the state of knowledge and application of PPTs. This program includes technical methods, processes, techniques, tools, and materials that support the development and use of personal protective equipment worn to reduce occupational exposure to hazards.

The NPPTL applies state-of-the-art science to address increasingly complex occupational safety and health challenges. Its strategic research programs help to ensure that the development of new PPTs keep pace with the changing needs and requirements of employers and workers. NPPTL staff members participate on a large number of standards development organization committees, providing leadership and technical expertise and conducting supporting research.





FACC CHAIR

Michael Walter

**BioWatch Program Manager,
Office of Health Affairs,
U.S. Department of
Homeland Security**

Dr. Michael V. Walter is the BioWatch Program Manager within the DHS OHA. He is responsible for managing the only national-level environmental surveillance system designed to detect aerosolized biological warfare agents. His duties include monitoring the performance of 30 analytical laboratories; aiding state and local public health departments in preparing biological attack response plans; and scheduling and conducting exercises to test those plans.

Dr. Walter is responsible for the selection and deployment of future technologies for all operational aspects of the program. He is also responsible for fostering partnerships between BioWatch and the state and local public health community as well as other federal agencies, such as the Centers for Disease Control and Prevention (CDC), the Environmental Protection Agency (EPA), and the DOD.

He was recognized as “One of the Faces of Homeland Security” by Secretary Napolitano in 2011. Dr. Walter joined OHA in September 2009. Prior to joining BioWatch, Dr. Walter was a Staff Senior Scientist and headed the Technology Special Project Team for the DOD JPEO-CBD. He has also held positions with the Central Intelligence Agency (CIA), the Naval Surface Warfare Center, and Texaco, Inc.

Dr. Walter has more than twenty years of experience in microbiology/biological warfare research. He has an extensive background in sampling and detection of aerosolized microorganisms, as well as in the management and development of design, test, evaluation, and quality assurance for related systems and programs. He also has significant experience in laboratory assay development and testing.

Dr. Walter is the recipient of eight publication and innovation awards. He is the author of numerous abstracts and patents; his scientific articles have been published in a number of journals, including *Applied and Environmental Microbiology* and the *Canadian Journal of Microbiology*. He received his Ph.D. in Microbiology from the University of North Dakota.



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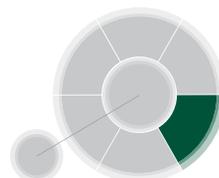
PHOTO CCO 1.0 PUBLIC DOMAIN



ESG

ESG

EQUIPMENT
SUBGROUP



ESG



AIR NATIONAL GUARD PHOTO BY STAFF SGT DANIEL J. MARTINEZ



ESG

EQUIPMENT SUBGROUP



STATE & LOCAL CO-CHAIR

TIMOTHY DORSEY

*Lake Ozark (MO) Fire Protection District/Missouri
FEMA US&R Task Force 1*

FEDERAL CO-CHAIR

WILLIAM HASKELL III

*National Institute for Occupational Safety and
Health, National Personal Protective Technology
Laboratory*



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The mission of the Equipment SubGroup (ESG) is to develop, maintain, and update the IAB Standardized Equipment List (SEL) to address the standardization and interoperability of emergency responder equipment items for preparedness, prevention, mitigation, response, and recovery operations based on anticipated hazards, risk assessments, and responder mission areas; and to review and make recommendations for new equipment research and standardization, closely coordinating its efforts with those of the other IAB SubGroups.

ROLE AND FUNCTIONS

The ESG—the largest IAB SubGroup—addresses standardization and interoperability issues relating directly to protective, operational, and support equipment for emergency responders. The ESG responsibilities include maintaining the IAB SEL (including designing example products and identifying/incorporating new technologies); developing equipment-driven priorities for research and development (R&D) and standards development; and coordinating with other SubGroups such as Training and Exercises to ensure

proper training, selection, and use of equipment in various mission environments.

The equipment sections managed by the ESG are listed in the SEL. The majority of these equipment items and associated information are aligned with the Authorized Equipment List (AEL), which is maintained by the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), National Preparedness Directorate (NPD), and Grant Programs Directorate.

ESG SEL EQUIPMENT OVERSIGHT AREAS

- 1 PERSONAL PROTECTIVE EQUIPMENT (PPE)
- 2 EXPLOSIVE DEVICE MITIGATION AND REMEDIATION EQUIPMENT
- 3 CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN) OPERATIONAL AND SEARCH & RESCUE EQUIPMENT
- 4 INFORMATION TECHNOLOGY
- 5 CYBERSECURITY ENHANCEMENT
- 6 INTEROPERABLE COMMUNICATIONS

MEMBERSHIP

ERIC ASHBURN

Walker County (GA) Emergency Services

TAUSEEF BADAR

Naval Hospital Camp Pendleton (CA)

DAVID BERNZWEIG

Columbus (OH) Division of Fire

RICHARD BYTNER

New York State Police (Retired)

JERRY DIEHL

Arizona State Police, Department of Public Safety

JASON FINLEY

Kentucky Army National Guard CST

ERIC IMHOF

California Maritime Academy, Maritime Safety & Security Center

LISA LANHAM

Sarasota County (FL) Sheriff's Office

JAIME LESINSKI

Los Angeles (CA) Fire Department

MICHAEL MARINO

Prince George's County (MD) Fire & EMS Department

JOSEPH NAMM

City of Plantation (FL) Fire Department

IRENE RICHARDSON

U.S. Army Chemical Materials Activity

PETER STEVENSON

U.S. Environmental Protection Agency

STEVEN TOWNSEND

Carrollton (TX) Fire Rescue

DOUG WOLFE

Sarasota (FL) Fire Department

SUBJECT MATTER EXPERTS

EDWARD BAILOR

United States Capitol Police (Retired)

CHRISTINA BAXTER

Emergency Response TIPS, LLC

ROBIN CHILDS

Joint Project Manager Protection (JPM P)

RICH DUFFY

International Association of Fire Fighters (Retired)

DONALD HEWITT

Proconsul, Inc.

BETH LANCASTER

Joint Project Manager Protection (JPM P)

PATRICK MORRISON

International Association of Fire Fighters

BARRY SMITH

DHS S&T Transportation Security Laboratory

JEFF STULL

International Personnel Protection, Inc.

DAVID TREBISACCI

National Fire Protection Association



- 7 DETECTION
- 8 DECONTAMINATION
- 9 MEDICAL
- 10 POWER
- 11 CBRN REFERENCE MATERIALS
- 12 CBRN INCIDENT RESPONSE VEHICLES
- 13 TERRORISM INCIDENT PREVENTION EQUIPMENT
- 14 PHYSICAL SECURITY ENHANCEMENT
- 15 INSPECTION AND SCREENING SYSTEMS
- 16 ANIMALS AND PLANTS
- 17 CBRN PREVENTION AND RESPONSE WATERCRAFT
- 18 CBRNE AVIATION
- 19 CBRNE LOGISTICAL SUPPORT
- 20 INTERVENTION
- 21 OTHER AUTHORIZED

MISSION SPECIFIC SUBLISTS (MSSL)

Due to the number and diversity of items listed in the SEL, the ESG develops MSSLS to support critical emergency responder mission areas. The MSSLS are compiled by ESG members and subject matter experts (SMEs) who draw appropriate items from all 21 sections of the SEL. Each MSSL provides a “tailored SEL” for emergency responders in a specific mission area. The MSSLS can be viewed on the IAB website at www.interagencyboard.org.

In addition to those MSSLS developed for mission critical areas, special MSSLS have been developed and released for the Canadian Police Research Centre in order to harmonize equipment with the IAB’s Canadian counterparts.

MEMBERSHIP

The ESG includes a wide range of members and SMEs from emergency response and standards development organizations, federal agencies, and the military. This facilitates system-wide improvements of the SEL, as well as advocacy of and participation in equipment performance and certification standards development. The ESG comprises of:

- State and Local Organizations (50%) – Representing fire service, law enforcement, emergency medical services (EMS), state national guard, medical first receivers, hazardous device operations, hazardous materials, search and rescue, and water operations.

- Federal Agencies (50%) – Representing the National Institute for Occupational Safety and Health (NIOSH), U.S. Environmental Protection Agency, U.S. Army Research Laboratory, U.S. Army Chemical Materials Activity, Naval Surface Forces.

Professional organizations are widely represented in ESG, including the National Fire Protection Association (NFPA), American Society for Testing and Materials (ASTM) International, International Association of Fire Fighters (IAFF), and the National Bomb Squad Commander’s Advisory Board (NBSCAB). Each organization has membership or SME status on the ESG.

This membership enhances partnerships among local, state, federal, military, and professional organizations and the standards development community. Through these partnerships, protective clothing, equipment, technologies, and standards are being developed. Ongoing federal and military R&D programs continue to be leveraged and, in some cases, fast-tracked for the benefit of the emergency response and public safety community. Bringing all the stakeholders together in a cooperative manner has been, and continues to be, essential to the success of the ESG.

FY 2017 HIGHLIGHTS

- The ESG continued to serve as the lead SubGroup for maintaining and updating the SEL, as well as supporting the DHS/FEMA NPD with the AEL. The 2017 edition of the SEL contains numerous updates as described in the SEL section of this Annual Report. Considerable progress was made working with the DHS/FEMA NPD on AEL/SEL alignment and AEL content.
- The ESG led the development and completion of the IAB document titled, “Recommendations on Selection and Use of Personal Protective Equipment and Decontamination Products for First Responders Against Exposures Hazards to Synthetic Opioids, Including Fentanyl and Fentanyl Analogs.”
- The first edition of NFPA 1986 Standard on Respiratory Protection Equipment for Tactical and Technical Operations was released and that equipment category item was incorporated into the AEL/SEL databases.

- The IAB was represented by an ESG member at a meeting hosted by ASTM International and the NFPA concerning unmanned ground robots and unmanned aerial systems. The objectives of this meeting included the following:
 - (1) identify the existing research, standards, training, and certification efforts related to unmanned vehicles;
 - (2) identify common solutions necessary for the safe and quality integration of the technology;
 - (3) outline how collaborative efforts could be structured;
 - (4) set short- and long-term objectives; and
 - (5) develop an implementation strategy to coordinate efforts.
- The ESG provided review and comments to the NIOSH-NPPTL PPE-Info Database (<https://wwwn.cdc.gov/ppeinfo>). This database contains useful information on PPE performance, standards, and test methods.
- The ESG received a presentation from a representative of the Pacific Northwest National Laboratory on independent testing of approximately three dozen biodetection products and provided back comments and recommendations.
- The ESG received a presentation by Dr. Kenny Fent (NIOSH/Division of Surveillance Hazard Evaluations and Field Studies) on the research study on firefighter skin and PPE contamination and decontamination. This research was done in collaboration with the Illinois Fire Service Institute and Underwriters Laboratories.
- At the request of the U.S. Customs and Border Protection and FEMA, revisions were made to the AEL/SEL to cover contraband density scanner technologies, speed/radar guns, and license plate recognition systems.

2018 PRIORITY INITIATIVES

- ESG and IAB members/SMEs will continue to serve on the NFPA Correlating Committee for Fire and Emergency Service Protective Clothing and Equipment and the eight Technical Committees.
- ESG will continue to work closely with the Standards Coordination SubGroup in revising the IAB process and procedure for formally recognizing product performance and certification standards, test methods, guidance, training standards, and procurement guidance linking SEL equipment items.
- The MSSSLs will continue to be developed for additional public safety and emergency response critical mission areas.



U.S. ARMY NATIONAL GUARD PHOTO BY SGT. MATTHEW SISSEL

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PHOTO COO.1.0 PUBLIC DOMAIN

STATE & LOCAL CO-CHAIR

Tim Dorsey

**Division Chief, Lake Ozark (MO)
Fire Protection District**

Tim Dorsey has been in the Fire/Rescue/EMS Service for 32 years. He holds a BS Degree in Fire Science Management from Lindenwood University, an AAS Degree in Criminal Justice, and is a Licensed Paramedic. He has served in both line and supervisory positions and currently also serves as the Chairman of the Missouri State Fire Safety Education/Advisory Commission in the Office of the State Fire Marshal. Tim has instructed internationally in various disciplines including Water/Swiftwater Rescue, Rescue Boat Operations, Firefighting, EMS, Hazardous Materials, and Technical Rescue disciplines. He has been an adjunct instructor with the U.S. National Fire Academy, Master Instructor with the USA Rescue Network, and holds instructor positions with other National, State and Local organizations. Tim also serves as a Rescue Team Manager on FEMA/Missouri US&R Task Force 1 and was deployed twice to New Orleans for Hurricane Katrina as well as other National and State deployments including the Joplin Tornado of 2011 and the Colorado Floods of 2013. He assisted the FBI St. Louis Office as the Tactical Paramedic Coordinator from 2012-2017 and was awarded the Missouri Public Safety Officer Medal of Valor from Missouri Governor Jay Nixon in December 2015.

FEDERAL CO-CHAIR

William Haskell III

**Program Manager, NIOSH,
National Personal Protective
Technology Laboratory**

William Haskell is a Program Manager in the Technology Evaluation Branch at the NIOSH National Personal Protective Technology Laboratory. Mr. Haskell is the Co-Coordinator for the NIOSH Public Safety Sector Program and Co-Chair of the National Occupational Research Agenda's Public Safety Sector Council. He serves as the Chairman of the NFFPA Correlating Committee for Fire and Emergency Services Protective Clothing and Equipment, and is a member of the NFFPA Technical Committee for hazardous materials, electronic safety equipment, structural/proximity, special operations, emergency medical service, and wildland firefighting protective clothing and equipment. Mr. Haskell is a member of the ASTM International F23 Protective Clothing and Equipment Committee, E54 Homeland Security Committee, and the IACP Homeland Security Committee. He is also the Chairman of the Fire Protection Research Foundation's Research Advisory Committee. Mr. Haskell holds a B.S. in Civil Engineering and an M.S. in Plastics Engineering from the University of Massachusetts at Lowell.

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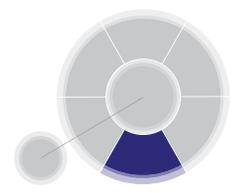
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HMRS

HMRS

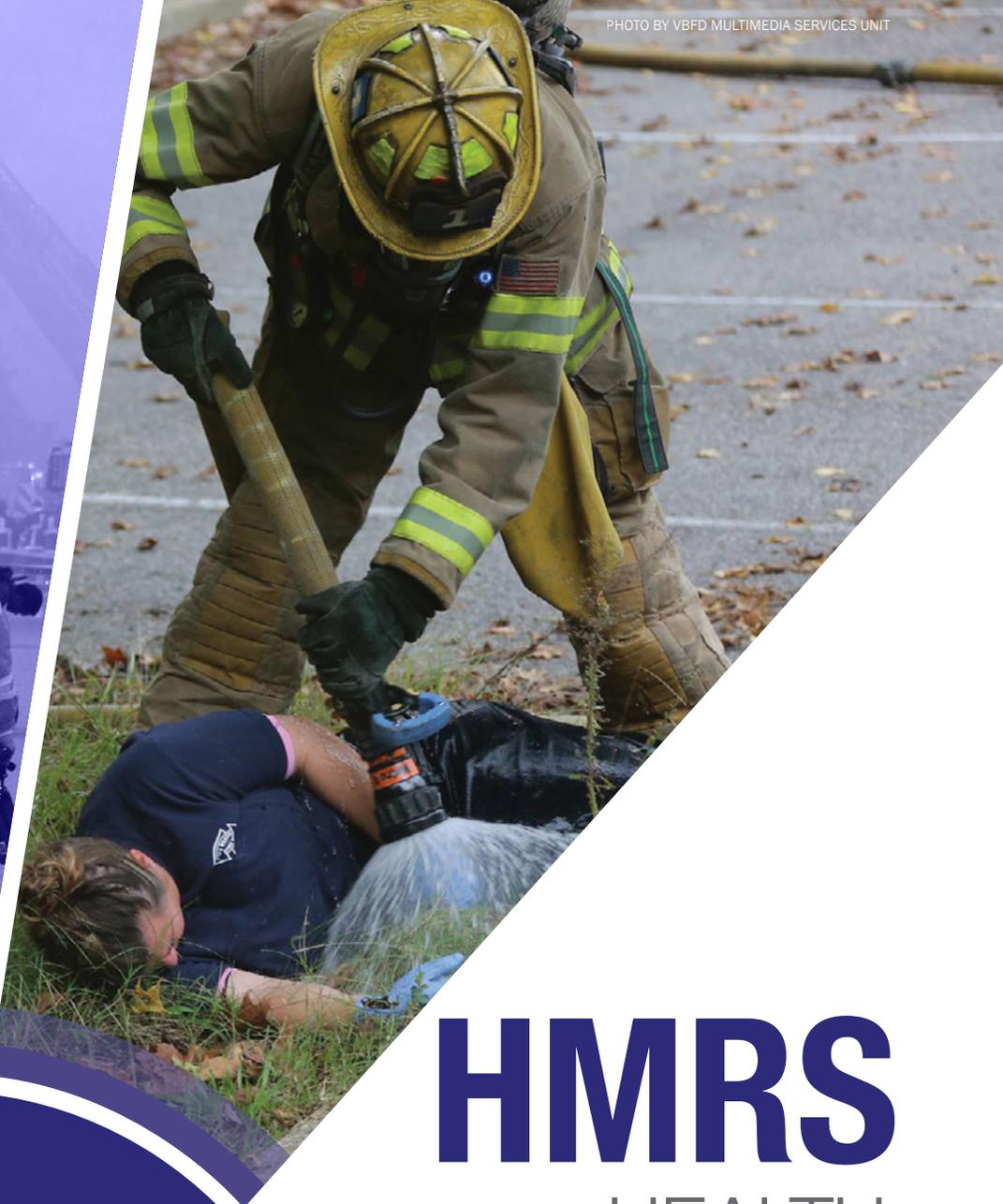
HEALTH,
MEDICAL &
RESPONDER
SAFETY
SUBGROUP



HMRS



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HMRS

HEALTH,
MEDICAL &
RESPONDER
SAFETY
SUBGROUP



STATE & LOCAL CO-CHAIR

JEFFREY RACE
Pineville (NC) Fire Department

FEDERAL CO-CHAIR

RENÉE FUNK
*Centers for Disease Control and Prevention,
Agency for Toxic Substances and Disease Registry*

The mission of the Health, Medical, and Responder Safety (HMRS) SubGroup is to provide guidance to the IAB on medical and public health and safety issues potentially impacting our nation's first responders and first receivers. This guidance includes first responder/receiver public health, safety, and performance optimization and development of best practices and standards for certifying equipment, supplies, and pharmaceuticals needed to respond to the full spectrum of hazards and threats. This guidance is developed from member knowledge, experience, and review and discussion of relevant material. The HMRS SubGroup reviews and recommends to the IAB new and modified equipment and related performance and operational standards, based on the SubGroup's qualifications and expertise.



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ROLES AND FUNCTIONS

- Identify gaps and needs for providing safe and effective pre-hospital medical care under emergency conditions.
- Evaluate the efficacy and appropriateness of existing and proposed health and safety products, processes, practices, and information.
- Serve on working groups that address emergency public health, medical, performance, and responder safety.
- Develop recommendations about how to identify, mitigate, or eliminate emergency responder safety hazards, prevent injuries, and reduce disability and mortality.
- Identify and address factors in emergency response that cause physical, physiological, or psychological harm and recommend mitigation strategies.
- Analyze threat scenarios and make recommendations about how to protect public health, medical, and emergency responder personnel, and victims safely and effectively.

INITIATIVES

- Completed review of IAB's anthrax vaccine white paper in light of FDA approval of anthrax anti-toxin products.
- Initiated development of a performance standard for a non-pneumatic limb tourniquet for the civilian market with input from first responder stakeholder groups.
- Initiated the Prolonged Field Care project, which looks to transition military models of prolonged field care in battlefield situations to civilian use.

MEMBERSHIP

KNOX ADDRESS

Louisiana Poison Control

KELLY BURKHOLDER-ALLEN

Toledo-Lucas (OH) County Health Department

RICHARD BURTON

Placer County (CA) Health and Human Services

CAOIMHÍN CONNELL

Park County (CO) Sheriff's Office

DARIO GONZALEZ

Fire Department, City of New York (NY), Office of Medical Affairs

RANDALL GRIFFIN

DeWitt (NY) Fire District

EARL HALL

Powell County (MT)

DAN HANFLING

Fairfax County (VA) Fire and Rescue Department

JOHN KOERNER

HHS-ASPR-Office of Preparedness and Emergency Operations

KEN MILLER

Orange County (CA) Fire Authority and Health Care Agency Emergency Medical Services

RAYMON MOLLERS

Department of Homeland Security, Office of Health Affairs, Medical First Responder Coordination Branch

FRANKLIN PRATT

Los Angeles County (CA) Immunization Program

JAMES SCHWARTZ

Arlington County (VA)

REED SMITH

Arlington County (VA) Fire Department

LAWRENCE TAN

New Castle County (DE) Emergency Medical Services

HERBERT WOLFE

U.S. Department of Veterans Affairs, Veterans Health Administration

SUBJECT MATTER EXPERTS

MARK ANDERSON

Bellevue (WA) Fire Department

SUSAN JONES-HARD

Center for Homeland Defense and Security

PAUL MANISCALCO

International Association of Emergency Medical Services Chiefs

ANDREW ROWLEY

Forsyth County (NC) Emergency Services

MICHELLE ROYAL

First Link Research and Analytics

MERRITT SCHREIBER

University of California, Irvine School of Medicine, Center for Disaster Medical Sciences

TOM WALSH

My Erie (WA) Fire Department

ANGIE WEBER

Centers for Disease Control and Prevention



- Participated in the Gotham Shield National Exercise. This national full-scale exercise tested federal, state, and local capabilities to respond to a nuclear explosion. The event took place from April 18 to May 5 in the New Jersey/New York City area.
- Continued to support the Emerging Infectious Diseases project. The Ebola outbreak highlighted the need for preparedness and response for emerging infectious diseases that might enter the U.S. This project addresses issues such as decontamination of ambulances, conducting active monitoring, infectious disease training for law enforcement officers, as well as many other issues.
- Continued to collaborate with National Institute for Occupational Safety's Disaster Science Responder Research program. The goal of the program is to develop a framework that allows disaster-related research to be started quickly, regardless of the disaster scenario, without interfering with the response itself. Scientific study can improve understanding and reduce disaster-related responder health effects and can lead to improvements in the effectiveness of emergency responses.
- Explored issues related to first responder training and equipment for care under fire, individual first aid kits for law enforcement officers, and care of unconscious firefighters.
- Promoting, integrating, and applying Tactical Emergency Casualty Care (TECC) methods. We continue to work with and support the development and ongoing evidence-based review/updates for the TECC guidelines to address the gaps in civilian high-threat medical response and to translate military and civilian trauma lessons learned into operational medical guidance.

MEMBERSHIP

The HMRS SubGroup consists of representatives from local, state, and federal responder agencies and institutions engaged in public health, medical response, occupational health, industrial hygiene, and responder safety. HMRS members engage all the response disciplines defined by the Federal Emergency Management Agency's (FEMA) National Preparedness Directorate and the wide-ranging competencies of their subject matter experts (SMEs) to inform the guidance products they develop.

FY 2017 ACCOMPLISHMENTS

- Completed research and development requirements collection and reviewed in separate discipline groups.
- Completed a review of SEL and AEL medical items.
- Developed a position paper on "Mental Health and Wellbeing of First Responders" that was started in 2016 and nears completion.
- Participated in special projects, including reviewing and commenting on: Implementation Statements reviewing and evaluating the Bio-Watch Concept of Operations development; Fire Retardant Chemical and the Impact on Firefighter Cancer Rates; First Responder of the Future Project; National Mass Fatality Management; National Bioterrorism Responder Strategy; and Responding to the Mentally Challenged.
- Completed a position paper on "Preparedness Activities for High-Threat Environments." The HMRS SubGroup recommends further review and analysis of the causes of death from active shooter and high-threat incidents that have occurred in the U.S., with continued refinement of the systems of care and preparation for these types of events.
- Completed a paper on "Law Enforcement TECC Training and Individual First Aid Kits (IFAK)." Mission-appropriate aspects of TECC and the use of IFAK should be part of basic training and equipment issued for all local emergency responders.
- Completed a paper on "Prevalence of Untreated Severe Mental Illness in U.S. Communities Places Unmanageable Burden on First Responders and Law Enforcement." It is essential that first-response agencies advocate strongly—in their own communities and on the state and national levels—for a comprehensive, functional, proactive mental health treatment and addiction recovery system.
- Completed a paper on "Evaluation of the Downed Firefighter." By improving awareness and appreciating the physiological effects and pathological risks encountered during structural and wildland firefighting activities, the emergency medical community can provide better care, leading to improved outcomes. This paper goes over evaluation, testing, and therapies for hospital and pre-hospital considerations.
- Participated in Executive Committee meetings on future strategic planning for the IAB.



DEPARTMENT OF DEFENSE PHOTO BY REESE BROWN

STATE & LOCAL CO-CHAIR

Jeffrey Race

Lieutenant/ President, Pineville
Morrow Volunteer Fire and
Rescue (NC) Department

Lieutenant Race is a Firefighter/Emergency Medical Technician (EMT)/Safety Officer with the Pineville Morrow Volunteer Fire and Rescue (NC) Department, a combination volunteer/paid department. He also serves as President of the Board of Directors. He was formerly the Commanding Officer/Captain, FDNY EMS Special Operations/Haz Tac Battalion, from 2003 until his retirement in 2011.

Lieutenant Race has over 37 years of EMS/Fire experience, including the 1993 and 2001 World Trade Center terrorist attacks and numerous HazMat/Rescue, aircraft, marine, rail, mass casualty and structural incidents. His experience with planned events includes National Special Security Event Presidential visits and United Nations Assemblies, New Year's Eve, and sporting events, in addition to the annual 1.6 million EMS responses and 45,000 fires within NYC's 303 square miles. As Captain, he developed the FDNY Haz Tac Battalion, where EMTs and paramedics are trained in hazardous materials medical management, and the FDNY Rescue Paramedic program. He operated and later supervised responses to many of the anthrax threats in New York City.

Lt. Race remains active/certified in North Carolina as a firefighter/EMT. He received his original paramedic certification at Davenport University in Grand Rapids (MI) where he focused on EMS Systems Management. He continues leading, training, educating, and collaborating on first responder initiatives and on certifications in a multitude of areas, both locally and nationally.

FEDERAL CO-CHAIR

Dr. Renée Funk

Associate Director, Emergency
Management, National Center
for Environmental Health/
Agency for Toxic Substances
and Disease Registry

Dr. Renée Funk received her Doctorate of Veterinary Medicine from Iowa State University; her Master's of Public Health and Tropical Medicine from Tulane University; and her Master's of Business Administration from Georgia State University. She is a Diplomate of the American College of Veterinary Preventive Medicine.

Dr. Funk is a recognized expert in environmental and occupational health for public health surveillance. She is the CDC lead for all non-infectious disease scenarios, including chemical, radiological, and natural disasters. Dr. Funk is the Health and Human Services representative to the National Response Team. She is currently the CDC Incident Manager for the 2017 Hurricane Response.



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PHOTO COURTESY OF LOS ANGELES CAL FIRE DEPT.

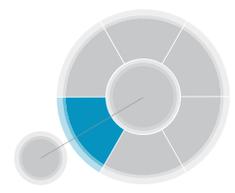


DEPARTMENT OF HOMELAND SECURITY PHOTO BY BARRY BAHLER

IM&C

IM&C

INFORMATION
MANAGEMENT &
COMMUNICATIONS
SUBGROUP





IM&C

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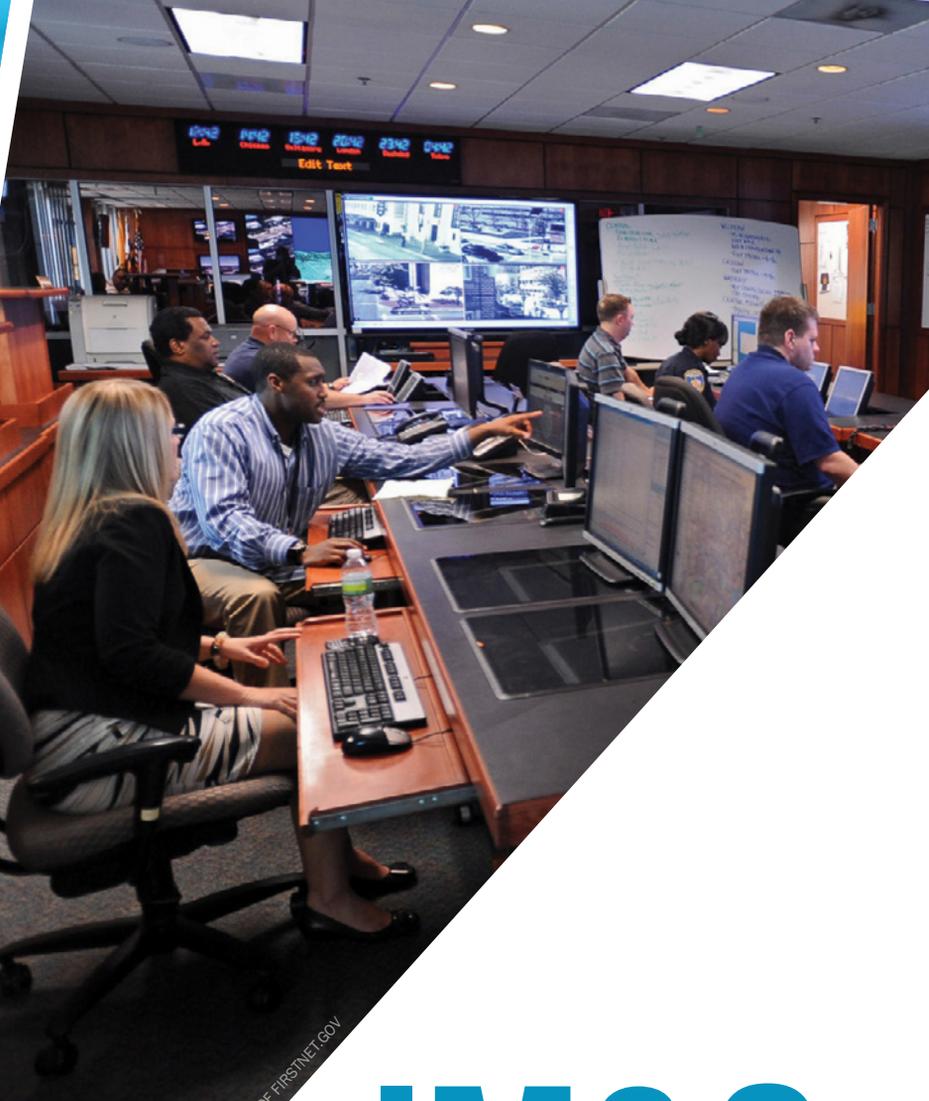


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IM&C

INFORMATION MANAGEMENT & COMMUNICATIONS SUBGROUP



STATE & LOCAL CO-CHAIR

MARK HOGAN
City of Tulsa (OK)

FEDERAL CO-CHAIR

MIKE TUOMINEN
*National Interagency Fire Center, National
Interagency Incident Communications Division*



The mission of the Information Management and Communications (IM&C) SubGroup is to develop and advocate the processes, protocols, and technologies that enable effective, timely, accurate, secure, and resilient information management and communications capabilities, while addressing the full range of all-hazards incidents.



PHOTOS COURTESY OF FIRSTNET

ROLES AND FUNCTIONS

The role of the IM&C SubGroup is to develop a common or standardized operating picture for the essential components of an emergency incident response. Building upon the IAB’s greatest strength—its emphasis on the practitioner—the IM&C SubGroup largely comprises members who are active first responders from fire, law enforcement, emergency medical services (EMS), and emergency management agencies. These members of the first responder community work with federal, state, and local government representatives, as well as subject matter experts (SMEs) representing science, industry, and academia, to accomplish goals through the quick, efficient, and beneficial exchange of information. The standards, equipment guides, and other work

products generated from the IM&C SubGroup are developed by first responders for first responders. This unique effort results in information from the first responder’s perspective.

The IM&C SubGroup’s scope includes the following practices and technologies:

- Combat the gaps and challenges related to information collection, sharing, classification, categorization, storage, security, and dissemination that affect incident prevention and emergency preparedness and response.
- Develop decision support materials and interoperable communications technologies, policies, and strategies.

MEMBERSHIP

LEIF ANDERSON

Phoenix (AZ) Fire Department

DON BOWERS

Fairfax County (VA) Fire and Rescue Department

AMY DONAHUE

University of Connecticut

LEONARD EDLING

Merrionette Park (IL) Fire Department

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FDNY

JOHN FREEBURGER

Montgomery County (MD) Fire and Rescue Service

DAVID ISAACSON

U.S. Department of Homeland Security

WALTER KAPLAN

Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response, National Disaster Medical System

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VANCE MEADE

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Sacramento County (CA) Sheriff's Department

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*Cook County (IL) Department of Homeland Security
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United States Marshals Service

JOHN SULLIVAN

Los Angeles (CA) County Sheriff's Department

SUBJECT MATTER EXPERTS

JERALD DAWKINS

University of Tulsa

JEFFREY DULIN

International Association of Fire Chiefs

JEANNINE HENDERSON

NORAD-USNORTHCOM J6

DOUG WIEDMAN

Sacramento County (CA) Sheriff's Department

CHRIS WRIGHT

Reliant



- Develop and integrate effective, interoperable communications and decision-making support technologies and practices to provide indicators, warnings, and information/intelligence support for all-hazard operations.
- Develop recommendations, strategies, and guides in the realm of cybersecurity for the efficient and secure delivery of data.
- Develop system and strategy improvements for intelligence and decision support, including collecting, administering, sharing, analyzing, and protecting information.

The primary means by which the IM&C SubGroup accomplishes its mission is by identifying needs and gaps in the emergency responder information and communications environments, whether voice or data, in order to recommend and advocate mitigating solutions and standards. In after-action reports related to major incidents and drills throughout the nation, communications continues to be listed among the top issues requiring more work. “Interoperability” continues to be one of the most commonly used terms in the realm of emergency response, on all levels.

Federal policy makers and first responders alike can benefit from a clear, reliable information flow between the two. Optimally, the communications process allows federal partners to rapidly obtain feedback essential to improving the safety and security of our nation. First responders are rewarded through timely disseminated information regarding such issues as grant programs, technology trends, resources, and ongoing research and development. It is the IM&C SubGroup’s goal to provide yet another means to disseminate information to those outside the IAB who may not otherwise receive it.

The IM&C SubGroup acknowledges there are many other national groups focusing on improving incident communications. Some of these groups are developing wide-reaching, long-term solutions while others are tasked with mission-specific or discipline-specific solutions. Because of the IAB’s ability to speak from the end-user’s perspective, members of the IM&C SubGroup provide crucial expert advice and guidance to many of these other groups. While IM&C SubGroup members are involved and participating in many of these outside efforts, projects, and programs, it is the emphasis on involving responders that makes the IAB and IM&C SubGroup unique.

The IM&C SubGroup continues to emphasize standardizing the equipment and methods used for first responder communications by focusing on vital areas such as information management—using standardized interfaces, skills, and the training of communications support personnel—and cybersecurity, intelligence sharing and exchange, and the common operating picture (COP).

FIRST RESPONDER DATA SYSTEMS RISK & VULNERABILITY ASSESSMENT

A significant finding in communicating the value of the Cybersecurity Continuum was a lack of understanding of the threat posed to the first responder community. To address this shortcoming, IM&C solicited support from the DHS National Cybersecurity and Communications Integration Center’s National Cybersecurity Assessment and Technical Services Team to perform a Risk and Vulnerability Assessment (RVA) exercise. The group devised a series of validation tests to better understand the threat profile to first responders and, leveraging the RVA group, derived actionable real-world guidance for addressing these threats.

Members of the IM&C SubGroup participated in cybersecurity penetration testing to identify vulnerabilities in local government information systems. The tests provided a baseline for security needs within the Emergency Services Sector (ESS) that will help other state and local governments understand their risks.

The three municipalities tested had populations varying from 20,000 to 500,000. Several key issues were identified and examined, including system hardening, proper segmentation, governance and communication, unintentional insider threat, and monitoring. The testing revealed all three agencies had adequate defenses to external threats, but were susceptible to internal weaknesses. The vulnerabilities included typical industry threats, such as social engineering, insider threats, and the improper use of administrator accounts coupled with inadequate password management.

Based on those results and subsequent conversations, the IM&C is actively developing a white paper that will summarize the engagements, discuss potential threat profiles, and present remediation guidance and activities.

INFORMATION SHARING OVERVIEW

Effective decision-making is key to mission accomplishment for the ESS, and is heavily dependent upon emergency responders sharing a common operational picture (COP), a single identical display of relevant operational information. Whether or not a clear COP is developed among responders is largely determined by the quality of existing information-sharing practices, which often face substantial people- and process-related challenges.

Three primary factors affect an organization's ability to have an effective information-sharing strategy: people, processes, and technology. To have an effective technology strategy, people and processes must be aligned; technology enables a more effective process to be carried out by people. Consequently, a thorough understanding of the relationships between people and processes is necessary.

Functionally, the relationships among people, processes, and technology reside at three unique levels: individual, unit, and organization. An individual is a first responder. A unit could be a tactical grouping or department. An organization constitutes a governing body. There are several factors that contribute to ineffective information sharing programs; collectively, these factors are referred to as Information Sharing Challenges. Accordingly, in order to properly outline and provide solutions for key people- and process-related challenges, each of the challenges identified herein are presented according to the level at which they reside.

INFORMATION SHARING CHALLENGES

Negative Feelings toward Coworkers

A negative feeling toward coworkers inhibits information sharing behaviors. For example, if employee A has negative feelings toward employee B, then employee A will be less likely to freely share information with employee B. Therefore, improving the trust threshold between individuals can serve as a precursor to more effective information sharing exchanges.

Fear of Reputation Risk

An individual's concern for his or her reputation can also inhibit information sharing. A responder may not share anything if he or she is concerned about possible repercussions for inadvertently passing along inaccurate information. They may also withhold

information for fear that it could be misused or potentially abused. Withholding such information for reputation-related reasons is more likely to occur in the context of written or data-driven information than verbal interaction.

Sense of Information Ownership as Intellectual Property

As it is between individuals, trust is a key predictor of sharing behaviors between units. At the unit level, a unit may determine that information created or generated at this level is the sole property of the unit. If that determination is made, then the information, in many cases, is considered close-hold. The impact of making this determination is least impactful to sharing behaviors when the information in question is discrete data; it is most impactful when it includes contextual data.

Sense that Sharing Effort Exceeds Benefits

Another challenge is perceived lack of return on investment. In this case, an individual or unit perceives the cost of sharing information outweighs any potential gain. Individuals or units may also question the value, integrity, or reliability of information being shared.

Poor Management

Poor management can be seen as a challenge to information sharing at the organizational level wherein coordination among stakeholders is lacking or misused. This lack of coordination not only creates organizational challenges but also negatively impacts trust between Individuals and units. In addition, a lack of formalized structure or framework creates barriers.

Free Ridership

There are costs and benefits associated with information sharing. If an individual only participates in the benefits of information sharing, then an imbalance is created. This imbalance is often referred to as free ridership. It occurs when an individual/unit/organization under-invests in the information sharing process with the intent to maximize their own benefit without contributing to the overall welfare of the system.

Inconsistent Cross-Boundary Standards and Terminology

An organization's culture, goals, vocabulary, and frames of reference interfere with its ability to effectively share information across boundaries; that is, between units within an organization and/or among

organizations. Organizations that continue to rely on legacy or antiquated processes and/or adhere to only organizationally specific terminology or standards will face growing information sharing challenges.

INFORMATION SHARING CHALLENGES SURVEY

The online survey administered to IAB members in the spring of 2015 was a cursory examination of first-responder experiences regarding the aforementioned challenges. Access to the online survey was provided to all IAB members on March 30, 2015 and remained available until May 5, 2015, with approximately 97 members completing the full survey.

Results indicated that responders consider themselves generally trusting of members outside their agency, with a majority of participants agreeing that they trust members of other agencies with sensitive information (98%) and that members of other agencies use information appropriately (97%). Findings also suggest the existence of strong information sharing climates across first responder organizations, with most participants (86%) indicating information sharing to be worth their time and effort, and that their organization supported information sharing with other agencies (88%).

Nonetheless, alongside these optimistic findings were also indications that information sharing challenges still reside within the first responder community. First, despite the fact that nearly all participants reported trusting other agency members with sensitive information, most still reported experiencing information sharing challenges associated with trust of an external agency partner (78%). Most also acknowledged that they are more willing to provide information to external members when certain conditions arise, such as when they are familiar with the external member (91%), or when they believe the external member is likely to make ethical decisions with the information provided (77%). Further, over half of those surveyed reported experiences of negative feelings towards coworkers (63%) and members of other agencies (74%) that inhibited information sharing.

RECOMMENDATIONS

As information sharing challenges are addressed, first responders can more successfully integrate technological advances into their sharing practices, ultimately fostering a stronger information sharing system. The following recommendations are presented to aid in the establishment of more robust and effective information sharing initiatives.

ICAM Trustmark Framework

Identity, credential, and access management (ICAM) refers to a comprehensive approach for dealing with digital identities (and associated attributes), credentials, and access control. ICAM helps to address the growing data management, interoperability, and cybersecurity challenges facing public safety today. ICAM solutions, especially federated ones, align public safety communities around common identity and access management practices.

ICAM concepts are not new to public safety agencies. In most public safety communications systems, assets such as radio sites, public safety facilities, data



centers, and radios are physically secured against internal and external threats. Additionally, information technology (IT) networks are routinely hardened and secured to prevent compromise or loss of personally identifiable information and law enforcement sensitive data. However, as federal, state, local, and tribal public safety organizations increasingly collaborate and share information over the internet, the challenges of safeguarding technology and information now extends to cyberspace. A holistic solution such as federated ICAM provides many tools and processes for enhancing both physical security and cybersecurity.

Immediate access to critical information will provide public safety personnel with the ability to make informed decisions and better protect themselves and the public. Collectively, the public safety community lacks a nationwide interoperable information sharing system designed to coordinate across all public safety disciplines (e.g., law enforcement, fire, EMS, 911 dispatch centers, emergency management, and public health). As a result, information is stored in disparate systems; making it difficult for federal, state, local, and tribal agencies to access and share information.

Federated ICAM solutions build trust by aligning all participants to an agreed-upon set of policies, technical standards, and best practices. While identity management, credential management, and access management are closely interrelated, it is important to understand each individual ICAM facet.

A federated approach promotes mutual trust and interoperability between public safety agencies and communities of interest. Federated organizations have the autonomy to set agreed-upon rules for establishing trust and conditions for sharing information. Currently, there are many trust frameworks in place to support various ICAM needs and identity federations.

Disparities in current ICAM solutions make it difficult for public safety organizations to confidently and quickly access important information from systems outside of their current domain(s) since there is no universally accepted and straightforward process for facilitating trust and interoperability between existing disparate ICAM initiatives.

Interoperability will be a vital component of ICAM as FirstNet, NextGeneration 911, and other networks become available to public safety users. In support of the National Strategy for Trusted Identities in Cyberspace, the U.S. Department of Commerce's National Institute of Standards and Technology commissioned the Georgia Tech Research Institute to develop and demonstrate a Trustmark Framework that facilitates cost-effective scaling of interoperable trust across multiple communities of interest. The Trustmark Framework is a means to achieve trust and interoperability between various identity federations without requiring explicit, written bilateral agreements. Additionally, the Trustmark Framework provides a template for creating nationwide mission critical interoperability by incorporating both existing and future public safety grade ICAM and information sharing and safeguarding solutions.

The Trustmark Framework is supported by the National Law Enforcement Telecommunication System, SAFECOM, National Council of Statewide Interoperability Coordinators and other key public safety stakeholders.

Incorporate Sensor Metrics

Sensor metrics are discrete data sets, such as location data or event details, that need to be integrated with other information and interpreted before knowledge can be obtained. For example, a home smoke alarm acts as a sensor, providing notification (a metric) of a potential fire threat; the alarm company acts as the metric sender, and the homeowner acts as the receiver. Prior to taking an actionable response to the notification, a homeowner typically first investigates other sensory information to validate the threat, such as looking for fire or smoke. It then becomes the homeowner's responsibility to integrate the sensory information and take action (or not). Similarly, incorporating sensor metrics within first responder information sharing systems requires the receiver of a given metric to integrate it with other sensory information and draw actionable conclusions. Doing so ultimately increases the likelihood that the senders of sensory metrics will proactively provide such metrics, as the development of both the context and legitimacy of any combined sensory metric information then lies in the hands of the receiver.

Develop Performance Incentives

Incentives should be instituted as a means to encourage information sharing. Individual responsibilities can be expanded to encompass information sharing and collaborative engagements with internal and external group members.

Establish Aggregator Entities

An aggregator entity serves as a bridge or conduit between organizations, as well as a Trusted Agent between parties. They help to mitigate distrust between parties while maintaining recommended information sharing standards and policies.

SUMMARY

Information Sharing practices are critical for effective and efficient responding within the ESS, as they heavily influence COP quality and thus ultimately, first responder decision-making quality. Given that the safety of the general public is entrusted to the ESS, efforts to improve information sharing among individuals, units, and organizations should remain paramount.

ENGAGEMENT WITH NATIONAL INITIATIVES

FIRSTNET & IAB

Since 2014, IAB member and Seattle (WA) Fire Department Captain Chris Lombard has served as the IAB representative to FirstNet Public Safety Advisory Committee (PSAC). In this role, Capt. Lombard communicates recommendations and concerns from the IAB to FirstNet regarding the development and implementation of its nationwide broadband network for public safety. The intent is to reflect the importance of strengthening our nation's ability to prepare for and respond safely and effectively to emergencies, disasters, and chemical, biological, radiological, and nuclear defense (CBRNE) incidents.

In 2015, Capt. Lombard served as Chair of the PSAC's "Public Safety Grade" task team. This task team identified critical infrastructure layers that require increased hardening and reviewed the methodology used to filter these asset layers. The task team selected 19 critical asset layers and reported its findings along with the methodology

and weighting in a report to FirstNet President T.J. Kennedy in November 2015. Capt. Lombard led 10 task team meetings and frequently communicated with members of the PSAC Executive Committee and FirstNet leadership on the task team and its findings. He also presented the task team's findings to the full PSAC, FirstNet Board of Directors, and FirstNet senior leaders at a December 2015 meeting in Houston, Texas.

In 2016, Capt. Lombard served as the Chair of the PSAC's task teams on "Identity, Credentialing, and Access Management (ICAM)" and "User Profiles." The ICAM task team, established in January 2016 at the request of the FirstNet President, explored the state of ICAM within the public safety community and provided the PSAC's recommendations to FirstNet. Between January and June 2016, the task team conducted 12 meetings to create a preliminary ICAM framework that describes different levels of interoperability enabled by efficient ICAM processes. The initial stage allows public safety agencies and users to gain access to FirstNet. The task team recommended keeping the barrier to entering this initial stage low for agencies and public safety users



by leveraging existing public safety policies and procedures. As the ICAM framework progresses to the later stages, resulting in greater access to public safety data, the responsibilities of the agencies and the public safety users will increase. The final stage results in an interoperable federated identity solution for public safety. The task team's efforts resulted in a report that outlined this preliminary framework and provided an avenue for additional meetings with FirstNet's eventual private sector partner, AT&T. Capt. Lombard presented the task team's findings to the full PSAC, FirstNet Board of Directors, and FirstNet senior leaders at a meeting on June 6, 2016 in San Diego, California.

The PSAC's "User Profiles" task team was launched in October 2016 and completed its work in January 2017. At the request of FirstNet's Chief Customer Officer Rich Reed, Capt. Lombard led the task team to recommend basic attributes for templated user profiles that should be available on the first day of network operations. The task team met six times between October and December 2016 and developed a list of recommended basic specializations or attributes for templated user profiles for the following public safety disciplines: Fire Service, EMS, Law Enforcement, and Public Safety Communications/Public Safety Answering Points (PSAPs). The task team strategically divided the information in the tasking recommendations to uniquely acknowledge each primary discipline. The task team noted that additional outreach to the broader local, state, territorial, federal, and tribal public safety community will be necessary to continually enhance and refine these introductory user profiles as the network matures, as well as to better understand how specializations interact across disciplines (e.g., fire service personnel who also serve as EMTs). They also identified follow-on work with AT&T, such as user profile inclusions and the applicability of incident command structure specialties within each discipline's profile, to be performed as the network's dynamic capabilities are established. Capt. Lombard presented the task team's preliminary findings to the full PSAC, FirstNet Board of Directors, and FirstNet senior leaders at the December 2016 meeting in Sacramento, California. He also presented the final report to the full PSAC at its April 12, 2017, webinar.

SAFECOM

As has been mentioned in past Annual Reports, members of the IAB have been involved in the SAFECOM Program (<https://www.dhs.gov/safecom>) efforts, almost since SAFECOM's beginning in 2001. The SAFECOM Program has been responsible for many significant efforts nationwide that have had profound, positive impacts on emergency responders, including the National Emergency Communications Plan, the development of the DHS All-Hazards Type III Communications Unit Leader and Technician courses, the SAFECOM Continuum, and more.

During this past year, IM&C members have been heavily involved in activities of the following SAFECOM committees:

- Governance Committee
- Education and Outreach Committee
- Communications Unit

FY 2017 ACCOMPLISHMENTS

During FY 2017, the IM&C SubGroup accomplished the following major items:

- Ongoing engagement with FirstNet
- Ongoing engagement with SAFECOM
- Ongoing engagement with and support of ICAM
- Ongoing work through SAFECOM on DHS/OEC Communications Unit courses
- Reviewed and provided feedback on the following DHS S&T documents:
 - » Information Sharing Continuum
 - » Capability Maturity Model

CURRENT INITIATIVES

During FY 2018, the IM&C SubGroup will continue to work on the following initiatives:

- Pen Test results and best practices summary document
- Researching and developing a preparedness statement paper on geomagnetic storms



TEXAS
120-3751

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ISTOCK PHOTO



STATE & LOCAL CO-CHAIR

Mark Hogan

Director of Asset Management,
City of Tulsa (OK)

Mark Hogan is the Director of Asset Management and Chief of Security for the City of Tulsa and has 27 years of experience in critical infrastructure security and law enforcement. He is a member of the State, Local, Tribal, and Territorial Government Coordinating Council and a member of their Cyber Working Group. He chairs the Cyber Working Group for the ESS and is active in several current cyber-related activities at DHS.

Mr. Hogan has been a reserve police officer for 25 years, first serving in Wagoner County (OK), and currently serving in Broken Arrow (OK).



FEDERAL CO-CHAIR

Mike Tuominen

Branch Chief, U.S. Forest Service,
National Interagency Fire Center,
National Interagency Incident
Communications Division

Mike Tuominen has more than 20 years of experience in incident communications, and serves at the national level as an operations specialist for all-risk incident communications involving both natural- and human-caused disasters. During such incidents, he fills the role of Communications Technician, Unit Leader, Coordinator, Duty Officer, or Technical Specialist. His duties include managing all facets of emergency communications systems utilizing low-power, very-high-frequency, and ultra-high-frequency land mobile radios; high-frequency and satellite radios and telephones; and frequencies equipment and personnel resources for areas involved in severe multi-incident emergencies. He is also involved in training through the National Wildfire Coordinating Group for Incident Communications Technician S-258, Communications Unit Leader S-358, and Communications Coordinator, and was involved in developing the all-risk Communications Unit Leader and Communications Technician courses.

U.S. NAVY PHOTO BY MASS COMMUNICATION SPECIALIST 3RD CLASS JEANETTE MULLINAX



DHS PHOTO OFFICE OF HEALTH AFFAIRS BIOWATCH PROGRAM OFFICE



U.S. ARMY PHOTO BY STAFF SGT. DARRON SALZER

S&T

SCIENCE &
TECHNOLOGY
SUBGROUP

S&T

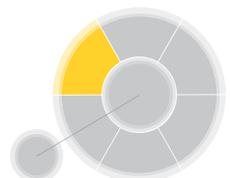




PHOTO BY SGT ASHLEY JOHLFS, 116TH PUBLIC AFFAIRS DETACHMENT



S&T

S&T

SCIENCE & TECHNOLOGY SUBGROUP



STATE & LOCAL CO-CHAIR

ADAM MILLER
Huntingdon County (PA) Sheriff's Office

FEDERAL CO-CHAIR

GABRIEL RAMOS
*Technical Support Working Group,
Combating Terrorism Technical Support Office*



The Science & Technology (S&T) SubGroup's mission is to identify interagency (federal, state, local, and tribal) research & development (R&D) requirements and innovative technologies (fieldable within six months to five years) for first responders that address chemical, biological, radiological, nuclear, and high-yield explosive (CBRNE) focus areas including: detection, individual protection, collective protection, medical support, decontamination, communications systems/information technology, deterrence and prevention, and security/situational awareness.



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ROLES AND FUNCTIONS

The primary functions of the S&T SubGroup are to develop and update the IAB S&T first responder R&D requirements; coordinate IAB representation on federal requirements boards; record and prioritize requirements of individual SubGroups; report to SubGroups on federal requirement initiatives; and assess innovative government- and industry-developed technologies. The S&T SubGroup also identifies future technology needs for detection, individual protection, collective protection, medical support, decontamination, communications systems, information technology, and operational equipment.

ACCOMPLISHMENTS

During FY 2017, the S&T SubGroup accomplished the following:

- Followed up on detailed review and prioritization of S&T needs and projects.
- Conducted an R&D requirements write-up training session with SubGroup representatives.
- Administered the web-based IAB First Responder R&D Priority Survey. The S&T SubGroup used the results to prioritize R&D requirements from SubGroups and Focus Area Disciplines.
- Conducted a statistical analysis of the new IAB R&D requirements survey results and delivered 2017 Research & Development Priority List for official publication.

MEMBERSHIP

CRAIG ADAMS

Los Angeles (CA) Police Department

KENNETH BRENNAN

Federal Bureau of Investigation, Technical Hazards Response Unit

BRYAN COOKE

Fairfax County (VA) Police Department, Bomb Squad

STEPHEN DAVIS

Oldham County (KY) Emergency Management

JOHN DELANEY

Arlington County (VA) Fire Department

DONALD DENNING

Town of Shirley (MA)

WILLIAM DESO

Department of Homeland Security, Science & Technology Directorate, First Responder Group

VINCENT DOHERTY

Long Island University

JOHN DONNELLY, SR.

District of Columbia Fire and Emergency Medical Services

ANGELA ERVIN

Department of Homeland Security, Science & Technology Directorate

CHERYL GAUTHIER

Massachusetts Department of Public Health-Bioterrorism Response Laboratory

GEORGE HOUGH

Fire Department, City of New York (NY)

ROBERT INGRAM

Fire Department, City of New York (NY)

ROBERT JOHNS

DHS-Domestic Nuclear Detection Office

CLAY MCGUYER

Joint Improvised-Threat Defeat Organization

DANIEL MURRAY

Seattle (WA) Fire Department

MILTON NENNEMAN

Department of Homeland Security, Science & Technology Directorate

DAVID TAFAOA

South Carolina Law Enforcement Division

MICHAEL WALTER

Department of Homeland Security, Office of Health Affairs, BioWatch

MIKE WITTEVEEN

Grand Rapids (MI) Fire Department

SUBJECT MATTER EXPERTS

DAVID LADD

Massachusetts Department of Fire Services

ARTURO MENDEZ

Port Authority of New Jersey & New York

RICHARD OZANICH

Pacific Northwest National Laboratory

NANCY SUSKI

Lawrence Livermore National Laboratory



- Coordinated input to federal R&D agencies, Federally Funded Research and Development Centers (FFRDCs) and University Affiliated Research Centers (UARCs) to leverage IAB-prioritized requirements.
- Provided review and input to IAB white papers and other work product documents.
- Expanded outreach to National Laboratories and Centers of Excellence to increase the partnership and innovation capacity of the S&T SubGroup.
- Participated in First Responder of the Future Working Group conference calls and meetings.
- Worked to create a discussion group to bridge DOD and First Responder technologies under development to promote dual use.
- Attended the following events:
 - » International Association of Fire Chiefs (IAFC) hazardous materials (HazMat) Conference in Baltimore
 - » DHS S&T First Responders Resource Group; supported various initiatives throughout the year
 - » DHS S&T Panel – Industry Day
 - » SAAB CWOS underwater ROV evaluation
 - » MTGR robot evaluation
 - » Counter-IED firing device evaluation
 - » IPT for trace explosive devices; participated in independent test and evaluation
- Provided support to the following projects and programs:
 - » EMERGENCE program – Naval Postgraduate School
 - » POINTER program
 - » NFPA 2400
 - » FBI Underwater Explosives Program
 - » DHS Operational Field Assessment national protocol development
 - » APHL (Association of Public Health Laboratories) PHPR (Public Health Preparedness and Response) committee/ First Responder Standards and Technologies
 - » EDGE program
 - » Indoor bio-threat management tools
 - » Testing the tracking of bio-threats across urban areas

FY 2017 INITIATIVES

The S&T SubGroup has established and continued to refine a formal process to collect and prioritize IAB R&D requirements. This process was further developed to obtain new requirements from all IAB first responder disciplines listed below. The S&T SubGroup has worked with the IAB Program Office to revise and update the requirements survey process to improve efficiency, data collection, and analysis of results, and to broaden requirements prioritization by the following first responder disciplines:

- Communications
- Emergency Management
- Fire
- HazMat
- Explosive Ordnance Disposal (EOD)
- Law Enforcement
- Medical

As a result of the improved survey, IAB members and partners expressed interest in a more concrete and descriptive understanding of existing R&D priority development, focused on public and private progress made on priority items that have appeared over numerous years on the list. With support from the DOD's Joint Program Executive Office for Chemical and Biological Defense, funding was committed to begin a "Technology Radar" overview report to help inform our stakeholders regarding progress on their priorities. The report is in development and will cover priority lists from 2014 to 2016.

The S&T SubGroup will continue to support a demographic database and analysis of the IAB membership. New demographic data was gathered in 2017. The S&T SubGroup will also continue to participate and contribute to DHS projects and initiatives as requested.

IDENTIFIED REQUIREMENTS (2017)

The following prioritized R&D requirements were identified by the discipline groups (communications, EOD, fire service, HazMat, health and medical, and law enforcement) as capability gaps that should receive special consideration as R&D initiatives. For additional information on the 2017 R&D Priorities below, please reference the Appendix on pg.93 for a short description on each priority item.

2017 IAB Research and Development Priority List

1. USE OF UNMANNED AIRCRAFT SYSTEMS (UAS)
2. INDOOR 3-D TRACKING OF PERSONNEL
3. INTEROPERABILITY REQUIREMENTS FOR INCIDENT MANAGEMENT SYSTEMS
4. ALTERNATIVE CROWD DISPERSAL DEVICE
5. OUTDOOR 3-D TRACKING OF PERSONNEL
6. HME NEUTRALIZATION
- 7.* 3-D X-RAY (TIE)
- 7.* ROBOTIC X-RAY INTEGRATION (TIE)
9. HANDHELD STANDOFF CHEMICAL & EXPLOSIVE IDENTIFIER
10. NEXT GENERATION AMBULANCE/PATIENT
11. DEVELOPMENT OF PERFORMANCE REQUIREMENTS AND TEST METHODS FOR BALLISTIC-RESISTANT BODY WORN ARMOR FOR WOMEN
12. NOISE FILTERING DIGITAL SPEAKER/MICROPHONE FOR SCBA FACE PIECE
- 13.* RESPONDER KNOWLEDGE DATABASE 2.0 (DIGITAL RKB) (TIE)
- 13.* INEXPENSIVE, PORTABLE RUGGEDIZED POINT-OF-CARE LAB TESTING DEVICE (TIE)
15. TRACKING OF EVACUATED POPULATIONS
16. UNIVERSAL SUIT SEAL/RESPIRATOR-TO-SUIT INTERFACE
17. sUAS WITH MULTIGAS METERING FOR OPERATION IN FLAMMABLE GAS ENVIRONMENTS
18. VEHICLE TO VEHICLE ALERTING
19. NON-PYROTECHNIC DIVERSIONARY DEVICE
20. EFFECTIVENESS OF WIPES AS SKIN DECONTAMINATION AID AT FIRE SCENE
21. MULTIT-METER BOMB TECHNICIANS
22. IMPROVED MICROCLIMATE COOLING SYSTEM FOR DOWN RANGE USE
23. RESPONDER/RECEIVER MENTAL HEALTH AND WELLNESS
24. TOURNIQUET TESTING FIXTURE
25. ANALYSIS SOFTWARE/SIGNAL PROCESSING FOR SITUATIONAL AWARENESS

* Tied Ranking

2017 IAB RESEARCH AND DEVELOPMENT PRIORITIES: BREAKDOWN BY DISCIPLINE

Communications

1. ANALYSIS SOFTWARE/SIGNAL PROCESSING FOR SITUATIONAL AWARENESS

Emergency Management

1. TRACKING OF EVACUATED POPULATIONS

EOD

1. HME NEUTRALIZATION
2. 3-D X-RAY
3. ROBOTIC X-RAY INTEGRATION
4. MULTIT-METER BOMB TECHNICIANS

Fire Service

1. INDOOR 3-D TRACKING OF PERSONNEL
2. INTEROPERABILITY REQUIREMENTS FOR INCIDENT MANAGEMENT SYSTEMS
3. OUTDOOR 3-D TRACKING OF PERSONNEL
4. NEXT GENERATION AMBULANCE/PATIENT
5. VEHICLE TO VEHICLE ALERTING
6. EFFECTIVENESS OF WIPES AS SKIN DECONTAMINATION AID AT FIRE SCENE

HazMat

1. HANDHELD STANDOFF CHEMICAL & EXPLOSIVE IDENTIFIER
2. NOISE FILTERING DIGITAL SPEAKER/MICROPHONE FOR SCBA FACE PIECE
3. UNIVERSAL SUIT SEAL/RESPIRATOR-TO-SUIT INTERFACE
4. sUAS WITH MULTIGAS METERING FOR OPERATION IN FLAMMABLE GAS ENVIRONMENTS
5. IMPROVED MICROCLIMATE COOLING SYSTEM FOR DOWN RANGE USE

Health & Medical

1. RESPONDER KNOWLEDGE DATABASE 2.0 (DIGITAL RKB)
2. INEXPENSIVE, PORTABLE RUGGEDIZED POINT-OF-CARE LAB TESTING DEVICE
3. RESPONDER/RECEIVER MENTAL HEALTH AND WELLNESS
4. TOURNIQUET TESTING FIXTURE

Law Enforcement

1. USE OF UNMANNED AIRCRAFT SYSTEMS (UAS)
2. ALTERNATIVE CROWD DISPERSAL DEVICE
3. DEVELOPMENT OF PERFORMANCE REQUIREMENTS AND TEST METHODS FOR BALLISTIC-RESISTANT BODY WORN ARMOR FOR WOMEN
4. NON-PYROTECHNIC DIVERSIONARY DEVICE



PHOTO BY VEFD MULTIMEDIA SERVICES UNIT

STATE & LOCAL CO-CHAIR

Adam Miller

Deputy Sheriff,
Huntingdon County (PA)
Sheriff's Office

Adam Miller is currently a Deputy Sheriff with the Huntingdon County Sheriff's Office and previously served as the Director of Emergency Management for Huntingdon County (PA), leading an excellent mixed team of volunteer, career and contracted staff charged with providing numerous public safety services to the county. Mr. Miller has managed a broad spectrum of public safety responses, including large-scale, public events such as the Creation Festival, and a number of Presidentially-declared disaster events. He has broad experience in leadership and management, and has built strong partnerships between private interest parties, local governments, local public safety agencies, and partner state and federal agencies. He has 20 years of progressive experience and a diverse background in emergency management, security, emergency response, law enforcement, counter terrorism, volunteer management, technology development and commercialization. Mr. Miller holds a B.S. in Public Administration and an M.S. in Non-Profit Leadership—both from Juniata College in Huntingdon (PA).

FEDERAL CO-CHAIR

Gabriel Ramos

Deputy Director,
Operations Division
Combating Terrorism Technical
Support Office, Technical
Support Working Group

Gabriel Ramos is the Deputy Director of the Operations Division Directorate of the Combating Terrorism Technical Support Office, providing management and technical oversight for executing the Technical Support Working Group rapid R&D program. He has 30 years of experience developing and evaluating Combating Terrorism capabilities for the Department of Defense and the federal interagency community. Mr. Ramos has a B.S. in Chemical Engineering from the Polytechnic University, Brooklyn, N.Y. and is also a graduate of the U.S. Army School of Engineering Logistics Product/Production Engineering Program. Mr. Ramos has served as the IAB federal co-chair of the S&T SubGroup since February 2003.



PHOTO CCO 1.0 PUBLIC DOMAIN

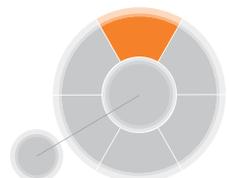


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SCSG

STANDARDS
COORDINATION
SUBGROUP

SCSG



U.S. ARMY NATIONAL GUARD PHOTO BY SGT. HARLEY JELIS



SCSG

SCSG

STANDARDS COORDINATION SUBGROUP



STATE & LOCAL CO-CHAIR

MARTIN HUTCHINGS

*Sacramento County (CA) Sheriff's Department,
National Bomb Squad Commanders Advisory Board*

FEDERAL CO-CHAIR

CASANDRA ROBINSON

*National Institute of Standards and Technology,
Standards Services Group*



PHOTO BY TOBY SCOTT, CC BY-NC 2.0

The mission of the Standards Coordination SubGroup (SCSG) is to identify and coordinate standards development needs and activities within the IAB, with external organizations, and with the emergency responder community. The objective is to promote local, tribal, state, and federal preparedness by developing and implementing standards for emergency responder and public safety needs associated with all-hazards incidents. By focusing the nation's resources and expertise in a common effort to establish standards to which critical capabilities can be tested, evaluated, and certified, the SCSG helps to provide emergency responders with objective guidance for making informed decisions regarding the development, acquisition, and fielding of capabilities.



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ROLES AND FUNCTIONS

The SCSG supports and coordinates the IAB's efforts to identify and address standards requirements within the emergency responder community. The IAB SubGroups identify standards that need to be developed or revised, and the SCSG assists the process in the following ways:

- Participating in standards development and revision processes.
- Identifying existing standards, performance requirements, and test methods that could streamline the development of new standards or be modified to meet the needs of emergency responders.
- Identifying and prioritizing standards requirements and related interoperability and compatibility issues.
- Identifying agencies and other entities that may have an interest in developing a standard and encouraging them to become involved.
- Catalyzing the development of IAB priority standards by private-sector standards development organizations.
- Identifying relevant standards activities, comment periods, and programs and informing emergency responders about them.

MEMBERSHIP

GARY BACKOUS

Story County (IA) Sheriff's Office

MATTHEW DUGGAN

Boca Raton (FL) Police Services Department

KAREN HOUSE

Joint Program Executive Office for Chemical and Biological Defense

PATRICIA KNUDSON

Phoenix (AZ) Police Department

PHILIP MATTSON

Department of Homeland Security, Science and Technology Directorate, Capability Development Support Group, Office of Standards

THOMAS NOLAN

Upper Merion Township (PA) Police Department, National Tactical Officers Association

TIMOTHY REHAK

National Institute for Occupational Health and Safety, National Personal Protective Technologies Laboratory

NICHOLAS ROBERTS

Unified Police Department of Greater Salt Lake (UT)

DEBRA STOE

Department of Justice, Office of Justice Programs, National Institute of Justice

A.D. VICKERY

Seattle (WA) Fire Department

MARCIE WACKER

International Association of Women Police / Ramsey County (MN) Sheriff's Department

BRIAN WASHBURN

Santa Clara County (CA) Sheriff's Office

SUBJECT MATTER EXPERTS

GREGORY CADE

National Fire Protection Association

STEVEN CORRADO

Underwriters Laboratories, LLC

TODD CRAIG

Federal Bureau of Prisons

MICHELLE DEANE

American National Standards Institute

CHRISTINE FARGO

International Safety Equipment Association

PATRICIA GLEASON

Safety Equipment Institute

JEFFREY HORLICK

National Institute of Standards and Technology

ROBERT KINSLER

HP White Laboratory Inc.

MATTHEW MCLAUGHLIN

U.S. Army Training and Doctrine Command, Maneuver Support Center of Excellence

MARY MIKOLAJEWSKI

ASTM International

DAVID OTTERSON

Justice Technology Information Center

AMY VALDEZ

Virginia Beach (VA) Fire Department



- Tracking and reviewing the progress of standards activities of interest to the IAB and serving as a feedback loop to the IAB to ensure collaboration and prevent duplication of efforts.
- Recommending and promoting the use of standards and conformity assessment.
- Drafting and disseminating studies, white papers, and other reports on standards, interoperability issues, and compatibility issues.
- Identifying potential conflicting requirements and facilitating reconciliation of those issues.
- U.S. Department of Commerce, National Institute of Standards and Technology (NIST)
- U.S. Department of Health & Human Services, National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory (NPPTL)
- U.S. Department of Homeland Security (DHS), Science and Technology Directorate
- U.S. DHS System Assessment and Validation for Emergency Responders Program
- U.S. Department of Justice, Federal Bureau of Prisons
- U.S. Department of Justice, National Institute of Justice (NIJ)

PARTNERSHIPS

The success of the IAB's standards development process is built upon partnerships with federal agencies funding standards development, standards development organizations, conformity assessment bodies, and the responder community. For example, with regard to equipment, the SCSG serves as the IAB's liaison to these partners in matters relating to performance requirements, test methods, conformity assessment, and selection, use, care, and application guides. The SCSG members and subject matter experts represent many federal and private agencies:

- American National Standards Institute (ANSI)
- ASTM International
- HP White Laboratory Inc.
- International Association of Chiefs of Police (IACP)
- International Association of Fire Chiefs (IAFC)
- International Association of Women Police (IAWP)
- International Safety Equipment Association (ISEA)
- Intertek Testing Services
- Justice Technology Information Center
- National Bomb Squad Commanders Advisory Board
- National Fire Protection Association (NFPA)
- National Sheriffs' Association (NSA)
- National Tactical Officers Association
- Safety Equipment Institute
- Underwriters Laboratories (UL)
- U.S. Army

ACCOMPLISHMENTS

During FY2017, the SCSG accomplished the following:

- Supported and coordinated IAB efforts to identify and prioritize standards development requirements derived from the responder community.
- Initiated or continued progress on previously identified IAB standards development priorities.
- Assisted the Equipment SubGroup (ESG) with the SEL item content, including language related to standards in procurement of SEL items.
- Updated the listing of IAB adopted standards.
- Continued current initiatives to support developing numerous standards relevant to the responder community.

These accomplishments and others are detailed in the following sections.

IAB-ADOPTED STANDARDS

The Standards List, located in the SEL, includes standards officially adopted by the IAB. The IAB initially began to adopt and list standards to inform the responder community of applicable standards. IAB members with relevant expertise and knowledge reviewed each standard and recommended adoption and listing by the IAB. The list of standards continues to be relevant to the SEL and is maintained by the SCSG.

IAB-Adopted Designation

“IAB-adopted” is a designation for a standard that is part of the definition of an SEL item, meaning one or more of the following:

- The standard is applicable to the responder community.
- The standard is used and deemed to be of value and fit-for-purpose by the responder community and industry.
- The standard may be a useful resource for procurement officials.
- The standard was developed following the principles of openness, balance, transparency, consensus, and due process.

Standards Adopted in 2017

The IAB adopted 13 new standards in 2017:

- NFPA 475, *Recommended Practice for Organizing, Managing, and Sustaining a Hazardous Materials/Weapons of Mass Destruction Response Program*
- ASTM F2849-10, *Standard Practice for Handling of Unmanned Aircraft Systems at Divert Airfields*
- ASTM F2851-10, *Standard Practice for UAS Registration and Marking (Excluding Small Unmanned Aircraft Systems)*
- ASTM F2908-16, *Standard Specification for Aircraft Flight Manual (AFM) for a Small Unmanned Aircraft System (sUAS)*
- ASTM F2909-14, *Standard Practice for Maintenance and Continued Airworthiness of Small Unmanned Aircraft Systems (sUAS)*
- ASTM F2910-14, *Standard Specification for Design and Construction of a Small Unmanned Aircraft System (sUAS)*
- ASTM F2911-14e1, *Standard Practice for Production Acceptance of Small Unmanned Aircraft System (sUAS)*
- ASTM F3002-14a, *Standard Specification for Design of the Command and Control System for Small Unmanned Aircraft Systems (sUAS)*
- ASTM F3003-14, *Standard Specification for Quality Assurance of a Small Unmanned Aircraft System (sUAS)*
- ASTM F3005-14a, *Standard Specification for Batteries for Use in Small Unmanned Aircraft Systems (sUAS)*

- ASTM F3178-16, *Standard Practice for Operational Risk Assessment of Small Unmanned Aircraft Systems (sUAS)*
- ASTM F3196-17, *Standard Practice for Seeking Approval for Extended Visual Line of Sight (EVLOS) or Beyond Visual Line of Sight (BVLOS) Small Unmanned Aircraft System (sUAS) Operations*
- ASTM F3201-16, *Standard Practice for Ensuring Dependability of Software Used in Unmanned Aircraft Systems (UAS)*

Annual Review of IAB-Adopted Standards

The SCSG annually reviews and updates the IAB-adopted Standards List to ensure each listed standard is the most current version. As a part of the annual review, the SCSG determines whether any standards are out of date, withdrawn, or no longer relevant. Any such standards are removed from the IAB-adopted Standards List. If, following annual review, a standard is deemed “questionable,” SCSG and ESG collaborate to determine a path forward.

There are approximately 100 IAB-adopted standards. The IAB also maintains a listing of approximately 150 standards that are referenced by the SEL.

IAB STANDARDS DEVELOPMENT PRIORITIES

The IAB identifies standards development priorities for the responder community each year, and the SCSG works with ANSI’s Homeland Defense and Security Standards Coordination Collaborative and the DHS Office of Standards to engage federal agencies, standards developing organizations, researchers, stakeholder organizations, and practitioners in addressing those priorities.

2017 Standard Development Priorities

In 2017, the SCSG identified the following 13 standards development priorities and began the process of addressing them:

1. Guidance for initial first responders at an incident involving chemical agents
2. Guidance for initial first responders at an incident involving biological agents
3. Guidance for tactical medics deployed during law enforcement operations

4. Test method for security and reliability of wireless links between unmanned aerial systems (UAS) and the controller
5. Standard and accreditation program for special weapons and tactics (SWAT) teams
6. Test method(s) and performance specification for biological field detection instruments
7. Guidance for handling contaminated remains in mass fatality incidents
8. Performance standard for tactical operation video cameras
9. Guidance for minimizing personnel contamination and performing decontamination related to structural fires
10. Test method for less lethal conducted energy weapons
11. Performance standard for less lethal impact (i.e., kinetic energy) devices using a launching system to fire projectiles
12. Performance standard for body worn video cameras used by public safety practitioners
13. Performance standard for distraction devices

Previously Identified IAB Standards Development Priorities

The SCSG continues to follow through on standards development priorities identified previously, and a status for each priority is provided in the table below:

Item	Status
1. Performance standard for protective helmets	ASTM International is developing test methods and standard specifications that will fully meet this need. Publication of the ballistic test method is expected in 2018.
2. Performance standard for protective shields	ASTM International is developing a ballistic test method, which will partially meet this need. Publication is expected in 2018.
3. Standard(s) for robot operator self-evaluation and training program	ASTM International, in partnership with NIST, is developing these standards; ASTM International and NFPA are working together to co-brand a certification program for robot operators.
4. Performance standard for protective gloves	ASTM International is developing a specification and conformity assessment practice that will fully meet this need. Publication is expected in 2018.
5. Standard test method(s) for body armor designed for females	ASTM International published a standard practice in 2017 that will partially meet this need. More research is being done to address other issues related to body armor for female wearers.
6. Standard test method(s) for localization and tracking systems	A standard was published in late 2016 that meets this need: ISO/IEC FDIS 18305, Information technology—Real-time locating systems—Test and evaluation of localization and tracking systems.

SCSG OUTREACH TO STAKEHOLDER ORGANIZATIONS

SCSG reaches out to responder stakeholder organizations and standards development organizations to inform them of IAB efforts in standards development. An article titled, "InterAgency Board: Collaborative Interchange for Emergency Responders," was published in the June 2017 IACP magazine, *Police Chief – Innovations in Policing*. This article was also published in the IAWP magazine, *Women Police*, and the NSA magazine, *Sheriff & Deputy*.

SCSG PARTICIPATION IN STANDARDS DEVELOPMENT INITIATIVES

SCSG members and SMEs contribute to numerous standard development efforts supporting the responder community. The following are representative standards activities to which SCSG members are currently contributing:

- **ASTM International E54 Committee on Homeland Security Applications:** This committee addresses issues related to standards and guidance materials for homeland security applications with specific focus on infrastructure protection, personal protective equipment (PPE), decontamination, security controls, threat and vulnerability assessment, and chemical, biological, radiological, nuclear, and high-yield explosive (CBRNE) sensors, detectors, and robots. The committee has approximately 350 members, has published 57 standards, and is currently developing many new standards. Many SCSG representatives are also members of this ASTM committee and are working on standards for body armor, ballistic shields, protective helmets, protective gloves, response robots, and equipment training programs.
- **ASTM International F23 Committee on Protective Clothing and Equipment:** This committee develops standard specifications, test methods, practices, guides, terminology, and classifications for protective clothing and PPE designed and constructed to protect the user from potential occupational hazards and/or provide a barrier to prevent the user from being exposed to a contamination source. The committee has approximately 340 members and has various technical subcommittees that maintain jurisdiction over 66 published standards. These standards play a preeminent role in the protective clothing industry and address issues relating to

human factors and physical, chemical, biological, flame, thermal, and radiological hazards. F23 has also established a subcommittee to address the issues associated with the interoperability of PPE.

- **NFPA Technical Committees:** SCSG members participate on many NFPA committees, each of which addresses a specific responder need, including Respiratory Protection; Electrical Safety Equipment; Wildland Firefighting; Urban Search and Rescue; Structural and Proximity Firefighting; PPE; Hazardous Materials Protective Clothing and Flash Fire Protective Garments; EMS; and Hazardous Materials Response.
- **NIJ:** SCSG members are participating in current NIJ initiatives to revise their standards for ballistic-resistant and stab-resistant body armor. This participation helps to ensure coordination between NIJ and the efforts of other standards development organizations. Additionally, NIJ has begun the process of moving select standards to appropriate private-sector standards-developing organizations and has initiated cooperative activities with DOD where applicable standards overlap.
- **NPPTL:** NPPTL was created as the division of NIOSH charged with the mission of preventing disease, injury, and death for working men and women relying on PPE. NPPTL serves as the Program Manager for the National Occupational Research Agenda Public Safety Sector. SCSG members assist the NPPTL in development protective equipment standards and guidance for responders.
- **International Organization for Standardization/Committee Conformity Assessment (ISO/CASCO) Technical Committees:** The SCSG has representation on ISO/CASCO Technical Committees that develop international standards specifying requirements to ensure that certification bodies operate certification programs in a competent, consistent, and impartial manner, thereby facilitating the acceptance of certified products.
 - » ISO/IEC 17026, Conformity assessment – Model scheme for certification of manufactured products
 - » ISO/IEC 17065, Conformity assessment – Requirements for bodies certifying products, processes, and services
 - » ISO/IEC 17067, Conformity assessment – Fundamentals of product certification and guidelines for product certification schemes

- ISEA: ISEA is the association for PPE, technologies, and systems that enable people to conduct work in hazardous environments, including equipment for head, eye and face, respiratory, hearing, hand and fall protection; high visibility apparel and accessories; environmental monitoring instruments; emergency eyewash and shower equipment; first aid kits; and protective apparel. As an ANSI-accredited standards developing organization, ISEA is secretariat for 11 PPE product standards, the American National Standard for PPE conformity assessment, and the U.S. Technical Advisory Group to ISO TC 94 SC15 for respiratory protection. SCSG members assist in many of these efforts.

SUMMARY

The importance of standards for public safety operations and response to all hazards and threats cannot be overstated. The IAB is the vanguard of America's effort to rapidly develop critical standards. The SCSG, by coordinating activities of the IAB SubGroups and harmonizing the efforts of the contributing organizations, continues to enhance the safety of responders and the security of the United States.



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STATE & LOCAL CO-CHAIR

Martin Hutchings

Reserve Deputy Sheriff,
Sacramento County (CA)
Sheriff's Department, National
Bomb Squad Commanders
Advisory Board

Martin Hutchings retired as a Sergeant after 29 years with the Sacramento County (CA) Sheriff's Department and continues to represent the Sheriff's Department on the IAB as a Reserve Deputy Sheriff. Mr. Hutchings was a certified bomb technician for 15 years and the Bomb Squad and Explosive Detection Canine Supervisor during his last 10 years at the department.

Mr. Hutchings was elected as a founding member of the National Bomb Squad Commanders Advisory Board, and served on the board for six years. Since retirement, he has worked part-time as an Explosive/Bomb Technician SME in support of NIST. Mr. Hutchings has worked on many committees to support bomb squads including: the NIJ Law Enforcement PPE and the Bomb Technician Bomb Suit Standard Committees; National Accreditation, and Certification Committee for U.S. Bomb Squads; DHS, Science & Technology Domestic IED Subcommittee; and the DHS Explosive Standards Working Group.

FEDERAL CO-CHAIR

Casandra Robinson

Physical Scientist, Standards
Coordination Office, National
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Casandra Robinson is a physical scientist in the NIST Standards Coordination Office. She is responsible for leading the development of documentary standards and standards-related policy activities and coordinating with NIST technical units, other federal agencies, industry, and other stakeholders in developing standards/conformity assessment needs and requirements. She serves as the Vice Chair for the ASTM International, E54 Committee on Homeland Security Applications and as the Vice Chair for E54.04, *Personal Protective Equipment Subcommittee*. She also serves as the federal co-chair for the ANSI Homeland Defense and Security Standardization Collaborative.

Prior to joining NIST, Ms. Robinson was a Program Manager with the Department of Energy's Savannah River National Laboratory. For the previous five years, she served as the standards and conformity assessment lead for the National Institute of Justice's Standards and Testing Program and supported development of performance standards for public safety equipment. She has a B.S. in Electrical Engineering from Clemson University and an M.S. in Industrial and Systems Engineering from the University of Alabama.



PHOTO BY VFD MULTIMEDIA SERVICES UNIT

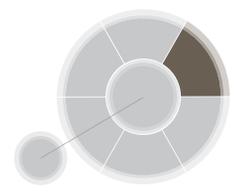


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T&E

TRAINING & EXERCISES SUBGROUP

T&E





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T&E

TRAINING & EXERCISES SUBGROUP

T&E



STATE & LOCAL CO-CHAIR

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CAROL MINTZ
*Department of Homeland Security, Federal
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and Education Division*

The mission of the Training and Exercises (T&E) SubGroup is to improve responder mission performance by conducting a cross-disciplinary review of and providing end user input regarding training and exercise doctrine, standards, and guidance developed specifically for the responder community.



PHOTO BY KIRK KELLERHALS, VIRGINIA BEACH FIRE DEPT.



PHOTO BY RAY SMITH, VIRGINIA BEACH FIRE DEPT.

ROLES AND FUNCTIONS

- Advocate for performance improvement needs or requirements related to U.S. Department of Homeland Security/Federal Emergency Management Agency (DHS/FEMA) Emergency Support Functions that could be addressed by T&E initiatives.
- Provide subject matter expertise to support developing T&E programs.
- Advocate for standardized national guidance for responder and equipment T&E programs.
- Collaborate with stakeholders to provide end-user guidance and operational lessons learned to support T&E program development and improvements.
- Facilitate implementing T&E programs and standards that support developing and assessing individual competencies and organizational capabilities.

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INITIATIVES AND PROGRESS

The IAB membership and federal partners recognize a crucial need exists for guidance regarding the training required to effectively and safely use first response equipment. The basis for this guidance is to enhance preparedness capabilities and to improve responder workplace and mission performance/safety.

The T&E SubGroup addressed the following initiatives in FY 2017:

- Supported and participated in the Jack Rabbit II Phase 2 Trials, sponsored by the DHS Science and Technology Chemical Security Analysis Center, Transportation Safety Administration, and the DOD Defense Threat Reduction Agency. They provided input and reporting to the IAB, National Fire Academy, and Dugway Proving Ground. T&E SubGroup members developed training and lessons learned materials in support of these large-scale chlorine release experiments.
- Developed and distributed training trigger papers on issues such as tourniquet use under medical protocols, operational security and mobile devices, and wildland firefighting/urban interface (<http://www.interagencyboard.org/publications/documents>).
- Reviewed the Standardized Equipment List (SEL) for training items and revisions/additions.
- Continued coordinating with the Standards Coordination SubGroup (SCSG) to implement a recommended practice for equipment training. ASTM is developing a consensus standard on equipment training that will include guidelines for evaluating manufacturer- and vendor-provided training. These guidelines will educate consumers of manufacturer- and vendor-provided training for Approved Equipment List (AEL)/SEL equipment on selecting training packages that meet their needs. The white paper leading to an eventual consensus standard remains available on the IAB website (<https://interagencyboard.org/sites/default/files/publications/Recommendations%20for%20Manufacturer-Provided%20Training.pdf>).
- Provided input to the SCSG on developing, adopting, and implementing appropriate and relevant training standards.
- Continued outreach to the emergency response, National Fire Protection Association (NFPA), hazardous materials (HazMat), and Weapons of Mass Destruction communities through participation in and presentations at conferences and meetings, including the International

Association of Fire Chiefs, International Hazardous Materials Response Teams conference, Homeland Security Conference, NFPA, and the FEMA Emergency Management Institute training and exercise conference.

- Presented a session on integrated response operations in active shooter/hostile events (ASHE) at the International Association of Chiefs of Police Annual Conference.
- Attended the DHS Silicon Valley Innovation Program rollout co-hosted by Pacific Northwest National Laboratory in Seattle, Washington.
- Participated in IAB special projects, including projects on national bioterrorism strategy, civil disturbance strategy, and mental health and well-being of first responders.
- Participated in IAB bylaws committee, NFPA 472 and 473 committees, and CBRNE equipment requirements efforts.

ONGOING COMMITMENTS

- Continue to be a national, interdisciplinary sounding board for T&E needs, doctrines, and programs. This task is essential to focus funding and resources on relevant T&E programs.
- Provide input on developing, adopting, and implementing appropriate and relevant T&E standards and requirements.
- Explore opportunities to improve the delivery of equipment-specific training through recommended instructional design measures.
- Identify critical performance-based T&E needs by engaging the response community.
- Support the emergency preparedness community in developing training standards, with an emphasis on matching training requirements to responder equipment.
- Review and provide input to improve the operational applicability of T&E doctrine and programs that impact the emergency preparedness community.
- Promote instructional system design-based models, such as the analysis, design, development, implementation, and evaluation model for T&E.
- Coordinate with IAB SubGroups to identify their respective minimal, moderate, or extensive training requirements needed for operator training.

PRIORITIES FOR FY 2018

- Analyze the process and trigger points by which incident/exercise lessons learned and after-action reports can be leveraged to better identify training gaps and more effectively impact future training programs. This includes developing relationships with the DOD and public- and private-sector initiatives already existing in this area.
- Develop training trigger papers on topics such as large-scale chlorine releases, preparedness and response concerns for at-risk populations, operations security and the first responder, stored energy devices/batteries, security for sports and special events, and other topics as needed.
- Develop and deliver brief online video segments for training triggers in order to reach a broader response audience accustomed to consuming media in short segments (microlearning).
- Review and refine the modeling, simulations, and simulators e-tool (<http://www.interagencyboard.org/publications/mss/mss-etool-home>), incorporating information on virtual reality and augmented reality technologies.
- Determine how best to disseminate key information on training modernization and other trends affecting response operations, such as performance support and wearable technology.
- Seek participation from organizations studying and implementing training innovation.
- Address the requirements of the FACC as they relate to the T&E mission.

LONG-TERM INITIATIVES

- The process of providing advice on relevant and successful responder-focused T&E programs is ongoing, driven by capability, technology, and personnel. The T&E SubGroup will identify and prioritize T&E requirements based on these factors and ideas generated using a comprehensive SubGroup survey.
- The T&E SubGroup will work closely with all other IAB SubGroups to identify existing standards to determine individual competency-based and organizational capability-based training. Where standards do not exist, the SubGroup will advocate for their establishment.
- The T&E SubGroup strongly recommends that all emergency responder equipment purchased include the initial and sustainment training

requirements for applying, operating, caring for, and maintaining equipment.

- The IAB T&E SubGroup recommends that organizations purchasing or developing training require that it adhere to the principles of instructional systems design and best practices for adult learning, such as those demonstrated in the Responder Training Development Center, which can be accessed by visiting <https://www.firstrespondertraining.gov/rtdc/state/>.
- The IAB T&E SubGroup endorses the exercise policy, methodology, and terminology as cited in the Homeland Security Exercise and Evaluation Program. Exercises serve to validate plans and training, and as such, are a critical component in the cycle of preparedness.

TRAINING TRIGGERS

Organizations develop or update training based on a number of inputs: after-action reporting from actual incidents and exercise events, requirements based on contemporary events, intelligence and/or trends, emerging technologies, legislation, litigation, and job performance data. This drive to develop or update training is what the T&E SubGroup refers to as a training trigger.

Sometimes, contemporary events or health and safety issues require a large target group of responders to receive new or updated training, often within a very short timeframe. Additionally, response organizations must manage and overcome various barriers to training such as funding, time constraints, and access to other training resources. The objective of the training triggers project is to help ensure that whether the training need is time sensitive or part of planned updates, the training integrates into the organization's emergency response plan and is not just a stand-alone "random act of training" to meet a real or perceived mandate. In the past year, the T&E SubGroup has focused on developing additional resources in the training trigger series. The T&E SubGroup has developed and distributed training trigger papers on issues such as crude oil rail shipments, highly pathogenic avian influenza, the administration of naloxone (Narcan), integrated response operations in ASHE, tourniquet use under medical protocols, operational security and mobile devices, and wildland firefighting/urban interface. All of these documents are available on the IAB

website www.interagencyboard.org by searching for the phrase “training trigger.” The T&E SubGroup is continuing to develop additional documents on contemporary issues in this series.

TRAINING TRENDS

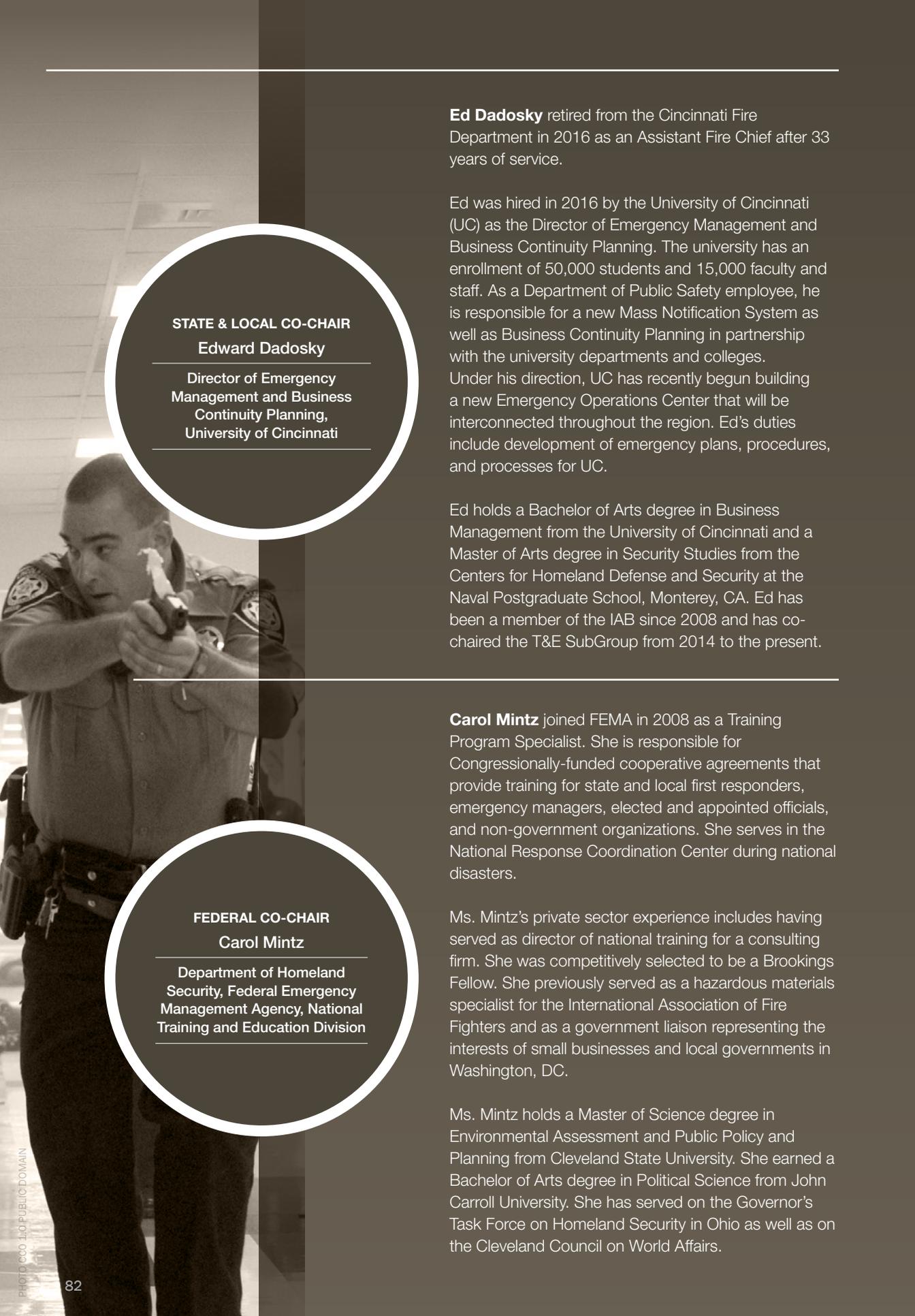
Among training trends that the T&E SubGroup sees as having a significant impact on response organizations are mobile learning and social learning (sharing of lessons learned and best practices across social networks) as well as their associated operational security concerns, gamification of learning (incorporating game elements such as competition, setting goals, feedback, and rewards in a learning context), microlearning (breaking training content into smaller chunks that can be consumed in 3–7 minutes), and virtual reality/augmented reality technologies.

Incoming response professionals are accustomed to searching for and consuming information on their mobile devices, so departments and agencies are already confronted with the challenge of establishing policies related to employees who

bring their own device in addition to managing the world of social media interactions in a professional manner. The challenges mobile devices pose for response organizations are threefold: maintaining operational and information security, establishing and implementing policies and procedures that suit the organizations’ circumstances, and making pertinent, potentially crucial information readily available to their personnel in a variety of formats that address today’s operational realities. The T&E SubGroup will monitor these trends and will develop products in FY 2018 to assist response organizations in adapting their training and exercise programs accordingly.



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STATE & LOCAL CO-CHAIR

Edward Dadosky

Director of Emergency Management and Business Continuity Planning, University of Cincinnati

Ed Dadosky retired from the Cincinnati Fire Department in 2016 as an Assistant Fire Chief after 33 years of service.

Ed was hired in 2016 by the University of Cincinnati (UC) as the Director of Emergency Management and Business Continuity Planning. The university has an enrollment of 50,000 students and 15,000 faculty and staff. As a Department of Public Safety employee, he is responsible for a new Mass Notification System as well as Business Continuity Planning in partnership with the university departments and colleges. Under his direction, UC has recently begun building a new Emergency Operations Center that will be interconnected throughout the region. Ed's duties include development of emergency plans, procedures, and processes for UC.

Ed holds a Bachelor of Arts degree in Business Management from the University of Cincinnati and a Master of Arts degree in Security Studies from the Centers for Homeland Defense and Security at the Naval Postgraduate School, Monterey, CA. Ed has been a member of the IAB since 2008 and has co-chaired the T&E SubGroup from 2014 to the present.

FEDERAL CO-CHAIR

Carol Mintz

Department of Homeland Security, Federal Emergency Management Agency, National Training and Education Division

Carol Mintz joined FEMA in 2008 as a Training Program Specialist. She is responsible for Congressionally-funded cooperative agreements that provide training for state and local first responders, emergency managers, elected and appointed officials, and non-government organizations. She serves in the National Response Coordination Center during national disasters.

Ms. Mintz's private sector experience includes having served as director of national training for a consulting firm. She was competitively selected to be a Brookings Fellow. She previously served as a hazardous materials specialist for the International Association of Fire Fighters and as a government liaison representing the interests of small businesses and local governments in Washington, DC.

Ms. Mintz holds a Master of Science degree in Environmental Assessment and Public Policy and Planning from Cleveland State University. She earned a Bachelor of Arts degree in Political Science from John Carroll University. She has served on the Governor's Task Force on Homeland Security in Ohio as well as on the Cleveland Council on World Affairs.

ISTOCK PHOTO



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SP

SPECIAL
PROJECTS

SP

SPECIAL PROJECTS

In 2014, the IAB formed Special Project Groups focused on key and current first responder issues. The IAB continued addressing pertinent responder issues in this way through 2016 and 2017 as well. Original Special Project Groups who completed their work were replaced with new Special Project Groups. As in the past, each group is comprised of members and SMEs from each of the IAB SubGroups. IAB members and SMEs have the choice to sign up for the project group that aligns with their interests and expertise. Each project group has its own timeline, deliverables, and outcomes. This section highlights any Special Projects that were active at any time during 2017.

PROVIDE EVIDENCE-BASED GUIDELINES FOR OPERATIONAL RESPONSES INVOLVING SYNTHETIC OPIOIDS

Since 1999, the United States has seen a dramatic increase in prescriptions for opioid pain relievers (OPR).¹ Such OPRs include opiates derived from natural opium sources (e.g., morphine and codeine), semisynthetic opioids (e.g., oxycodone and hydrocodone), and synthetic opioids (e.g., fentanyl). OPR treatment admissions and overdose deaths have risen in parallel to the increase in prescriptions.¹ Until 2011, most opioid overdose deaths resulted from the misuse and/or abuse of prescription opioids.² Since then, prescription overdoses have leveled off and heroin overdoses have soared.² It has become easier and cheaper for people addicted to opioid prescription drugs to switch to heroin. In fact, people who are addicted to oxycodone are 40 times more likely to become addicted to heroin than the average person.³ Since 2013, there has been a sharp rise in deaths related to heroin that has been mixed with fentanyl or fentanyl analogs, often unknown to the user.⁴ In that same period, drug overdoses have become the leading cause of death for Americans under 50.⁴ In 2016, drug overdoses killed more Americans (64,000) than the 1972 peak for car accidents (55,000), the 1995 peak for HIV

related deaths (45,000), and the 1993 peak for gun-related deaths (39,000).⁵ In 2017, the White House labeled the opioid epidemic a national public health emergency.⁶

With the increase in visibility, the rising rate of overdoses/deaths, and the transition to synthetic opioids, a variety of entities have published well-intentioned guidance for the emergency response community based on limited scientific evidence. An unintended consequence of the early guidance was that it led many first responders to believe they could receive a toxic dose of synthetic opioids, such as fentanyl and carfentanil, simply by touching them.

Thankfully, most routine encounters between patients or detainees and EMS or law enforcement personnel do not present a significant threat of toxic exposure. To proactively address the potential risks, the IAB put together a special project team to address the operational needs of the responder community; provide scientific information in an operational context; and, establish minimum recommendations for personal protective equipment selection and

use, decontamination, detection, and medical countermeasures for first responders potentially exposed to synthetic opioids during occupational activities. The Special Project Group’s work resulted in the release of two IAB documents:

1. Recommendations on Selection and Use of Personal Protective Equipment and Decontamination Products for First Responders Against Exposure Hazards to Synthetic Opioids, Including Fentanyl and Fentanyl Analogs; and,
2. Recommended Best Practices to Minimize Emergency Responder Exposures to Synthetic Opioids, Including Fentanyl and Fentanyl Analogs.

In addition, the Special Project Group provided subject matter expertise to a variety of local, state, and federal agencies and the National Security Council on synthetic opioid issues.

The Special Project Group included many members of the IAB Equipment SubGroup and the Health, Medical, and Responder Safety SubGroup.

¹ Vital Signs: Overdoses of Prescription Opioid Pain Relievers – United States – 1999–2008, *CDC Morbidity and Mortality Weekly Report*, 60(43):1487–1492.

² *Treatment Episode Data Set*, Center for Behavior Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Data received through February 1, 2016.

³ National Survey on Drug Use and Health (NSDUH), 2011–2013.

⁴ National Center for Health Statistics, CDC Wonder.

⁵ Katz, J. The first count of fentanyl deaths in 2016 – up 540% in three years, *New York Times*, Sept 2, 2017.

⁶ *Remarks by President Donald Trump on Combatting Drug Demand and the Opioid Crisis*, Speeches and Remarks, The White House Office of the Press Secretary, October 26, 2017.



PHOTO BY RON ROGERS, U.S. IMMIGRATION AND CUSTOMS ENFORCEMENT

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MENTAL HEALTH & WELLBEING FOR FIRST RESPONDERS

Lead: **Rich Burton**, Placer County (CA) Health and Human Services, HMRS

Co-Lead: **Mike Biasotti**, New York State Association of Chiefs of Police, T&E

The Interagency Board has recognized that first responders/receivers face increasing stressors in their varied and ever-changing work environments. Responders/receivers should be applauded for their demonstrated resiliency and commitment to providing effective professional public service to their communities and our nation as a whole.

In October 2015, the IAB formed a Special Project team to develop recommendations as to how agencies could more effectively provide for the mental health and wellbeing of the responder/receiver community. The Special Project team membership included numerous responders/receivers as well as individuals with backgrounds in mental health treatment, substance abuse treatment, and public health.

The group has completed a thorough review of the published research pertaining to these issues, gathered information on a variety of operational models being used to implement evidenced-based practices, and developed initial draft documents for responder and receiver communities' use in assuring they are best caring for the mental health and wellbeing of their workforce.

In the last year, the group updated the document to reflect relevant emerging research and reframe the proposed white paper to be more of a menu of "promising practices" from which responder organizations can choose to best meet their own unique needs.

The Special Project Team continues to work on their white paper and anticipates a published document in 2018.

Key findings from the Special Project team include:

1. The vast majority of responders/receivers resolve the stresses to which they are exposed without professional assistance. However, 10–40 percent of the workforce would benefit from various forms of evidence-based organizational and professional assistance to resolve stresses and traumas to maintain optimal mental health and wellbeing.
2. Early and effective intervention eliminates unnecessary suffering of impacted responders/receivers and their loved ones and reduces preventable staff turnover and its associated organizational fiscal costs.

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SEL

SUMMARY

SEL



FOREWORD

The Standardized Equipment List (SEL) is provided to the responder community by the IAB for equipment standardization and interoperability. The SEL was formerly a list of generic equipment recommended by the IAB to local, tribal, state, and federal government organizations for preparing for and responding to chemical, biological, radiological, nuclear, and explosive (CBRNE) events. Over the past four years, the IAB has gradually broadened the list to address an “all-hazards” approach, while maintaining an emphasis on CBRNE events.

The SEL is a guideline, and its use is voluntary. It promotes interoperability and standardization across the response community by offering a standard reference and a common terminology. No specific product brands are recommended; items are categorized by function and technology with important features and operational considerations described where possible to assist purchasers in choosing products. The IAB does not assume any liability for the performance of equipment items or technologies mentioned in the SEL.

ACCESSING THE SEL

The SEL master is maintained online to keep pace with maturing and emerging technologies. It is available in interactive format on the IAB website, <https://interagencyboard.org/sel>.

Using the online SEL as the sole reference copy not only provides the community with the latest information, and also decreases the production and distribution cost of this Annual Report. The SEL is updated online as required, and each online record includes the date and time of its most recent change. Local, tribal, state, or federal government organizations may present suggested changes at any time for consideration.

THE IAB EQUIPMENT SUBGROUP (ESG)

The IAB’s Equipment SubGroup (ESG) has sole responsibility for the maintenance and publication of the SEL. The ESG is the largest working group within the IAB and draws subject matter expertise from across the IAB to support its mission of maintaining the SEL. While the ESG has multiple missions and priorities as described in the Annual Report, its highest priority is maintaining the SEL.

SEL SUMMARY

ALIGNMENT WITH THE DHS AUTHORIZED EQUIPMENT LIST

The numbering scheme and structure of the SEL are aligned with the Authorized Equipment List (AEL) produced by FEMA's Grant Programs Directorate (GPD). Originally a subset of the SEL, the AEL is the equipment purchase grant guidance for several major grant programs, including the entire DHS Homeland Security Grant Program. The SEL/AEL alignment is the result of a multi-year effort undertaken so that the responder community could easily obtain grant allowability information from DHS along with the features and operating consideration information contained in the SEL. Content alignment is maintained by designated GPD representatives and the ESG through a continuing collaborative process.

THE SEL AND AEL EACH CONTAIN 21 SECTIONS, AS FOLLOWS:

1. Personal Protective Equipment (PPE)
2. Explosive Device Mitigation and Remediation Equipment
3. CBRNE Operational and Search and Rescue Equipment
4. Information Technology
5. Cyber Security Enhancement Equipment
6. Interoperable Communications Equipment
7. Detection
8. Decontamination
9. Medical
10. Power
11. CBRNE Reference Materials
12. CBRNE Incident Response Vehicles
13. Terrorism Incident Prevention Equipment
14. Physical Security Enhancement Equipment
15. Inspection and Screening Systems
16. Animals and Plants
17. CBRNE Prevention and Response Watercraft
18. CBRNE Aviation Equipment
19. CBRNE Logistical Support Equipment
20. Intervention Equipment
21. Other Authorized Equipment

SEL/AEL NUMBERING SCHEME

The SEL and the DHS AEL both utilize the numbering scheme originally introduced in the 2003 SEL. The format for SEL/AEL numbers is 99xx-88-yyyy, where

- 99 is the section number, from 01 through 99 (currently 01 through 21 are used as shown above).
- xx is the category. It is alphanumeric and unique within its section. For example, within PPE, all items associated with the NFPA 1994 standard will have the category "CB".
- 88 is the numeric subcategory. For example, within the PPE section, the NFPA 1994 Class 2 Ensemble has a subgroup code of "02". This code may be set to "00" when not required.



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yyyy is the item identifier. It is alphanumeric and unique within its section, class, and group. Using an alphanumeric code at this level increases flexibility, and decreases the chance of human error. For example, the Hard Hat in the PPE section uses the item identifier “HHAT.”

2017 CHANGES

This year’s changes to the SEL have been substantially impacted by changes to key NFPA standards. PPE items have always comprised a significant section of the SEL, and the realignment of NFPA Standards 1994, 1991, 1951, 1971, and 1999 has caused significant changes to SEL Section 1 that are still in progress as of this Annual Report. For example, NFPA 1971 previously included an option for CBRN protection of firefighting ensembles that caused the creation of SEL Categories 01PC (proximity with CBRN) and 01SC (structural with CBRN). However, these options are being discontinued in the new edition of NFPA 1971 in favor of cross-certification with the new NFPA 1994. This allows NFPA 1971 to refocus on structural and proximity firefighting while NFPA 1994 consolidates the CBRN requirements. As a result, 01PC and 01SC are being deleted from the SEL at year end. Similar changes were made in both NFPA 1951 (for technical rescue PPE) and NFPA 1999 (for emergency medical PPE) to remove the CBRN ensemble requirements from those standards with the consolidation of all CBRN criteria within NFPA 1994. Moreover, NFPA 1994 included new criteria to address law enforcement needs that were formerly addressed in NIJ 0116.00-2010.

The 2018 edition of NFPA 1994 includes a significant number of changes to broaden its scope and provide for more categories of CBRN protective ensembles.

Of greatest significance was the incorporation of hazardous material response in addition to CBRN terrorism incidents, as it was recognized that NFPA 1994 ensembles had wider utility that addressed ordinary requirements. In addition, a new Class 1 was introduced for high-end chemical vapor protection similar to NFPA 1991, but at practical levels to support non-encapsulating designs that afford more form-fitting and tactical ensembles. For Classes 2, 3, and 4, a Type “R” classification was added for ruggedized ensembles that have more rigorous preconditioning of ensemble materials prior to material barrier testing and ensemble integrity evaluations and higher levels of material physical hazard resistance. Options were also added for law enforcement performance needs, such as audible signature and color requirements.

The changes to this single standard will result in a new Class 1 item, as well as new items for the “R” option in Classes 2, 3, and 4. In addition, several other new editions of PPE standards were introduced in 2017, including liquid splash protective ensembles addressed by NFPA 1992, emergency medical protective clothing in NFPA 1999, and a new particulate-blocking hood as part of a revised NFPA 1971 standard for structural and proximity protective ensembles. The ESG is continuing work on these and other changes in Section 1.

The changes in the remaining sections are relatively minor, with the exception of the cybersecurity section. New emphasis from FEMA on cybersecurity items will be discussed in late 2017 and will result in multiple changes throughout that section, as well as the inclusion of at least five new items. Readers are encouraged to check the online SEL in January as the latest changes are approved and published online.

SEL SUMMARY

CONTINUED

TRAINING REQUIREMENTS

The SEL began including training requirements for each item in the 2008 edition. These requirements were developed by the Training & Exercise SubGroup. Each item contains training requirement information in three parts:

- **Core Training** requirements, which describe the fundamental baseline training (as opposed to product-specific training) required for operation, usually by reference to one or more key documents (such as a standard containing minimum qualifications) or certifications (such as a diver's certificate).
- **Initial Training** requirements, which quantify the amount of training needed to utilize the specific piece of equipment, presented as Minimal (<1 day), Moderate (1–2 days), or Extensive (>2 days).
- **Sustainment Training** requirements, which quantify the amount of annual recurrent training needed to maintain proficiency in using the specific piece of equipment. Again, the requirement is presented as Minimal (<1 day), Moderate (1–2 days), or Extensive (>2 days).

In some cases, additional information is supplied. For example, some bomb squad items show Sustainment Training as "Extensive (>2 days) with 3-yr recertification reqt" to remind users of the 3-year recertification requirement for FBI-accredited bomb squad members.

SELECTION FACTORS AND MISSION-SPECIFIC SUBLISTS

Early editions of the SEL included "selection factors" to provide an alternate method of referencing SEL items. This concept has evolved into a set of "mini-SELs" tailored to specific mission areas. They are called "Mission-Specific SubLists" (MSSLs), and provide an easy way to examine the IAB's recommendations for a specific mission area, such as a dive team. Development and updates will continue in 2018. Current SubLists include the following:

HazMat: Response Team

Law Enforcement: Aviation

Law Enforcement: Bomb Squad

Law Enforcement: Dive Team

Law Enforcement: Forensics Technician

Law Enforcement: K9

Law Enforcement: Maritime

Law Enforcement: Mobile Field Force

Law Enforcement: Mounted Patrol

Law Enforcement: Preventive Rad/Nuc Detection

Law Enforcement: SWAT/Tactical Team

Mass Care/Shelter

Medical: Point of Dispensing

Medical: Basic Life Support

Medical: Advanced Life Support

Medical: Tactical Emergency Casualty Care

Medical: Pre-Hospital

Medical: Hospital

Medical: Public Health

Medical: Disaster Stockpile

Mortuary Operations

SEL SUMMARY

CONTINUED

Responder Safety: Infectious Disease

REL: Full Canadian Recommended Equipment List

REL: LOS-1, Multi-Agency Intervention

REL: LOS-2, Scout/Reconnaissance Mission

REL: LOS-3, Suspicious Powder Response

REL: LOS-4, Evac and Perimeter Control

REL: LOS-5, Emergency Washdown

SUMMARY

The 2017 SEL represents the collective efforts of IAB members and several related support organizations to provide recommendations for response to emergencies, disasters, and CBRNE incidents. Because of significant changes to critical standards, updates to the 2017 SEL will occur incrementally through early 2018 and will be accessible online (<https://interagencyboard.org/sel>). Like all previous versions, it is intended to provide the best possible information in support of all emergency responders. Suggestions and comments are welcome.

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PHOTO COURTESY OF SEATTLE (WA) FIRE DEPT.

PHOTO COURTESY OF MONTGOMERY COUNTY (PA) SWAT

IAB

APPENDIX

2017 IAB RESEARCH & DEVELOPMENT PRIORITY LIST

This R&D survey was vetted through the IAB membership. The research and development items were assessed based on the following criteria: mission performance, life safety of first responders and civilians, strengthening response systems, and anticipation of purchase by communities in need.

To learn more about the IAB and survey, please visit www.interagencyboard.org.

1.	USE OF UNMANNED AIRCRAFT SYSTEMS (UAS)	Research and development of UAS-related tools and standards for use to help law enforcement agencies start and maintain an effective UAS program in compliance with relevant Federal and state laws.
2.	INDOOR 3-D TRACKING OF PERSONNEL	Technologies for tracking operating personnel in a 3-D environment indoors, defined as urban type infrastructure such as a high-rise building to include XYZ coordinates. This item consists of two components: transmitting device carried by a first responder that allows an electronic signal to be located on both a horizontal and vertical access as well as a computer that receives the signal and displays it in real-time.
3.	INTEROPERABILITY REQUIREMENTS FOR INCIDENT MANAGEMENT SYSTEMS	Research and development and standards coordination for an integrated incident management system that interfaces with and across platforms to 3 rd party technologies such as accountability (company, unit, location), air management, biometrics, and environmental data.
4.	ALTERNATIVE CROWD DISPERSAL DEVICE	Crowd dispersal device that gets immediate compliance from individuals to disperse the area. The device should be chemical/toxic free and should not come in contact with or have the potential for injury to individuals it's deployed upon.

5.	OUTDOOR 3-D TRACKING OF PERSONNEL	Technologies for tracking operating personnel in a 3-D environment outdoors, defined as wildland or HazMat environments (out of line-of-sight) to include XYZ coordinates. This item consists of two components: transmitting device carried by a first responder that allows an electronic signal to be located on both a horizontal and vertical access as well as a computer that receives the signal and displays it in real-time.
6.	HME NEUTRALIZATION	Method to neutralize HME, changing it from an explosive hazard to an inert material that is safe to transport and dispose of.
7.*	3-D X-RAY	Ability to take multiple x-rays of a package from different angles within a single plane and develop into a 3-D image viewable by computer screen, preferably with only one trip downrange.
7.*	ROBOTIC X-RAY INTEGRATION	Capability for existing bomb squad robots that could incorporate key components of the x-ray system into the robot frame and communications system, so that when source and imager components are added, they attach to the robot in a way that the x-ray system can be managed by the operator.
9.	HANDHELD STANDOFF CHEMICAL & EXPLOSIVE IDENTIFIER	Instrument capable of detecting and identifying chemical substances and explosives from outside the exposure or contamination zone, at standoff distances to determine whether it is safe to go any further without donning PPE.
10.	NEXT GENERATION AMBULANCE/PATIENT	EMS vehicle with enhanced patient compartment that allows EMS workers to perform their critical tasks while maintaining a condition of being adequately restrained in the vehicle, while their tools and equipment are restrained as well.
11.	DEVELOPMENT OF PERFORMANCE REQUIREMENTS & TEST METHODS FOR BALLISTIC-RESISTANT BODY WORN ARMOR FOR WOMEN	Research to support the development of performance requirements and test methods for shaped (non-planar) body armor worn by women to ensure equipment meets their protection and coverage requirements.

* Tied ranking

2017 IAB RESEARCH & DEVELOPMENT
PRIORITY LIST
 CONTINUED

12.	NOISE FILTERING DIGITAL SPEAKER/MICROCLIMATE FOR SCBA FACEPIECE	Sound cancelling/neutralization to decrease communication issues that arise from the use of the SCBA. For example, elimination of air passing in and out allowing user to hear what is being said on the radio as well as being clearly understood when speaking.
13.*	RESPONDER KNOWLEDGE DATABASE 2.0 (DIGITAL RKB)	Easily accessible digital/web-based database index of peer-evaluated purchasing guidelines for medical equipment and devices. The database will include product specs along with feedback on the equipment/device provided by other first responders
13.*	INEXPENSIVE, PORTABLE RUGGEDIZED POINT-OF-CARE LAB TESTING DEVICE	Hand-held device for point-of-care testing of bloodwork. It must be inexpensive, rugged, rapid (results < 10 minutes), and rechargeable (battery life of at least 8 hours) and have high sensitivity/specificity of lab based blood tests.
15.	TRACKING OF EVACUATED POPULATIONS	Develop a capability to track survivors and casualties during a mass causality to include the ability to identify evacuees and have them provide anticipated location for reunification and repopulation purpose, provide updated location information remotely, vet inquiries from evacuees with respect to incident/property status and from family members of evacuees, and to contact evacuees to provide updated incident information.
16.	UNIVERSAL SUIT SEAL/ RESPIRATOR-TO-SUIT INTERFACE	Universal elastomeric suit seal that allows any NIOSH certified face piece to be worn with any NFPA 1992, NFPA 1994 or NFPA 1999 certified ensemble.
17.	sUAS WITH MULTIGAS METERING FOR OPERATION IN FLAMMABLE GAS ENVIRONMENTS	Small unmanned aerial system (sUAS) that weights under 10 lbs. and has a combination of sensors commonly found in gas meters routinely employed by first responders. The sUAS should be able to be used both indoors and outdoors and also be able to send readings wirelessly.

* Tied ranking

18.	VEHICLE TO VEHICLE ALERTING	Collision Avoidance system for both emergency vehicles and passenger vehicles that choose to participate in the system.
19.	NON-PYROTECHNIC DIVERSIONARY DEVICE	Alternative device that can be deployed when Noise Flash Diversionary Devices (NFDD) or “flash” bangs cannot be used. The device should have similar disabling characteristics with improved safety.
20.	EFFECTIVENESS OF WIPES AS SKIN DECONTAMINATION AID AT FIRE SCENE	Research to determine whether the use of different types of absorbent wipes are effective in removing fireground contamination from the skin of firefighters without exacerbating dermal exposure.
21.	MULTI-METER FOR BOMB TECHNICIANS	Tool with integrated indirect current probes and voltage meter, ammeter and continuity tester. Color-coded probes should be optimized for taking voltage and current measurements through the insulation of detonator leg wires. Tool should provide actions based on meter readings and have programmable thresholds.
22.	IMPROVED MICROCLIMATE COOLING SYSTEM FOR DOWN RANGE USE	Device effective in maintaining body core temperatures at acceptable levels and that can be worn during extended down range operations in PPE, particularly chemical protective ensembles.
23.	RESPONDER/RECEIVER MENTAL HEALTH AND WELLNESS	Suite of mobile applications providing pre-event stress inoculation, post-event psychological field aid, and post-event self-assessment and referral for occupational stress exposure and the continuum of stress responses.
24.	TOURNIQUET TESTING FIXTURE	A device that measures the internal pressure in a limb created by an applied tourniquet. This device should test the efficacy of vascular occlusion pressures to ensure that a tourniquet design is effective for clinical use.
25.	ANALYSIS SOFTWARE/SIGNAL PROCESSING FOR SITUATIONAL AWARENESS	Software/device that enables a user to talk into and/or listen to a device that translates languages, identifies who is speaking, analyzes voices for stress/distress, and identifies background noises (i.e. gun shots). Translation/processing should occur in near real-time with greater than 95% accuracy.

2017 IAB STANDARDS DEVELOPMENT PRIORITY LIST

The IAB identifies standards development priorities for the responder community each year, and a survey is conducted to vet and prioritize the priorities within the IAB. The Standards Coordination SubGroup then works with ANSI's Homeland Defense and Security Standards Coordination Collaborative and the DHS Office of Standards to engage federal agencies and standards developing organizations in addressing those priorities.

To learn more about the IAB and the Standards Development Priority List, please visit www.interagencyboard.org.

1.	STANDARD GUIDANCE FOR INITIAL FIRST RESPONDERS AT AN INCIDENT INVOLVING CHEMICAL AGENTS	<p>A guidance document is needed for initial first responders to an incident involving chemical agents. The chemical agents may be toxic industrial chemicals or materials, chemical warfare agents, or pharmaceuticals. The guidance should address minimum resources, personnel, capabilities to perform assigned duties, safety and incident response considerations for determining the feasibility of rescue and recovery operations, line-of-sight with ambulatory and non-ambulatory victims, non-line-of-sight with ambulatory and non-ambulatory victims, rescue operations versus victim recovery, and decontamination. The guidance should provide a systematic process for analyzing the incident, using on-scene indicators to identify any potential hazards (e.g., biological or other), and evaluating potential consequences. It should include an “if this, then that” decision-making strategy and guide the responder to pick the best option based on the facts, science, specific circumstances, and available resources.</p>
2.	STANDARD GUIDANCE FOR INITIAL FIRST RESPONDERS AT AN INCIDENT INVOLVING BIOLOGICAL AGENTS	<p>A guidance document is needed for initial first responders to an incident involving biological agents. The biological agents may be naturally occurring or potential biothreat agents, pathogens, spores, toxins, or viruses. The guidance should address minimum resources, personnel, capabilities to perform assigned duties, safety and incident response considerations for potential public health emergencies, known point-source, potential area dissemination, and decontamination. The guidance should provide a systematic process for analyzing the incident, using on-scene indicators to identify any potential hazards (e.g., biological or other), and evaluating potential consequences. It should include an “if this, then that” decision-making strategy and guide the responder to pick the best option based on the facts, science, specific circumstances, and available resources.</p>

3.	STANDARD GUIDANCE FOR TACTICAL MEDICS DEPLOYED DURING LAW ENFORCEMENT OPERATIONS	A standard is needed for medics that are deployed during law enforcement operations, including tactical team operations, police response to a mass assault, and active shooter responses. The standard should address considerations, recommendations, and best practices. This guidance should not specify requirements. These medics need specific guidance to coordinate their efforts with law enforcement. While the NTOA SWAT standard mentions tactical emergency medical support throughout, it does not give specific guidance for the medics. The 3 basic types of guidance required include minimum tactical emergency casualty care training (this is different than typical emergency medical services training), knowledge and use of personal protective equipment, and training on tactical movements.
4.	STANDARD TEST METHOD FOR SECURITY AND RELIABILITY OF WIRELESS LINKS BETWEEN UNMANNED AERIAL SYSTEMS (UASs) AND THE CONTROLLER	Test methods are needed to assess the security of the wireless links between small unmanned aerial systems (UASs) and the flight operations center (base station/controller), including command and control; sensor control; sensor data; autopilot; and navigation. The cybersecurity concerns are similar as those for other wireless systems, such as cell phones. UASs have a maximum range specified by the manufacturers; however, there are currently no test methods to assess range for devices in varying environments, from rural to suburban to urban, and under varying conditions, such as among trees with leaves or without leaves. Additionally, test methods are needed for assessing the data link integrity when exposed to various other devices operating in the same frequency band under the above conditions. It is anticipated that metro areas will have more interfering devices than urban areas.
5.	STANDARD PRACTICE AND ACCREDITATION PROGRAM FOR SPECIAL WEAPONS AND TACTICS (SWAT) TEAMS	A standard and an accreditation program are needed (1) to increase the confidence in SWAT teams and their capabilities and (2) to enhance consistency and interoperability among SWAT teams. There are some existing standards for SWAT teams; however, they do not meet the need for an accreditation program. The standard should specify the minimum number of people and specialty positions on a team, equipment list (including equipment for the team and for the specialty positions), and training (initial and periodic) for teams and individuals, including certification of individual team members.

2017 IAB STANDARDS DEVELOPMENT
PRIORITY LIST
 CONTINUED

6.	STANDARD TEST METHOD(S) AND/OR PERFORMANCE SPECIFICATION FOR BIOLOGICAL FIELD DETECTION INSTRUMENTS	<p>Test methods and/or specifications are needed for instruments intended to detect and identify biological agents, and levels of detection should be included. These devices are used by responders in the field, but there are no standards for assessing whether the devices perform as expected. Following the anthrax attacks in 2001, manufacturers developed several types of field detection instruments. The first generation of equipment fielded to first responders was based on immunoassays which had a limit of detection of about 10 million spores. Newer methods, such as those based on polymerase chain reaction (PCR) technology, are more sensitive with a limit of detection of about 20,000 spores. Agreed upon test methods are needed to allow responders and purchasing agents to assess the limit of detection of the instruments as well as the probability of false positives and false negatives. The standard should not address recommended guidance for response to a biological incident, as that is a separate need.</p>
7.	STANDARD GUIDANCE FOR HANDLING CONTAMINATED REMAINS IN MASS FATALITY INCIDENTS	<p>Guidance is needed to help responders deal with contaminated remains for a mass fatality incident so that the remains can be further processed, and then turned over to a medical examiner/coroner, and then to families for final disposition. Mass fatality incidents can occur and have occurred in many different ways, and the ways a cadaver can become contaminated will dictate the guidelines and standards for release of the remains by public health authorities. Blood-borne pathogens, biological threat agents, such as <i>Bacillus anthracis</i> spores, stable toxic chemical agents, and long-lived radioactive elements each present unique challenges. Guidance will, by necessity, be modeled on processes and procedures used by the military in handling remains from mass fatality incidents and from overseas war zones.</p>

8.	PERFORMANCE STANDARD FOR TACTICAL OPERATION VIDEO CAMERAS	<p>A performance standard is needed to assess capabilities of video cameras used by law enforcement in tactical operations for surveillance and situational understanding. These systems are available in several configurations: covert placement, hand-deployed, and pole-mounted. During field use, operators are experiencing breakage of equipment, specifically wiring, connectors, and attachment points. Interference between the camera and the monitor(s) is also a problem. The standard must address all system features such as image quality, audio quality, ruggedness of both the camera and monitoring device, length of operation on battery, and remote-control capabilities.</p>
9.	STANDARD GUIDANCE FOR MINIMIZING PERSONNEL CONTAMINATION AND PERFORMING DECONTAMINATION RELATED TO STRUCTURAL FIRES	<p>A guidance document is needed for decontamination following exposure to a fire, including on-scene gross decontamination, on-scene cleaning of exposed skin, isolation of contaminated gear, cleaning of turnout gear (including having a clean spare set), showering as soon as possible, decontamination of equipment and truck, fire station design to minimize cross-contamination, etc. Studies have proven that smoke and residue from structural fires contain carcinogens that can be inhaled and absorbed through the skin, resulting in high instances of fire fighter cancer. Currently, many fire departments are recommending use of wipes to clean exposed skin on-scene, but there is no data to support whether that practice is actually cleaning the skin or doing harm. Best practices would help end users reduce cancer risk by minimizing contamination and performing decontamination as soon as possible.</p>
10.	STANDARD TEST METHOD FOR LESS LETHAL CONDUCTED ENERGY WEAPONS	<p>Conducted energy weapons (CEWs) (e.g., TASERS) are used by more than 16,000 law enforcement agencies as a less lethal force option. CEWs are designed to introduce electrical charge into a human body for the purpose of creating pain and incapacitation. Although they are commonly used, CEWs are not tested to any standards and have been found in field use to be inconsistent in their electrical output. The biggest problem is “cold” weapons that do not have high enough output to cause pain much less incapacitation. Situations in which CEWs are deployed and have low output could result in the use of lethal force. A test method is needed to allow for consistent, independent testing of CEWs prior to purchase and deployment in the field.</p>

2017 IAB STANDARDS DEVELOPMENT
PRIORITY LIST
 CONTINUED

11.	PERFORMANCE STANDARD FOR LESS LETHAL IMPACT (I.E., KINETIC ENERGY) DEVICES USING A LAUNCHING SYSTEM TO FIRE PROJECTILES	<p>Less lethal impact devices are widely used by law enforcement officers to de-escalate potential deadly force situations. Identified issues include improper velocity, inaccuracy, and deficient projectile integrity. Performance requirements and test methods need to be developed to address the performance of less lethal impact devices, such as polyurethane projectiles, plastic projectiles (e.g., Pepperball, FN), wooden batons, foam batons, and bean bags, fired from a launching system. The standard should address intended use, appropriate launching systems (such as single shot, over-under, multi-launcher, pump type; hand-held or shoulder-fired), projectile type, materials, and number in cartridge, accuracy and velocity of projectile, impact energy in foot-pounds (for pain compliance or incapacitation), effective distance range (minimum to maximum), resistance to moisture from rain and high humidity, potential hazards, and black powder/smokeless. Examples of how less lethal impact devices are used in the field include crowd control, targeting instigators, incapacitating threatening, hostile, or non-compliant subjects, and incapacitating suicidal subjects.</p>
12.	PERFORMANCE STANDARD FOR BODY WORN VIDEO CAMERAS USED BY PUBLIC SAFETY PRACTITIONERS	<p>The field deployment of body worn video camera systems by public safety practitioners (e.g., patrol, corrections, SWAT and other tactical responders) offers significant advantages in keeping officers safe, enabling situational awareness, and providing evidence for trial. A major issue with the use of body worn video cameras is a lack of performance standards, test methods, and operational standards. The current concerns with body worn video cameras include lack of ruggedness for the environment in which they are used, insufficient mounting/positioning options, failure to power on and record, and no interoperability between systems and associated software. Further, standards are needed to ensure that evidence gathered from body worn cameras meets courtroom standards. Without such standards in place, practitioners lack adequate information to select the proper system that meets their requirements.</p>

13.	PERFORMANCE STANDARD FOR DISTRACTION DEVICES	<p>A performance standard is needed for noise flash diversionary devices, also known as distraction devices or flash-bangs. These devices are used by law enforcement and corrections to temporarily disorient subjects by overwhelming the senses, allowing officers to gain tactical advantage. Several issues have been identified by end users and could be addressed by having a performance standard. These issues include distraction devices exploding in the user's hand causing injury or death, devices not remaining stationary after deployment and rolling or propelling to unintended locations, devices producing so much smoke that visibility becomes limited, the sound output of a device is neither consistent nor specified by the manufacturer, the brightness and duration of the light produced by a device is inconsistent, and some devices have burned so hot that they caused unintended structural fires.</p>
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