

Just as it has for the nation as a whole, the world in which emergency responders work has changed in fundamental ways since September 11, 2001. Members of professions already defined by their high levels of risk now face new, often unknown threats on the job. At a basic level, the September 11 terrorist events have forced emergency responders to see the incidents they are asked to respond to in a new light. As one firefighter-special-operations professional put it, “After 9-11, we must rethink exactly how we approach things. If you go to a fire scene and there is a possibility of a terrorist attack, then most of it is unknown. Other than what you see, everything else is unknown.”

At the World Trade Center, 450 emergency responders perished in the response to the terrorist attacks—about one-sixth of the total number of victims. Hundreds more were seriously injured. In this light, the terrorist events are also forcing emergency responders to reconsider the equipment and practices they use to protect themselves in the line of duty. A firefighter observed, “We had an incident at the FBI [headquarters] soon after the incident in New York. I was looking at the battalion chief on the scene and watching them operate under a cantilevered structure. I asked them, ‘Why don’t you move everybody further away so if that thing does come down you won’t get killed?’ New York taught me a lot about firefighter safety.”

Preparation is key to protecting the health and safety of emergency responders, and valuable lessons can be learned from previous responses. To that end, the National Institute for Occupational Safety and Health (NIOSH) convened a conference in New York City on December 9–11, 2001, to determine what could be learned about protecting the life and health of emergency workers who respond to terrorist attacks. The focus was on personal protective equipment (PPE), and the input was provided by workers who responded to the 1995 attack on the Alfred P. Murrah Federal Building in Oklahoma City, Oklahoma; the September 11 attacks on the World Trade Center and the Pentagon; and the anthrax incidents that occurred during autumn 2001. This report summarizes the key lessons learned about PPE during those events.

ABOUT THE CONFERENCE

Purpose

In the wake of the terrorist attacks of 2001, the federal government and the nation are reexamining their ability to respond to acts of terrorism against the United States. As part of this effort, NIOSH and other federal agencies are reviewing lessons learned regarding protecting the life and health of emergency workers who respond to such attacks.

In spring 2001, NIOSH established the National Personal Protective Technology Laboratory (NPPTL). The mission of the NPPTL is to provide leadership in the prevention and reduction of occupational disease, injury, and death for those workers who rely on personal protective technology, through research, partnership, service, and communication. The lessons learned by emergency responders involved in the recent terrorist events and discussed at the conference offer important and timely information that will help in developing the Laboratory's research agenda.

This information will also serve to inform and improve federal education and training programs and activities directed at the occupational health and safety of emergency responders. Because of the broad importance of emergency preparedness and response to the new national priority of homeland defense, the conference information is also expected to interest other audiences at the federal, state, and local level, both inside and outside the emergency-response community.

Organization

NIOSH requested that the RAND Science and Technology Policy Institute organize and lead the conference on its behalf. On November 2, 2001, NIOSH and RAND held an organizational and planning meeting at which representatives of key government and nongovernmental organizations endorsed the December conference and offered their cooperation. Eleven of these organizations elected to be designated as Organizing Partners of the meeting. (The Organizing Partners are listed in Appendix A.) With assistance from the Organizing Partners, NIOSH and RAND were able to attract to the meeting a diverse group of attendees with considerable breadth and depth of experience in responding to terrorist attacks.

The 150 individuals who participated in the NIOSH/RAND conference were selected on the basis of their central roles in responding to these attacks and for their ability to think broadly and creatively about PPE and management issues. Conference participants included both rank-and-file and top-level representa-

tives from local, state, and federal emergency-services organizations; trade unions; health and safety agencies; private-sector equipment and services providers; and government and academic research institutions. Most of the participants had firsthand experience working at the incident sites (many were present on the day of the attacks) or served in a direct support capacity off-site. (The conference participants are listed in Appendix B.)

The conference consisted of a series of plenary sessions followed by breakout discussion groups. (The conference agenda is reproduced in Appendix C. The plenary presentations are summarized in Appendix D.) Participants were assigned to one of eight breakout groups (panels) according to their role in responding to the attacks:

- Firefighters
- Firefighter special operations (2 panels)
- Emergency medical services (EMS)
- Law enforcement
- Construction and other trade services
- Health and safety
- Federal and state agencies

Each panel was guided by a professional facilitator and a specialist knowledgeable about technical issues of concern to the group. A RAND analyst also observed each group. The panels were tasked with addressing a common set of topics, including

- Tasks performed during the initial and sustained phases of the response
- Hazards encountered
- Availability and relevance of personal protective equipment
- Training and information about the use of protective equipment

Participants were free to tailor the discussions to address the issues that were most important to their group's experiences. To encourage candid discussion, the breakout sessions were held on a not-for-attribution basis.

THE REPORT

This report synthesizes the discussions that took place at the conference, many of which included information from individual professionals about response activities that were, in some cases, still ongoing and evolving. This presentation

of the conference proceedings seeks to preserve the substance and tenor of the emergency responders' insights. As a result, the statements presented in this report represent the personal views of conference participants at that unique point in time. They do not necessarily represent established or consensus views of the organizations represented or of the greater emergency-responder community.

The conference proceedings are organized as follows: Chapter Two describes the unique characteristics of the sites of major terrorist attacks, concentrating on the perspective of the first responders and the PPE they require. Chapter Three summarizes the key lessons gleaned from the panel discussions with respect to the availability of PPE and how it performed at the attack sites. Chapter Four discusses issues of PPE information dissemination and training. Chapter Five addresses the problems associated with managing a major terrorist attack site, again with a special emphasis on PPE. Chapter Six presents recommendations put forth by the conference participants. The final chapter offers some concluding remarks.