

# Emergency Training Systems – A Survey

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## Introduction

Three years and as much as \$8 billion after the call for increased funding for emergency preparedness, there is little documentation regarding progress made, efforts to address this call, and most importantly, the effectiveness of these efforts. According to William O. Jenkins, Jr., Director of the Homeland Security and Justice Issues at the Government Accountability Office (GAO), “the GAO does not know how much has gone for planning, training, and exercises. And GAO does not know how much has gone specifically to train first responders because the largest grants, such as the State Homeland Security Grants, can generally be used for planning, equipment purchases, training, and exercises, at the discretion of the grant recipient.”<sup>1</sup>

The training of first responders, who include public safety personnel working in law enforcement, emergency medical services, emergency management, fire service, public works, government administration, health care, and public health, is a key area of emergency preparedness. Millions of civilian and military medical personnel need to be trained quickly to respond to events involving WMD and have continuous access to refresher courses, including “just in time” training during an emergency. Several strategies are used to train first responders, such as hands-on training with equipment, field exercises, videos, lectures, and Technology-Enabled Learning Systems (TELS). TELS encompasses a wider range of digital learning activities than Computer-Based Training (CBT): slide shows, such as PowerPoint presentations delivered on CD-Rom or via the Internet, to learning systems that incorporate advanced computer technologies such as virtual reality and intelligent tutors. TELS have the potential to be an effective and efficient method of training and preparing first responders, and there are hundreds of TELS aimed at the first responder market. What does not exist is a way to evaluate their quality and effectiveness. Many are developed with guidance

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<sup>1</sup> Jenkins, William O., telephone Interview by Christine Palumbo of FAS, 2 Sept. 2004.

or funds from government agencies, but the standards they are held to are unclear. This survey provides an analysis of 54 TELS developed for emergency responders in the event of a mass casualty incident (MCI) and discusses their features and capabilities.

### **The Need and Potential**

The Federation of American Scientists' (FAS) Learning Federation (LF) project focuses on the research and development of educational tools to make learning more engaging, effective and accessible. The training of first responders is a critical area that stands to benefit greatly from such improved training methods and tools. FAS' report, *Training Technology Against Terror: Using Advanced Technology to Prepare America's Emergency Medical Personnel and First Responders for a Weapon of Mass Destruction Attack*,<sup>2</sup> found the nation's needs for training first responders to be dramatically larger in scope and more complex than anything it has faced before. More than 1.7 million full-time and volunteer firefighters, 2.7 million nurses, over 620,000 civilian law enforcement officials, 150,000 emergency medical technicians, 32,000 emergency physicians, 50,000 Army medics, and millions of other medical personnel and local officials of different backgrounds need to be trained quickly in complex skills ranging from incident management to the detection and treatment of unusual injuries. In an emergency, these personnel are expected to act on their instincts and work as part of a complex incident management team, despite having little or no direct experience in a similar emergency.

Current programs to provide MCI response training are insufficient. Limitations inherent in traditional approaches, such as textbooks, workplace training sessions and off-site training seminars, work against the imperative for rapid development and deployment. Because the audience is widely distributed, traditional classroom instruction will be slow to address training needs, since first many instructors must be recruited and trained. However TELS can reach this audience quickly with timely information, allow the tailoring of training to unique local situations, and provide simulated

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<sup>2</sup> <http://www.fas.org/main/content.jsp?formAction=325&projectId=15>

experiences that transfer efficiently into high levels of performance in an actual emergency. TELS can provide practical, hands-on experience in situations that cannot easily be practiced using real scenarios. According to Lt. Col. Tom Coffman of the Army's Simulation Training and Instrumentation Command, "Traditional live training for first responders and soldiers is costly and labor intensive....PC-based simulations are more cost effective and can be used on a more regular basis."<sup>3</sup>

An abundance of TELS are being developed for first responders—evidence of their strong potential. While still relatively unsophisticated in terms of their application of interactivity, quality of simulations, and advances in learning science (such as content adapted to the individual learner, team training approaches, assessment and feedback) current offerings demonstrate the advantages of TELS. They can be distributed to a large number of users at low cost through the Internet or by CD. They can be quickly modified to include new or updated information. TELS can incorporate scenarios and simulations that help trainees build expertise that can be used quickly and efficiently in the case of a real emergency. Such practice is critical, since the scope of terrorist incidents covers a wide range of possibilities, and such incidents have few precedents anywhere in the world.

The purpose of our survey is to examine current trends in TELS for MCI response training. The survey addresses the following questions:

- Who is funding development of TELS for MCI response training?
- Who is purchasing TELS training systems for MCI response?
- Who are the developers/suppliers?
- At which first responder groups are these products targeted?
- What are the typical features and capabilities of current TELS products for MCI response training?

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<sup>3</sup> From National Defense Magazine, Feb 2001 <http://www.nationaldefensemagazine.org/article.cfm?Id=431>

## **Survey Methodology**

A list of TELS for MCI response training was compiled via Internet search engines such as Google using these search terms: job training, computer-based training, job simulations, first responders, firefighters, mass casualty incidents, virtual reality, and emergency responders. The initial search returned hundreds of hits. From these we selected 54 TELS to be used as the sample for this study based on three criteria:

- 1) Sufficient information on the product website. We selected TELS with websites that provided sufficient information to enable us to determine the TELS' features and capabilities;
- 2) Product release date. We selected TELS products with recent release dates and/or current websites to analyze typical new offerings; and
- 3) Who uses them. We included products designed for training first responders—police, firefighters, EMT workers, public health officials, and hospitals.

Though our analysis is based on product descriptions and demonstration programs available on product web sites, in some cases, emails were sent to the company to clarify features. The survey results are detailed in Appendix A.

## **Who is funding development of TELS for MCI response?**

A main source of funding for TELS for first responders comes through training grants from federal government agencies. The GAO's Jenkins has said "The federal government has allocated between \$6 and \$8 billion since 9-11 to enhance emergency preparedness nationwide."<sup>4</sup> But it is difficult to identify the amount from these grants used to support training development or purchase of TELS for first responders. A number of agencies give grants for first responder training and there is no systematic method for tracking how funds are used. For example, the information available provides only lump sums for programs that include training without detail regarding the

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<sup>4</sup> Jenkins, William O., telephone interview with Christine Palumbo of FAS, 2 Sept. 2004.

types of training funded. The various pieces of the funding puzzle are difficult to fit together; it is difficult to pull out training funds, let alone funds for TELS.

### **Federal Government**

The largest source of federal funds are administered through Department of Homeland Security's (DHS) Office for Domestic Preparedness (ODP). These funds are generally available for planning, equipment, exercises, training, and administrative costs. The State Homeland Security Grant Programs (SHSGP) distribute funds to states using a formula that provides each state a base amount plus additional funds based on population. (In FY 2002 it was called the State Domestic Preparedness Program (SDPP).) In FY 2002, ODP managed one SDPP first responder grant program and awarded \$316 million in grants. ODP managed two grant programs in FY 2003, SHSGP and SHSGP II, whose funding totaled \$2.1 billion. The other major source of funds are the Urban Area Security Initiative grants, which are distributed to selected urban areas based on factors such as population density, critical infrastructure, and potential threats. Homeland security grant programs are listed in Appendix B and Appendix C. Appendix D provides a list of the 56 states and territories awarded ODP grants in FY 2002 and FY 2003 and the amounts awarded.

In both grant programs the states may retain 20 percent of the total funding and distribute the remaining 80 percent to local governments. The FY 2003 State Homeland Security Grant Programs and Urban Area Security Initiative required states to transfer 80 percent of first-responder grant funds to local jurisdictions within 45 days of the funds being awarded by ODP.<sup>5</sup> State governors are responsible for appointing an administrative agency that applies for and manages the grants and acts as the liaison between ODP and local jurisdictions.

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<sup>5</sup> Highlights of [GAO-04-788T](#), a report to the Subcommittee on Economic Development, Public Buildings, and Emergency Management, House Committee on Transportation and Infrastructure

## **Government Agencies Involved in TELS for First Responders**

Several federal agencies are involved in the development of TELS for first responders. The level and type of involvement varies among them and inter-agency cooperation is difficult to determine.

Within the DHS' ODP is the Training and Data Exchange (TRADE) Group, a "federal, interagency group that reviews member courses for consistency, avoidance of unnecessary duplication, and use of the most up to date information and protocols available."<sup>6</sup> The TRADE Group includes: U.S. Fire Administration's National Fire Academy, Federal Bureau of Investigation, Department of Justice, Federal Emergency Management Agency, Environmental Protection Agency, Department of Energy, Department of Health and Human Services, Centers for Disease Control and Prevention, Emergency Management Institute, Federal Law Enforcement Training Center, and Department of Homeland Security.

The ODP has established guidelines for its partners who are members of the National Domestic Preparedness Consortium for Computer-Based Training tools for first responders. These guidelines are thorough and provide a framework for designing computer based training tools. But they are merely guidelines; they are not regulatory in any way. However, they call for revamping training nationwide: "as the threat of domestic terrorism increases and the demands on Responders intensify, *a more distributed and flexible training model is needed to guide future efforts. The training model must be agile enough to address dynamic requirements quickly, and robust enough to reach a large, diverse, growing audience.*" (Italics added.) They list CBT as an essential medium for meeting these needs.<sup>7</sup>

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<sup>6</sup> <http://www.ojp.usdoj.gov/odp/training.htm>

<sup>7</sup> [http://www.ojp.usdoj.gov/odp/training\\_bl.htm](http://www.ojp.usdoj.gov/odp/training_bl.htm)

Table 1 shows that out of the 198 federally sponsored courses for terrorism training, only 14 can be categorized as TELS. After DHS, most of these are sponsored by the Department of Energy.<sup>8</sup>

Table 1. **Federally Sponsored Computer-Based Training Courses for Terrorism Training**

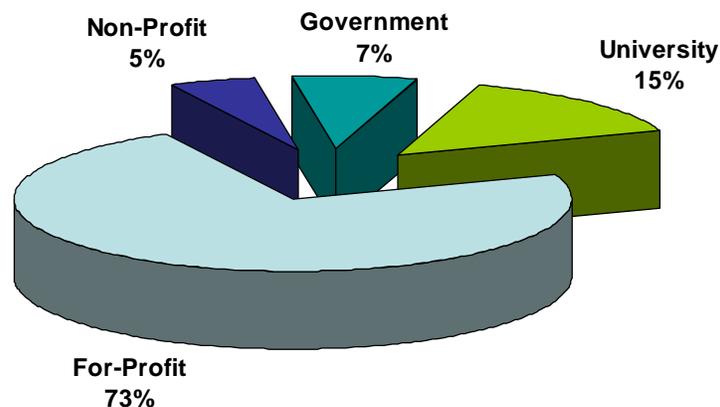
<b>Government Agency</b>	<b>Total # of Courses Offered</b>	<b># of TELS courses</b>
Department of Defense (DOD)	11	1
Department of Energy (DOE)	43	8
Department of Homeland Security, Border & Transportation Security, Office for Domestic Preparedness	61	4
Department of Homeland Security, FEMA, Chemical Stockpile Emergency Preparedness Program	16	1
Department of Homeland Security, FEMA, Emergency Management Institute	28	0
Department of Homeland Security, FEMA, National Fire Academy	29	0
Department of Justice-Federal Bureau of Investigation	1	0
Department of Transportation	6	0
Environmental Protection Agency	3	0
<b>TOTAL # OF COURSES</b>	<b>198</b>	<b>14</b>

<sup>8</sup> The data for Table 1 is taken from the DHS' "Compendium of Federal Terrorism Training for State and Local Audiences" September 10, 2004. The TELS courses include Internet based courses.

## Providers - Who are the developers/suppliers?

TELS training tools for first responders are being developed by government agencies, corporations, non-profit organizations, and training centers associated with specific fire or police departments. Government support plays a large role in their funding and development. The role of different government agencies is discussed in detail in the following section.

**Figure 1: Type of Company**



Private industry has a strong presence in this market; our survey found that about three fourths of the developers are private companies. Some of these are government contractors developing products exclusively for government use. Other companies develop products which, though targeted at a specific group, are available to the public.

There is also collaboration between universities, non-government organizations and government agencies in developing these tools. University participation often involves providing expertise in software and content development. For example, The Entertainment Technology Center at Carnegie Mellon University has a training game entitled “*HAZMAT: Hotzone*.” It will use video game technology to train first responders through a networked, multi-player simulation. MIT’s Comparative Media Studies Program’s Games to Teach Project is developing *Biohazard: Education at the Speed of Fear*, an educational game designed to reinforce the knowledge a doctor would need

to know to diagnose and treat patients in the event of an epidemic outbreak. Dartmouth's Interactive Media Laboratory offers *The Virtual Terrorism Response Academy*, which is basically a virtual reality environment intended for use by HAZMAT workers, firemen, law enforcement and EMS.

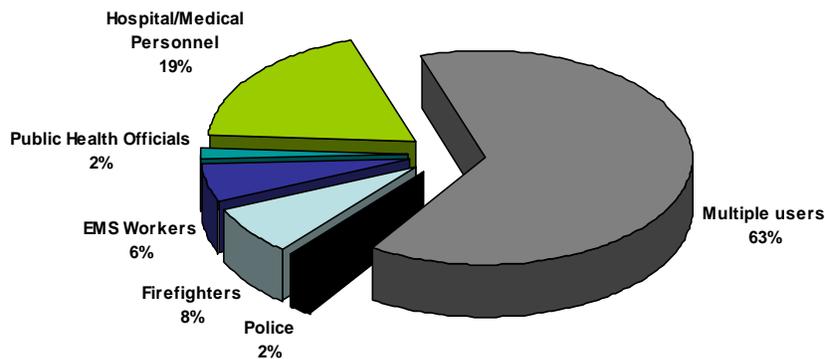
Figure 1 shows the distribution of developers by sector.

### Target Users

The TELS we sampled target first responders: police, firefighters, EMT workers, public health officials and hospitals. Generally, the TELS are designed to meet the specific needs of one group. There is some overlap in the training needs, in which case the target group can include several groups such as firefighters and public health officials.

Figure 2 illustrates the distribution of target users for the 54 TELS in our sample. About one third are targeted at a single group of first responders. Almost two thirds of these TELS are targeted at multiple users.

**Figure 2: Target Users**



## **Features and Capabilities**

We examined these TELS to see which offer features and capabilities identified in the Learning Federation's Learning Science and Technology R&D Roadmaps ([www.thelearningfederation.org](http://www.thelearningfederation.org)) as key to highly effective learning systems. The LF developed the Roadmap over a three-year period through in collaboration with more than 70 leading researchers from industry, academia, and government. It identifies key research focus areas for technology-enabled learning education and training. Based on the framework of the Roadmap, we categorized the TELS in our sample according to five capabilities:

- Assessment
- Interactivity
- Motivational Strategies
- Use of Standards to Promote Certification and Re-Use
- Question Asking and Answering

### **Assessment**

Assessment is a critical component of education, training and the management of human capital. It generates data for important decisions such as: who is competent to perform particular tasks; what knowledge and skill gaps need to be targeted with instruction; what feedback, guidance, and training resources to provide during the training process; and which training programs or components of training programs are ineffective or inefficient and need modification.

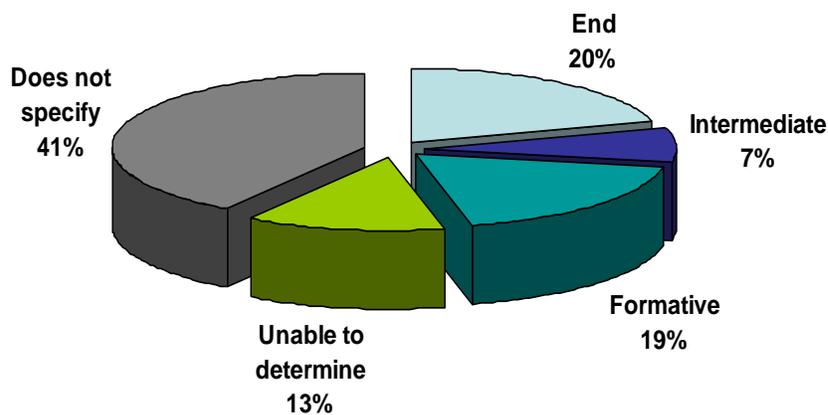
Technology offers opportunities to provide more useful forms of assessment than traditional testing. Technology makes it possible to analyze the sequences of actions trainees take as they work through a problem and to compare these sequences against models of knowledge and performance associated with different levels of expertise. Errors in performance can be pointed out and corrected; trainees can be provided feedback in real time.

We evaluated the sample TELS systems in terms of the following criteria:

- Does it provide feedback to the user or the trainer?
- For those systems that provide feedback, when is the feedback provided:
  - At the end of the training session. The trainee takes a multiple choice test when training ends, for example.
  - Intermediate. The trainee is tested periodically as he/she progresses through the learning materials and receives feedback on how well he/she does on the test.
  - Formative. The trainee is assessed after each learning objective.

Figure 4 shows the percentage of our TELS sample by type of assessment.

**Figure 4: Type of Assessment**

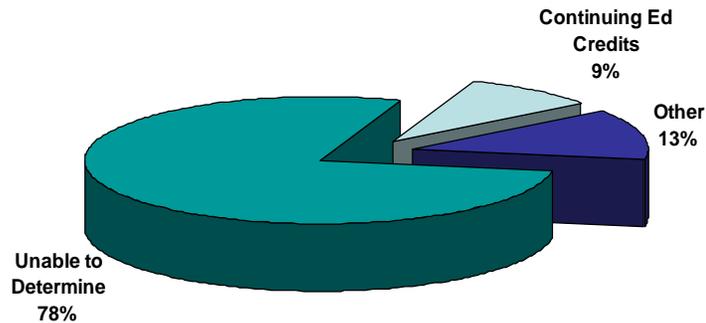


## Accreditation and Continuing Education Credits

A number of these TELS can provide certification or course credits upon completion. Many offer continuing education credits which allow first responders to advance their education and careers.

Figure 5 shows the percentage of TELS in the sample that we could determine offer Continuing Education or other forms of accreditation.

**Figure 5: Accreditation**



## Interactivity

The type of media used can affect learner engagement, motivation and the ability to replicate a live situation, an area particularly useful to first responders. Many of the TELS we surveyed consist of a handbook on CD-ROM; these are basically text and graphics. Highly motivated learners can do well with this format, but not every learner is highly motivated.

Live-action game and simulation activities have proven benefits in training.<sup>9</sup> Fortunately, now it is feasible to deliver high quality simulations on typical desktop personal computers, due to advances in computational technology, particularly inexpensive graphics capabilities. Simulation-based training can be highly motivating. It allows participants to immediately recognize the importance of the scenario for which they are training. Simulations are already being used successfully in a variety of learning domains, including medicine, the military, business, and other educational contexts. Virtual environments permit learners to navigate a three-dimensional environment to practice skills or gather data. Trainees can train with virtual or simulated equipment or instruments in lieu of expensive real-life equipment.

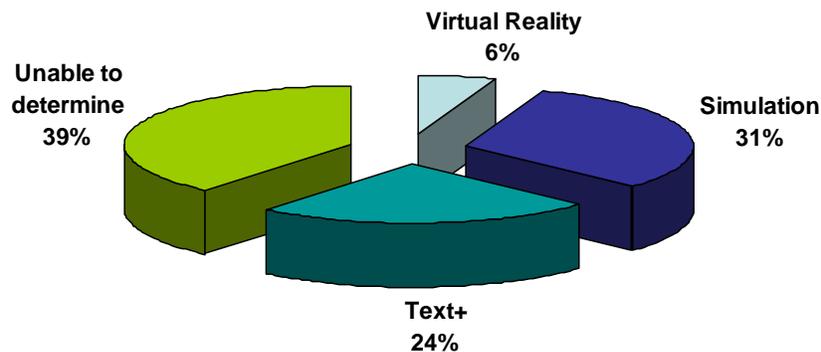
We categorized the TELS systems in our sample according to the following criteria:

- Primarily text-based. These include electronic textbooks and slide shows.
- Use of simulations. These include simulations but varied from simple animations to more complex, realistic ones.
- Use of virtual environments. The distinguishing feature between simulation and virtual environments is immersion: virtual environments offer a “virtual reality” that draws the learner perceptually and physically into them. Virtual reality technologies allow learners to perform tasks and experiments much as they would in the real world.

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<sup>9</sup> Higgins, G.A. & Champion, H.R. (2000). *The Military Simulation Experience: Charting the Vision for Simulation Training in Combat Trauma*. Prepared for U.S. Army Medical Research and Materiel Command.

**Figure 6: Type of Presentation Media Used**



As shown in Figure 6, nearly one-quarter of our sample TELS systems are text-based. These operate much like on-line lectures, with text-based “slides;” most include static images. The trainee progresses through the “slide show” at his or her own pace. Thirty-one percent of our sample includes some simulations. These may show a typical situation that a first responder may face and demonstrate appropriate responses. A smaller percentage of the sample offer more immersive virtual environments, giving the first responder the impression they are actually in the situation.

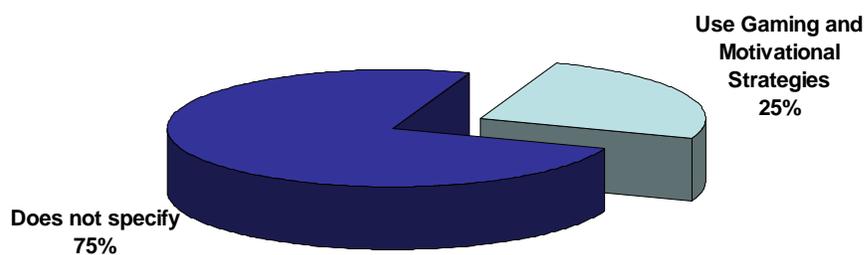
### **Gaming / Motivational Strategies**

Motivation has been found to have a significant impact on learning outcomes. Training approaches that trigger motivational processes can increase the likelihood that instruction will be successful. Clearly, computer games hold special interest to a generation that has grown up with them, and as such they show promise as educational tools. Whether this is due to the inherent challenge built into game play, the richness of graphics presented to the user, the opportunity to

interact with other users (in Internet-based games), the story or context in which the game is couched, or some other feature, is still being studied.

As shown in Figure 7, approximately 25 percent of our sample TELS systems use instructional strategies designed to increase the motivation of the trainee. These range from relatively simple approaches, such as “game show” quizzes, to more complex approaches resembling video games. Over 70 percent of our sample TELS made no reference to instructional methods aimed at increasing motivation.

**Figure 7: Use of Gaming/Motivational Strategies**



### **Standards**

Current approaches to developing TELS courses require that they be hand-crafted and then packaged and exported to larger systems that can deliver them. The cycle of build-test-modify-repeat is cumbersome, complex, costly and off-putting to developers; it stifles innovation that might otherwise occur in content design. None of the TELS products sampled reported use of the Shareable Content Object Reference Model (SCORM) a common framework under which learning content can be delivered. The advantage of SCORM is that the learning content can be shared and re-used.

The work of learning technologies standard-setting bodies such as the following is also relevant:

- Advanced Distributed Learning initiative (ADL)
- Instructional Management Systems Global Learning Consortium (IMS)
- Aviation Industry CBT Committee (AICC)
- Association of Remote Instructional Authoring and Distribution Networks for Europe (ARIADNE)

These groups have already adopted the SCORM framework, and they are working on standards for:

- Assessment: Question and Test Interoperability (QTI)
- Learner modeling: Learner Information Profile (LIP)
- Competency definition: Reusable Definition of Competency or Educational Objective (RDCEO)

### **Question Asking and Answering**

Research has demonstrated that learning improves when learners ask questions. Yet it is well documented that most learning environments do not stimulate many questions. According to one research study, a typical student asks 0.17 question per hour in a conventional classroom and 27 questions per hour in one-on-one human tutoring.<sup>10</sup> Emerging technologies have the potential to facilitate inquiry and get questions answered with software tools that can answer learners' questions whenever they ask them. Technology can help formulate answers in a fashion appropriate for the learner and subject. Technology can help deliver quick, correct, relevant, and informative answers,

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<sup>10</sup> Graesser, A. C., & Person, N. K. (1994). Question asking during tutoring. *American Educational Research Journal*, 31, 104-137.

and connect learners to teachers, coaches, experts, and to computer-generated answers. While some of these TELS may have some of these features; none in our sample advertised QG&A features.

## Conclusions

Our survey shows that there are a substantial number of TELS for MCI responder training available, and we can assume that many more are under development. Our analysis showed that current systems have realized a small fraction of the potential offered by new technologies. This is not to say that current TELS systems are not useful, but that there is room for advancement to make training much more readily accessible, effective and efficient.

Training can be enriched through application of advanced instructional technologies, including simulations and intelligent tutoring systems. New information and training technologies can allow tailoring training to unique local situations; they can provide simulated experiences that transfer efficiently into high levels of performance in an actual emergency.

In its *Emergencies and Disasters Fact Sheet: A Better Prepared America: A Year in Review*, DHS states: “Enrollment in FEMA's Independent Study Program, a web-based training and distance learning course for the nation's emergency managers and first responders, has increased to 187,520 in FY 2003, a 125% increase over 2001. Homeland Security trained a record number of leaders from volunteer fire departments.”<sup>11</sup>

We conclude, therefore, that though it is investing heavily in training, including use of new technology, *DHS has not communicated a clear plan for quality control of the training material or ensuring that material is continuously up-to-date. There is no coherent program for managing the development, certification, and distribution of training materials in place today. There is also no plan for ensuring continuous improvement in the technology used to provide this training and supporting the development and testing of advanced instructional systems. Given the importance of*

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<sup>11</sup> <http://www.dhs.gov/dhspublic/display?theme=14&content=3855>

*ensuring well-trained first responders, DHS should include learning science and technology R&D as a critical component of its S&T portfolio.*

Technology is playing a significant role in first responder training, but it is essential that a program be put in place that contemplates rapid future advances and is not built on the assumption that current methods of delivering material are the final step. ODP in its guidelines to its partners highlights the need for flexibility, need to design and field quickly, reach a geographically disperse community, scale the number of people that have to be trained (see p.6). The only affordable way to do this is to move aggressively to take advantage of advances in technology to deliver the training and tailored instruction to meet the needs of such a diverse community.

### **Further Areas of Research**

Many areas related to this topic would be useful for additional study. Possible topics include:

- Feedback from trainers and trainees about what elements of the TELS tools seemed most useful.
- An analysis of the effectiveness of tools that teach the same material, including which components using games may improve learning the most.
- Training budgets for various departments.
- An online database listing all the TELS tools for first responders, with pricing and reviews from qualified persons, to help departments attempting to choose a TELS product.

Research in these areas would help to further analyze the need and improvements that can be made to TELS tools for first responders.

## **APPENDICES**

Appendix A: TELS Developers and Products – Sample Surveyed

Appendix B: Department of Homeland Security Grant Programs

Appendix C: Uses of Selected Homeland Security Grant Programs

Appendix D: ODP Grants FY 2002 and FY 2003 to states and territories, with amounts awarded and totals.

Appendix A: TELS Developers and Products

Product Name	Company	Website	Q&A	Type of Assessment	Media	Accreditation	(SCORM compliant)	Strategies	Price	Type of Company	
1 Essentials of Fire Fighting	Action Training Systems	<a href="http://www.action-training.com/products.asp?pcid=4">http://www.action-training.com/products.asp?pcid=4</a>	Does not specify	Yes	Does not specify	Does not specify	Does not specify	Does not specify	\$6,360	P	Firemen
2 ESIS Fire Scene Simulator	Action Training Systems	<a href="http://www.action-training.com/products.asp?pcid=5">http://www.action-training.com/products.asp?pcid=5</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	\$1,200	P	Firemen
3 First Responder Training Network-Emergency Preparedness	Advanced Systems Technology, Inc	<a href="http://www.astcorp.com/first/index.html">http://www.astcorp.com/first/index.html</a>	Does not specify	End	Does not specify	Yes	Does not specify	Does not specify	\$199	P	all citizen first
4 A-GRAM First Aid/First Responder	AFCESA	<a href="http://www.afcesa.af.mil/userdocuments/periodicals/agrams/2002/Agram%2002-17.pdf">http://www.afcesa.af.mil/userdocuments/periodicals/agrams/2002/Agram%2002-17.pdf</a>	Does not specify	Formative	Simulation	Yes	Does not specify	Yes		G	Firefighters/An First Aid/ CPR
5 Chem/Bio Simulator	AIS	<a href="http://www.ais-sim.com/index.htm">http://www.ais-sim.com/index.htm</a>	Does not specify	Formative	VR		Does not specify	Yes		P	chemical/biolog responders
6 Emergency Response Planning	American Water Works Association	<a href="http://training.awwa.org/index.html">http://training.awwa.org/index.html</a>	Does not specify	Yes	Text +	Yes	Does not specify			NP	water professio

			help available about drugs, diseases, etc.									
7	2002	Bioterrorism Simulator	Anesoft	<a href="http://www.anesoft.com/Products/bio.asp">http://www.anesoft.com/Products/bio.asp</a>	Formative	Simulation	credits for certain schools	Does not specify	Yes	\$89	P	physicians, nur responders
8	FIRST		Aptima	<a href="http://www.aptima.com/Projects/Emergency_First_Responders.html">http://www.aptima.com/Projects/Emergency_First_Responders.html</a>	Does not specify	Simulation	Does not specify	Does not specify	Does not specify		P	first responders
9	Guard Force		Army National Guard	<a href="http://www.1800goguard.com/game/game.html">http://www.1800goguard.com/game/game.html</a>	Does not specify	Simulation	Does not specify	Does not specify	Yes		G	anyone
10	Medical Emergency Response Simulator		Brady	<a href="http://www.fire-police-ems.com/misc/sem500.shtml">http://www.fire-police-ems.com/misc/sem500.shtml</a>	Does not specify	Formative	Simulation	Does not specify	Does not specify	\$400	p	EMTs
11	Incident Commander		Breakaway Games	<a href="http://www.breakawaygames.com/news/2003/game_of_life.html">http://www.breakawaygames.com/news/2003/game_of_life.html</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify		P	multiple
12	STEP UP to Mass Casualty Incidents		Cine-Med	<a href="http://www.mass-casualty-training.com/">http://www.mass-casualty-training.com/</a>	Does not specify	Yes	Does not specify	continuing education credits	Does not specify	\$395	P	EMS workers
13	Firestorm Pro		Cricket Software	<a href="http://www.thefiredude.com/firestorm.htm">http://www.thefiredude.com/firestorm.htm</a>	Does not specify	Does not specify	Simulation	Does not specify	Yes	\$29.95	P	anyone
14	First Responder Online Training		Dade Moeller & Associates/ Vivid Learning Systems, Inc.	<a href="http://firstresponder.vls01.com">http://firstresponder.vls01.com</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify		P-Gov Contr	emergency resp
15	FloodRanger		Discovery Software	<a href="http://www.discoverysoftware.co.uk/FloodRanger.htm">http://www.discoverysoftware.co.uk/FloodRanger.htm</a>	Does not specify	Does not specify	Simulation	Does not specify	Does not specify		P	flood defence p authorities, ins and schools.

16	DuPont Emergency Response Solutions	DuPont	<a href="http://www.dupont.com/saferesonder/overview.html">www.dupont.com/saferesonder/overview.html</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify		P	first responders
17	Diablo VR	e/semble	<a href="http://www.e-semble.com/ESEMWEB/flash/ESEMBLE.html">http://www.e-semble.com/ESEMWEB/flash/ESEMBLE.html</a>	Does not specify	Formative	VR	Does not specify	Does not specify	yes	\$	P	police, firefighter training
18	Emergency Response to Terrorism	Fire Rescue World	<a href="http://www.firerescueworld.com/cw_erterr.jsp">http://www.firerescueworld.com/cw_erterr.jsp</a>	Does not specify	Formative	VR, sim	Does not specify	Does not specify	Yes		P	emergency resp
19	Various	Firefighter CE	<a href="http://www.firefighterce.com/">http://www.firefighterce.com/</a>	Does not specify	End	Text	Yes	Does not specify	Does not specify		P	firefighters
20	Mass Casualty and Bioterrorism Planning for Healthare	HCPProfessor	<a href="http://www.hcprofessor.com/home/">http://www.hcprofessor.com/home/</a>	Does not specify	End	Text +	yes, can get credit towards cphq	Does not specify	Does not specify	\$89	P	health care prof
21	Emergency Response to Biological Terrorism	HCPProfessor	<a href="http://www.hcprofessor.com/home/">http://www.hcprofessor.com/home/</a>	Does not specify	end	Does not specify	Does not specify	Does not specify	Does not specify	\$89	P	health care prof
22	Terrorism Awareness: An Intro to Chemical and Radiological Agents Treatment	HCPProfessor	<a href="http://www.hcprofessor.com/home/">http://www.hcprofessor.com/home/</a>	Does not specify	end	Does not specify	Does not specify	Does not specify	Does not specify	\$89	P	health care prof
23	Community Coordination of Emergency Response to Mass Casualty Incidents	HCPProfessor	<a href="http://www.hcprofessor.com/home/">http://www.hcprofessor.com/home/</a>	Does not specify	end	Does not specify	Does not specify	Does not specify	Does not specify	\$89	P	health care prof
24	Interactive Exercise design, Development, and Evaluation Toolkit	ITA	<a href="http://www.itapages.com/default.htm">http://www.itapages.com/default.htm</a>	Does not specify	Formative	Simulation	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers

	Department of Energy: Weapons of Mass Destruction Exercises			Does not specify	yes	Text +	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
25	Trainer/Tester	ITA	<a href="http://www.itapages.com/default.htm">http://www.itapages.com/default.htm</a>	Does not specify	yes	Text +	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
	Tennessee Emergency Management Authority: Weapons of Mass Destruction			Does not specify	yes	Text +	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
26	Trainer/Tester	ITA	<a href="http://www.itapages.com/default.htm">http://www.itapages.com/default.htm</a>	Does not specify	yes	Text +	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
	DoD: Weapons of Mass Destruction			Does not specify	End	Text +	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
27	Trainer/Tester	ITA	<a href="http://www.itapages.com/default.htm">http://www.itapages.com/default.htm</a>	Does not specify	End	Text +	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
	DoD: Antiterrorism/Force Protection Exercises			Does not specify	End	Text +	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
28	Trainer/Tester	ITA	<a href="http://www.itapages.com/default.htm">http://www.itapages.com/default.htm</a>	Does not specify	End	Text +	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
	Hazard Recognition & Patient Care			Does not specify	Intermediate	Simulation	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
29	Trainer/Tester	ITA	<a href="http://www.itapages.com/default.htm">http://www.itapages.com/default.htm</a>	Does not specify	Intermediate	Simulation	Does not specify	Does not specify	Does not specify		P-Fed. Contractor	govt workers
	Bloodborne Pathogens for First Responders CD-ROM Courseware0	JJ Keller & Associates, Inc.	<a href="http://www.jjkeller.com">www.jjkeller.com</a>	Does not specify	Yes	Does not specify	Does not specify	Does not specify	Does not specify	\$495	P	emergency resp
30	Trainer/Tester	JJ Keller & Associates, Inc.	<a href="http://www.jjkeller.com">www.jjkeller.com</a>	Does not specify	Yes	Does not specify	Does not specify	Does not specify	Does not specify	\$259	p	emergency resp
31	Trainer/Tester	Los Alamos National	<a href="http://www.ccs.lanl.gov/ccs5/projects/episims.shtml">www.ccs.lanl.gov/ccs5/projects/episims.shtml</a>	Does not specify	Does not specify	Simulation	Does not specify	Does not specify	Does not specify	Does not	U	public health p
32	EpiSims	Los Alamos National	<a href="http://www.ccs.lanl.gov/ccs5/projects/episims.shtml">www.ccs.lanl.gov/ccs5/projects/episims.shtml</a>	Does not specify	Does not specify	Simulation	Does not specify	Does not specify	Does not specify	Does not	U	public health p

	Laboratory								specify			
33	Biohazard	MIT Comparative Media Studies/G2T Games	<a href="http://www.educationarcade.org/gt/Biohazard/Intro.htm">http://www.educationarcade.org/gt/Biohazard/Intro.htm</a>	Does not specify	Does not specify	Simulation	Does not specify	Does not specify	yes		U	anyone
34	Emergency Fire Response	Monte Cristo	<a href="http://www.montecristogames.com/Etats-Unis/ImageInterface/EFR_intro.htm">http://www.montecristogames.com/Etats-Unis/ImageInterface/EFR_intro.htm</a>	No	None	Simulation	No	Does not specify	Yes	\$20	P	anyone
35	Emergency Care	National Safety Council	<a href="http://www.nsc.org/onlinetraining/">http://www.nsc.org/onlinetraining/</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	NP	TBA, coming 2
36	Firefighter FD 18	Playstation	<a href="http://ps2.ign.com/objects/566/566918.html">http://ps2.ign.com/objects/566/566918.html</a>	No	None	Simulation	No	Does not specify	Yes		P	anyone
37	Responder 911: Emergency Response to Terrorism	Responder 911	<a href="http://www.responder911.com/product.asp?productid=127120">www.responder911.com/product.asp?productid=127120</a>	yes- FEMA manual text	End	Text +	Does not specify	Does not specify	Does not specify		P	Firemen
38	Mass-Casualty Medical Training and Evaluation	SAIC	<a href="http://www.saic.com/natsec/homeland-security/casualty-medical-evaluation.html">http://www.saic.com/natsec/homeland-security/casualty-medical-evaluation.html</a>	Does not specify	Intermediate	Text +	Does not specify	Does not specify	Yes		P	medical personnel responders
39	Automated Exercise & Assessment System	SAIC	<a href="http://www.saic.com/natsec/homeland-security/response-training.html">http://www.saic.com/natsec/homeland-security/response-training.html</a>	Does not specify	Formative	Simulation	Does not specify	Does not specify	Does not specify		P	emergency resp
40	First Responder training	Survival Incorporated	<a href="http://www.survivalinc.com/product_category.cfm?category_ID=285">www.survivalinc.com/product_category.cfm?category_ID=285</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	Yes		P	first responders
41	Public Works: WMD Basic Concepts	TEEX	<a href="http://teexweb.tamu.edu/nerrtc">http://teexweb.tamu.edu/nerrtc</a>	Does not specify	Intermediate	Does not specify	Does not specify	Does not specify	Does not specify		U	multiple

42	WMD/Terrorism Awareness for Emergency Responders	TEEX	<a href="http://teexweb.tamu.edu/nerrtc">http://teexweb.tamu.edu/nerrtc</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify		U	multiple
43	Basic Concepts for WMD Incidents	TEEX	<a href="http://teexweb.tamu.edu/nerrtc">http://teexweb.tamu.edu/nerrtc</a>	Does not specify	Intermediate	Does not specify	Does not specify	Does not specify	Does not specify		U	multiple
44	Emergency Response Training	UNITECH	<a href="http://www.unitech1.com/TS_ERT.htm">www.unitech1.com/TS_ERT.htm</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify		P	emergency resp
45	Bioterrorism Certificate Program	University of Healthcare		Does not specify	Does not specify	text+	yes-accreditation	Does not specify	Does not specify		P	EMS workers
46	Nuclear Biological Chemical Casualty Training System	US Army Medical Department	<a href="http://www.cs.amedd.army.mil/simcenter/nbccts.htm">www.cs.amedd.army.mil/simcenter/nbccts.htm</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify		G	medical person
47	Medical Management of Chemical Casualties Course	US Army Medical Research Institute of Chemical Defense	<a href="https://ccc.apgea.army.mil/courses/distance/cbt.htm">https://ccc.apgea.army.mil/courses/distance/cbt.htm</a>	Does not specify	Does not specify	Text +	Yes-CME, CEU credits	Does not specify	Does not specify		G	medical respon
48	Chemical Casualties Fundamentals Mini Course	US Army Medical Research Institute of Chemical Defense	<a href="https://ccc.apgea.army.mil/courses/distance/cbt.htm">https://ccc.apgea.army.mil/courses/distance/cbt.htm</a>	Does not specify	Does not specify	Text +	Yes-CME, CEU credits	Does not specify	Does not specify		G	medical respon
49	Virtual Field Training Exercise Course	US Army Medical	<a href="https://ccc.apgea.army.mil/courses/distance/cbt.htm">https://ccc.apgea.army.mil/courses/distance/cbt.htm</a>	Does not specify	Does not specify	Text +	Yes-CME, CEU credits	Does not specify	Does not specify		G	medical respon

		Research Institute of Chemical Defense										
50	Fire and Emergency	Homeland One	<a href="http://www.homelandone.com/First_Responders_Training_Fire_Emergency.asp">www.homelandone.com/First_Responders_Training_Fire_Emergency.asp</a>	Does not specify	Formative	Does not specify	Yes	Does not specify	Does not specify		p	fire and ems
51	The Virtual Terrorism Response Academy:Operations Plus for WMD- Hazmat	Dartmouth	<a href="http://iml.dartmouth.edu/education/pcpt/VTRA/">http://iml.dartmouth.edu/education/pcpt/VTRA/</a>	Does not specify	End	Simulation	Does not specify	Does not specify	Yes	Does not specify	u	operations level responders, inc enforcement, fi
52	HAZMAT	CMU	<a href="http://www.etc.cmu.edu/projects/hazmat/">http://www.etc.cmu.edu/projects/hazmat/</a>	Does not specify	Does not specify	Does not specify	Does not specify	Does not specify	Yes		u	first responders
53	EpICS	AST Corporation	<a href="http://epics.astcorp.com/">http://epics.astcorp.com/</a>	Does not specify	End	Simulation	Does not specify	Does not specify	Does not specify		P	emergency resp
54	Range 3000	IES Interactive	<a href="http://www.ies-usa.com/pdf/literature/ies_catalog.pdf">http://www.ies-usa.com/pdf/literature/ies_catalog.pdf</a>	Does not specify	Formative	Simulation	Does not specify	Does not specify	Yes	\$35,000	0 P	police

Agency	Grant title with CFDA number	Grant objectives	Equipment and/or supplies	Training	Exercises	Planning and/or administration	Technical assistance
DHS (ODP)	State and Local Domestic Preparedness Exercise Support (16.009)	Grants to state and local governments to plan and conduct domestic preparedness exercises			•	•	•
DHS (ODP)	State and Local Domestic Preparedness Technical Assistance (16.010)	Grant to state and local governments to develop, plan, and implement a program for WMD				•	•
DHS (ODP)	State Homeland Security Grant Program, Phases I and II (16.007)	Grants to states and local governments to purchase equipment and mitigate costs of enhanced security	•	•	•	•	•
DHS (ODP)	Urban Area Security Initiative, Phases I and II (16.011)	Designed to enhance the ability of first responders and public safety officials to secure urban area's critical infrastructure and respond to potential acts of terrorism	•	•	•	•	•
DOJ (BJA)	Fiscal Year 2002 Department of Defense Emergency Supplemental Appropriation (16.580)	Direct funding to NCR jurisdictions	•	•	•	•	•
HHS	Bioterrorism Hospital Preparedness (93.003)	Cooperative agreement* with health departments of all states, the District of Columbia, the 3 largest municipalities, and other entities	•	•	•	•	•
HHS	Public Health Preparedness and Response for Bioterrorism (93.283)	Cooperative agreement with health departments of all states, the District of Columbia, the 3 largest municipalities, and other entities	•	•	•	•	•

Source: GAO analysis of CFDA and Congressional Research Service data.

\*A cooperative agreement is used as a mechanism to provide financial support when substantial interaction is expected between the executive agency and a state, local government, or other recipient carrying out the funded activity.

<sup>12</sup>U.S. Department of Homeland Security, *Securing Our Homeland, Strategic Plan 2004*

(Washington, D.C.: February 2004).



**Table 3: Uses of Selected Homeland Security Grant Programs**

Agency	Grant title with CFDA number	Grant objectives	Equipment and/or supplies	Training	Exercises	Planning and/or administration	Tech assis
DHS (FEMA)	Assistance to Firefighters Grant (83.554)	Grants made directly to fire departments to equip and train fire fighters and emergency medical technicians	•	•	•	•	
DHS (FEMA)	Citizen Corps (83.564)	Grants to supplement and assist state and local efforts to expand Citizen Corps	•	•		•	
DHS (FEMA)	Community Emergency Response Teams (83.565)	Assist state and local efforts to start or expand community and emergency response teams	•	•		•	
DHS (FEMA)	Emergency Management Performance Grant (83.552)	Grants to states to develop comprehensive emergency management plans		•	•	•	
DHS (FEMA)	Emergency Operations Centers* (83.563)	Grants to states to develop emergency operations centers				•	
DHS (FEMA)	Interoperable Communications Equipment (83.566)	Funding to jurisdictions for demonstration projects that explore uses of equipment and technologies to increase interoperability among fire, law enforcement, and emergency medical services	•			•	
DHS (FEMA)	State and Local All-Hazards Emergency Operations Planning (83.562)	Grants to states to encourage the development of all-hazard emergency plans				•	
DHS (ODP)	State Domestic Preparedness Equipment Support Program (16.007)	Grants to states to develop and implement a statewide domestic preparedness strategy	•		•	•	
DHS (ODP)	State and Local Domestic Preparedness Training Program (16.008)	Grants to state and local governments to enhance capacity to respond to weapons of mass destruction (WMD) terrorism		•			

<sup>12</sup>U.S. Department of Homeland Security, *Securing Our Homeland, Strategic Plan 2004* (Washington, D.C.: February 2004).

STATE	2002 SDPP	2003 SHSGP	2003 SHSGP II	TOTAL AWARDS	
				Amount	Percentage of Total
Alabama	\$5,317,000	\$9,457,000	\$25,049,000	\$39,823,000	1.7%
Alaska	2,783,000	4,995,000	13,230,000	21,008,000	0.9%
American Samoa	828,000	1,482,000	3,926,000	6,236,000	0.3%
Arizona	5,770,000	10,584,000	28,033,000	44,387,000	1.9%
Arkansas	4,141,000	7,394,000	19,585,000	31,120,000	1.3%
California	24,831,000	45,023,000	119,256,000	189,110,000	7.9%
Colorado	5,220,000	9,480,000	25,111,000	39,811,000	1.7%
Connecticut	4,626,000	8,265,000	21,893,000	34,784,000	1.5%
Delaware	2,887,000	5,185,000	13,733,000	21,805,000	0.9%
District of Columbia	2,747,000	4,910,000	13,006,000	20,663,000	0.9%
Florida	12,967,000	23,654,000	62,655,000	99,276,000	4.2%
Georgia	7,797,000	14,188,000	37,579,000	59,564,000	2.5%
Guam	892,000	1,596,000	4,226,000	6,714,000	0.3%
Hawaii	3,172,000	5,693,000	15,079,000	23,944,000	1.0%
Idaho	3,226,000	5,803,000	15,375,000	24,404,000	1.0%
Illinois	10,604,000	18,879,000	50,005,000	79,488,000	3.3%
Indiana	6,400,000	11,399,000	30,194,000	47,993,000	2.0%
Iowa	4,308,000	7,656,500	20,282,000	32,246,500	1.4%
Kansas	4,151,000	7,401,000	19,603,000	31,155,000	1.3%
Kentucky	5,048,000	9,001,000	23,838,000	37,887,000	1.6%
Louisiana	5,331,000	9,451,000	25,037,000	39,819,000	1.7%
Maine	3,213,000	5,751,000	15,232,000	24,196,000	1.0%
Maryland	5,881,000	10,585,000	28,037,000	44,503,000	1.9%
Massachusetts	6,579,000	11,711,000	31,020,000	49,310,000	2.1%
Michigan	8,958,000	15,918,000	42,162,000	67,038,000	2.8%
Minnesota	5,631,000	10,076,000	26,690,000	42,397,000	1.8%
Mississippi	4,255,000	7,582,000	20,083,000	31,920,000	1.3%
Missouri	6,079,000	10,834,000	28,697,000	45,610,000	1.9%
Montana	2,967,000	5,303,000	14,047,000	22,317,000	0.9%
Nebraska	3,502,000	6,254,500	16,568,000	26,324,500	1.1%
Nevada	3,693,000	6,771,000	17,935,000	28,399,000	1.2%
New Hampshire	3,328,000	5,727,000	15,172,000	24,227,000	1.0%
New Jersey	7,948,000	14,222,000	37,671,000	59,841,000	2.5%
New Mexico	3,574,000	6,401,000	16,956,000	26,931,000	1.1%
New York	14,953,000	26,492,000	70,172,000	111,617,000	4.7%
North Carolina	7,706,000	13,908,000	36,840,000	58,454,000	2.5%
North Dakota	2,794,000	4,983,000	13,200,000	20,977,000	0.9%
Northern Mariana Islands	835,000	1,496,000	3,963,000	6,294,000	0.3%

US Department of Homeland Security. Office of Audits. *An Audit of Distributing and Spending "First Responder" Grant Funds.*  
OIG-04-15. March 2004.

Ohio	9,897,000	17,510,000	46,378,000	73,785,000	3.1%
Oklahoma	4,656,000	8,304,000	21,996,000	34,956,000	1.5%
Oregon	4,637,000	8,336,000	22,081,000	35,054,000	1.5%
Pennsylvania	10,512,000	18,570,000	49,189,000	78,271,000	3.3%
Puerto Rico	4,894,000	8,727,000	23,118,000	36,739,000	1.5%
Rhode Island	3,063,000	5,489,000	14,540,000	23,092,000	1.0%
South Carolina	5,028,000	9,017,000	23,882,000	37,927,000	1.6%
South Dakota	2,868,000	5,131,000	13,591,000	21,590,000	0.9%
Tennessee	6,140,000	10,978,000	29,080,000	46,198,000	1.9%
Texas	16,196,000	29,538,000	78,238,000	123,972,000	5.2%
Utah	3,849,000	6,937,000	18,374,000	29,160,000	1.2%
Vermont	2,772,000	4,963,000	13,147,000	20,882,000	0.9%
Virginia	7,062,000	12,716,000	33,683,000	53,461,000	2.2%
Virgin Islands, U.S.	861,000	1,542,000	4,085,000	6,488,000	0.3%
Washington	6,276,000	11,294,000	29,917,000	47,487,000	2.0%
West Virginia	3,567,000	6,340,000	16,792,000	26,699,000	1.1%
Wisconsin	5,925,000	10,565,000	27,985,000	44,475,000	1.9%
Wyoming	2,696,000	4,827,000	12,784,000	20,307,000	0.9%
<b>GRAND TOTAL</b>	<b>\$ 315,841,000</b>	<b>\$ 566,295,000</b>	<b>\$1,500,000,000</b>	<b>\$ 2,382,136,000</b>	<b>100.0%</b>