EMS UPDATE
September 2006
Emergency Medical Services

A CLOSER LOOK

In the last issue of EMS Update, you received an overview of the National EMS Information System, including its purposes and potential for the future of EMS. The system will provide data that will support improved patient care, good medical direction and quality improvement. It will also provide data that can support EMS effectiveness, guide the development of education, facilitate research efforts, improve preparedness, and evaluate outcomes.

In this issue of EMS Update, we'll take a closer look at the information system by introducing you to its two major components:

1. Development and use of a new NHTSA Uniform Pre-Hospital EMS Dataset (version 2.2.1); and
2. Definition of standards to facilitate the portability of EMS data from one location to another or from one device to another.

In addition, we'll address how your EMS system can begin participating in this groundbreaking project and where you can find the technical help you need to take full advantage of this opportunity to improve EMS systems.

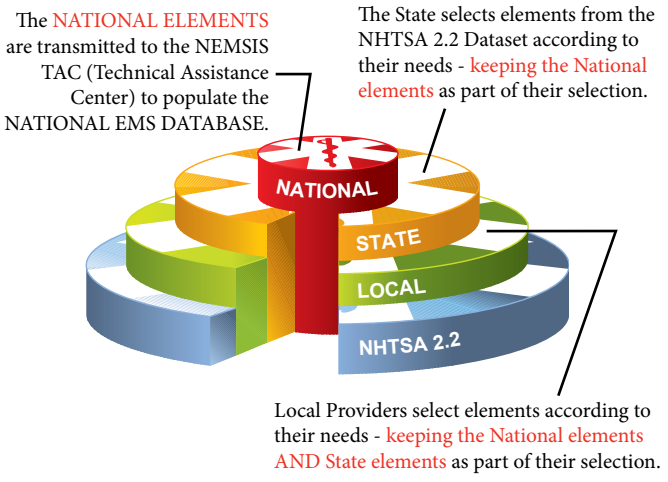
New NHTSA Uniform Dataset – Standardized and Flexible

The information project has revised the initial NHTSA dataset. Referred to as NHTSA 2.2.1, this new dataset represents the industry standard for EMS providers. A major goal of the system project was to standardize the data collected by EMS, and to allow combining and comparing data across a variety of data systems. Specific XSDs (providing a defined data structure) were developed to ensure that software products utilized the same definitions and format for each data element contained in the NHTSA 2.2.1 dataset.

As illustrated in Figure 1, the new NHTSA version 2.2.1 dataset contains core elements that will be collected at all levels (local, State, and national) to populate the National EMS Database. This subset was carefully chosen to characterize adequately EMS care on a national level. This core national subset of variables, commonly found on patient care reports, will greatly enhance the EMS community's ability to describe and quantify the contribution of EMS care to the health of citizens throughout the country.

Moreover, this new dataset provides maximum flexibility by allowing State EMS agencies and local EMS providers to choose which additional data to record and maintain. The entire NHTSA 2.2.1 dataset contains over 400 EMS elements covering virtually all aspects of EMS performance. And since all data elements are based on uniform standards, the information collected can be easily

Figure 1



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shared. For example, collaborating agencies or States could decide to collect the same data elements to measure and compare their performance.

Making EMS Data Portable

The second major component of the NEMSIS project defines how EMS data is transported from one location to another. This is important to enable data sharing among agencies, from a local EMS agency to the State. The revised NHTSA Uniform EMS Dataset provides a standardized platform that allows data to be seamlessly transferred from one organization — or device— to another. For example, EMS agencies may want to incorporate data from a 9-1-1 call center, or integrate data from a medical device. Defined using standard XML (extensible markup language), the new dataset enables not only data collection, storage, and sharing, but also portability, which increases its potential use for multiple purposes.

NEMSIS TAC and You

To support this effort, the NEMSIS Technical Assistance Center (TAC) is offering various forms of assistance to States, local EMS agencies, and EMS software developers. Here is a brief description of the various services offered by the NEMSIS TAC:

- State Site Visits —Site visits can include reviewing existing (or planned) data flow, hardware, software or data-reporting needs; facilitating the development of a NHTSA 2.2.1 compliant dataset; providing educational presentations to key State officials and other NEMSIS-related assistance. The purpose of site visits is to assess strengths and vulnerabilities of existing (or forthcoming) EMS State data collection systems.
- Software Certification — NEMSIS TAC certifies EMS software products as compliant with both the NHTSA 2.2.1 dictionary standard and the NEMSIS XML standard. This certification process began in early spring of 2006, with the first software applications certified in July 2006.
- Policy Development — NEMSIS TAC can provide examples of State legislation, polices and procedures associated with the collection of State EMS data. In addition, NEMSIS TAC can provide examples of Business Associate Agreements, as well as other documents, developed to comply with State privacy policies, allowing data to be included in the National EMS Database.

NEMSIS has the potential to improve patient care by providing more consistent data for medical direction, quality improvement and for research. NEMSIS will also provide a more accurate description of EMS on local, State, and national levels. To learn more about NEMSIS and the services provided by the NEMSIS Technical Assistance Center, visit **www.nemsis.org**.

NEXT GENERATION 9-1-1: AN UPDATE

Emergency medical response usually begins with a call for help. More often than not, that call occurs via "9-1-1" to a 9-1-1 call center or Public Safety Answering Point (PSAP). Did you ever wonder how that call gets to the "right" PSAP or how the call taker knows where you are? The advancing technology of 9-1-1 services is a modern miracle. But it isn't easy to keep up with the times…

9-1-1 is a technology-dependent service. Historically it has depended upon wireline networks provided by telephone companies—technology dating back to the 1950s and 1960s. Telecommunications technology was not built to meet the needs of 9-1-1. Rather, 9-1-1 services were built to adapt to the functions of telecommunications. Technology doesn't stand still. It's dynamic, evolving and becoming more sophisticated all the time. Newer and more challenging communication services are knocking on PSAP doors. Emerging mobile, satellite, and "Voice-over-IP" (VoIP) communications are arriving on the scene, and the public assumes that 9-1-1 calls can be placed over these devices.

But the Nation's current 9-1-1 system cannot handle the text, data, images, and video that are increasingly common in personal communications. The 9-1-1 system was created to transmit voice only and was not designed to handle the challenges of multimedia communication in a wireless, mobile society.

As technology has surpassed the capability of 9-1-1 services, the Department of Transportation has undertaken a research project to bridge that gap. Funded by the Intelligent Transportation System's Public Safety Program, the Office of EMS is managing an initiative to develop the next generation of 9-1-1 services. The goal of the Next Generation 9-1-1 (NG9-1-1) initiative is to enable the transmission of voice, data, or video from different types of communication devices to the PSAPs and onto emergency responder networks. A brief contrast of the current and future systems is illustrated in the following table.

Today's 9-1-1	Future 9-1-1
Primarily voice calls via telephones. Teletype "calls," mostly by hearing-impaired citizens. Increasing number of voice calls via "Internet."	Voice, text, or video emergency calling from any communications device via Internet-like networks.
Minimal data with call – at best, caller ID and location.	Advanced data from personal safety devices such as ACN or medical alert systems.
No "long distance" 9-1-1 access.	"Long distance" access and transfer and improved interoperability.
Reverse E9-1-1 practical only for residential landline phones.	Location-specific emergency alerts possible for any communications device.

There is little debate that the 9-1-1 system is, and will remain, primarily a local responsibility. The mission of PSAPs remains the same within an NG9-1-1 system – to receive emergency calls from the public, ascertain the nature, status and location of the emergency, and relay the call to the appropriate public safety dispatch center for response. NG 9-1-1 changes the capabilities of emergency services in three areas: (1) types of calls received; (2) ability to transfer/receive calls from PSAPs outside the local region, and (3) capability to accept additional information to facilitate emergency services. These are expansions of current functions, not fundamentally new roles.

New technology brings the opportunity to do our jobs in new and better ways. Migrating to IP-based network infrastructure will enable more ways of placing a 9-1-1 call, and will allow PSAPs and responders to expand beyond traditional 9-1-1 services with increased situational intelligence, enhanced capabilities, better communication and more coordinated response services. It doesn't take much to imagine a Next Generation 9-1-1 call…

Dorothy Jones is a 75-year-old diabetic attending her grandchild's birthday party. Despite bad weather and darkness, Dorothy decides to head home that same evening. "Don't worry," says Dorothy, "I'll take the back roads." On a rural highway halfway home, Dorothy suddenly feels weak and shaky, symptoms she recognizes as impending insulin shock. She reaches for her purse, which contains her emergency glucose, and realizes that she left her purse and her cell phone at the party.

Dorothy presses the emergency button on her vehicle's telematics system. A voice channel is opened between the telematics service provider's (TSP) call center and the driver. The TSP call center specialist knows immediately the woman's name, the operating status and make/model of her vehicle, and her exact location. The specialist talks with Dorothy, going through a comprehensive protocol to confirm what has happened.

The TSP initiates 9-1-1 call. Because it is a TSP initiated call, the call is routed to the closest PSAP, based on Dorothy's location. The call is automatically established as a three-way conference call with Dorothy, the specialist, and the PSAP call taker. The PSAP call taker sees on her screen that the call is a TSP call, and it identifies Dorothy (and her location) as well as the specialist and the TSP. Although located in a different State, the Response Center delivers Dorothy's call and pertinent data via the IP-based internetwork. The PSAP operator notifies and transfers all pertinent data to the nearest EMS dispatch center, which immediately sends an ambulance to Dorothy's location. At all times, privacy is secure.

As EMS arrives, Dorothy is losing consciousness. The ambulance has no problem locating Dorothy, as the TSP ensures her car lights are flashing and periodically sounds the horn. EMS, because they know about her diabetic condition, can rapidly evaluate her situation, provide Dorothy with emergency medical care, and transport her to the hospital, where her data has been received and medical professionals are awaiting her arrival. She is treated and released to her family. For more information on the Next Generation 9-1-1 Initiative, visit the Intelligent Transportation Systems Web site at **www.its.dot.gov/ng911/index.htm**.

DID YOU KNOW?

Did you know that male EMTs are likely to drink more alcohol and wear safety belts less often than other U.S. adults in general? Did you know that female EMTs are more likely to smoke cigarettes and less likely to engage in vigorous physical exercise than other U.S. adults in general?

These results were based on data collected from approximately 2,000 EMTs by the LEADS Project (Longitudinal Emergency Medical Technician Demographic Study), and compared with the Center for Disease Control's Behavioral Risk Factor Surveillance System and NHTSA's Motor Vehicle Occupant Safety Survey. The LEADS Project is a 46-item demographic and attribute questionnaire sponsored by the National Registry of EMTs that has been administered annually since 1999. For more information on LEADS, go to **www.nremt.org/about/lead_survey.asp** or contact Gregg Margolis at **greggm@nremt.org** or 614-888-4484.

CALL FOR PHOTOGRAPHS

NHTSA's Office of EMS (OEMS) needs your photos! Please submit photographs of any and all elements of the EMS system (9-1-1, bystander care, dispatch, first responder, prehospital care, emergency department/hospital care, air medical transport, specialty care, rehabilitation, prevention and public education), for posting on the OEMS Web site and publications and in products produced by OEMS.

Photo resolution should be at least 300 dpi, of reasonable size, and jpeg format is preferred. NHTSA EMS also requires signed release form(s) for each submitted photograph. Releases must be signed by the photographer, all persons in the photograph, and the EMS agency if appropriate. Please submit photographs electronically to the Office of EMS at **nhtsa.ems@dot.gov**. Please mail signed release forms to the Office of EMS at: US DOT / NHTSA, 400 Seventh Street SW., NTI-140, Washington DC 20590. Deadline September 30, 2006. Please send your questions to **nhtsa.ems@dot.gov**. Release forms can be requested by sending an e-mail to **nhtsa.ems@dot.gov**.

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To order EMS materials and publications, visit the NHTSA Web site at ***www.nhtsa.dot.gov***, and click on "Traffic Safety Materials & Publications" in the Quick Links section.