

# PREHOSPITAL CARE

## The Trouble with Triage Tags

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*TRIAGE (tre-abzh) [Fr. trier, sort-out]*

*The classification of sick, wounded, or injured persons in order to ensure the efficient use of medical resources. Classification is concerned with sorting into three categories: those that will live without care, those that require care to live, and those that are dead or who will die even if they do receive care.<sup>[1]</sup>*

These three categories were introduced by Baron Jean Dominique Larrey in his organization of his "Ambulance Volontes" while he served as chief medical officer for Napoleon Bonaparte.<sup>2</sup> Through years of military and civilian experience, we in emergency medical services (EMS) have complicated a relatively simple classification by expanding it into four categories and changing the documentation process through use of the triage or disaster tag. In the Fall/Winter 1999 issue of *TraumaCare*, Dr. Hans-Richard Paschen described the response to a high-speed train crash in Eschede, Germany. He stated, "Documentation of on-scene treatment was insufficient," and noted that the German Red Cross patient tags were used correctly only at the collecting point for patients with minor injuries. He explained that the providers "felt that the documentation devices were too time consuming for use in a mass casualty incident." This sentiment has been echoed repeatedly throughout the growth of emergency care systems. Our primary concern must be the care of patients, but we all know that documentation of that care is also part of the job.

After experiencing similar difficulties with the triage process at a disaster exercise, the Baltimore metropolitan (Maryland EMS Region III) EMS Advisory Council began to investigate means of improving the process. Eventually, the Maryland statewide EMS Advisory Council and the Maryland Institute for Emergency Medical Services Systems (MIEMSS, the state's lead EMS agency) commissioned a work group to evaluate existing triage tags and propose changes to the tag utilized in Maryland. After reading about the experience in Eschede, the editors of *TraumaCare* thought it would be helpful to describe our extended (3-year) process of improving the triage tags used in our statewide system of emergency care. Our hope is that managers considering revisions to their systems can gain some guidance for their process from our experience.

On a typical EMS run, care is provided at the scene and a simple note pad is used to jot down notes about care reported in the prehospital phase of care. In many systems, a verbal report is provided to medical personnel at the hospital immediately after arrival, and the formal patient care report is completed shortly after the run. Unfortunately, in a mass casualty situation, and even for a helicopter evacuation from the scene, time does not allow a full patient care report prior to transport.

Time is not the only problem identified with use of the

typical triage or disaster tag. Many other issues were identified during a recent re-evaluation of our triage system in Maryland. This review was initiated after an emergency plan exercise (EPLEX) at Baltimore-Washington International (BWI) Airport. Prehospital care providers cited the tags and the patient tracking system as major points of confusion and hindrances to efficient care and transport. Typical problems identified during that review are discussed below.

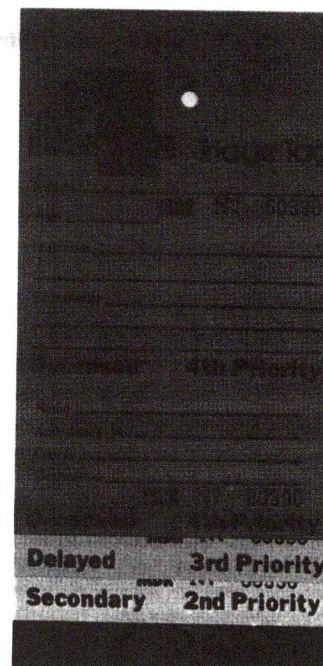
### Familiarity with the System

Probably the most widespread problem with triage tags and their associated systems is the fact that field EMS providers do not incorporate their use into daily operations. When I lecture on this topic, I find that nearly 40% of participants have difficulty identifying the location of the triage tags in their ambulances. When asked whether they have used the tags, even fewer respond affirmatively. Although incident management is part of our standard curriculum, few providers remember being familiarized with the tags. If the procedure is not performed on a regular basis, it will be the first item cast off during stressful operations.

### Layout of Tag

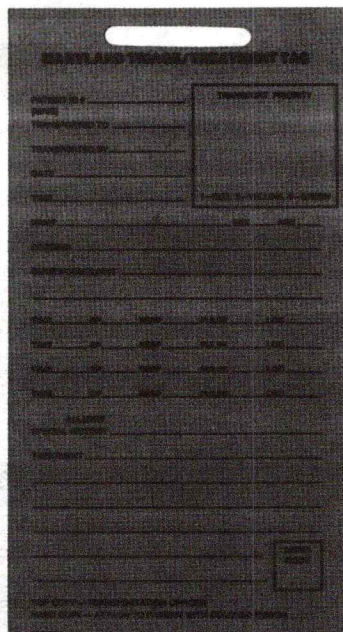
How complicated is the tag? Into how many parts can it be separated? Even the number of fonts used in the print can affect a person's willingness to use it. The tag must be of a size that can be attached to a patient easily without being destroyed by extrication operations or movement of the patient. Because many prehospital care providers will see each patient, the tag should be simple enough for any provider to look at it and easily understand the format with little or no prior familiarization. Headings and blocks can keep it organized, but too many tend to make it confusing.

During the care of people injured in the collision of an Amtrak passenger train and a Conrail freight train in Chase, Maryland, in 1989, our system used a four-color, four-part tag (Fig. 1). The intent was to have one part/color attached to the patient, identifying his or her priority. The other three parts were to be turned into a central point, allowing the patients to be tracked. During the operations that day, providers used the four copies on four different patients. This negated the ability of the command structure to use that system and ensure that all patients received the necessary care and transport.



**Figure 1.** Four-part triage tag formerly used in Maryland.





**Figure 2.** Pressure-sensitive form.

to curl after being exposed to a light rain, and would no longer accept ballpoint ink. Providers became frustrated in their use, and the command staff could not use them as intended because they were difficult to read.

### Compatibility with the Incident Management System

The National Fire Academy program lists triage tags a tool to assist in the effective management of multiple-patient incidents. That is how it should be used. In developing a form, begin by looking at your hierarchy to manage such incidents. Ensure that system is sound and used on a daily basis. Determine the amount of information that is absolutely necessary to support patient care. Determine where patient information becomes available in such an operation, then design your form to support that operation, not hinder it.

### Familiarization Programs

Programs intended to familiarize EMS personnel with the use of triage and patient tracking systems tend to be all inclusive. The National Fire Academy's "Incident Management System for Emergency Medical Services"<sup>3</sup> is a 16-hour course intended to prepare EMS providers to act in a command role in a multiple-casualty incident. The EMT-Basic needs to be familiar with these operations to function in the capacity of the caregiver but does not require full knowledge of such a system to treat individual patients. Such a provider does need to be intimately aware of how to utilize the triage tags and how they interface with the command structure. A program that is 16 hours long cannot be incorporated easily into basic entry-level programs and therefore tends to be overlooked during such courses.

### Communication with Receiving Facilities

In almost every report after an action, communication issues are cited as a major stumbling point. This holds true between the incident site and the hospitals receiving patients. For

### Tag Material and Construction

Tag material must durable and waterproof and must accept writing from pen, pencil, and a variety of other writing implements with minimal smearing. If the tag has multiple parts or copies, it must be attached in such a way that it will not separate inadvertently. After the Amtrak/Conrail crash, Maryland moved to a two-part cardboard/pressure-sensitive form (Fig. 2). It was designed to be used as a "cheat sheet" so providers would use them on a daily basis. During the BWI EPLEX drill mentioned previously, the tags became damp, began

communication between the incident site and the hospital, prehospital officers need to determine what resources are currently available at the hospitals. The hospitals need to be prepared to receive a mass influx of patients. Problems cited include multiple points of contact at the scene. Having two points of origin of patient information causes confusion at the receiving end. Hospitals are unsure how many patients are destined for them and are unable to prepare adequately. Officers communicating from the scene find it difficult to track what resources are available at the facilities and how many of those resources are used by the competing exit points. Attempts to contact multiple hospitals simultaneously can be fraught with trouble. Such operations are sure to have competition for air time and for the attention of the communicator from the scene. Gaining medical control for individual patients adds to the competition for air time.

### Treating Instead of Triaging

Because health care providers have been oriented to care for their patients until they become stable enough to transfer care to another provider, there is a tendency for us to retain that mindset when we attempt to complete an initial triage of victims. Such action causes major delays in extricating patients from hazardous areas and causes us to expend valuable resources on a small number of patients with questionable survivability while allowing the chance of survival to diminish for many other patients.

### Development of Maryland's Triage System

Avoiding these pitfalls in EMS planning is not an easy task. In Maryland, we have worked on the issue intermittently for more than 2 years, but we are still not sure we have the ultimate system. We will not know for sure until the system is put to the real test, as was the system in Eschede. Our new system<sup>4</sup> has been tested at several drills and has been well received by providers with little or no training.

We gathered a group of providers from both the prehospital and hospital communities. During a brainstorming session, we identified many of the pitfalls listed above. It quickly became clear that we were not searching for just a tag, but for an entire system of triaging and tracking patients. A query of various EMS suppliers revealed that only a few tags were available commercially at the time, none of which met all our needs. Contact with other states did not look promising because most were still using the old four-part form or commercial tags. It looked as if we would have to design our own, until we contacted the Commonwealth of Virginia. They were in the midst of introducing a new tag to the streets. This tag was one-part, waterproof, nearly indestructible, and chemically inert, and—the best part—it had a built-in tracking system. It had a series of uniquely numbered, peel-and-stick labels, a tear-off transportation ticket, and a series of associated tactical worksheets. No more attempting to copy little numbers onto a scrap of paper dug out of the glove box.

We were ready to implement the tag immediately, but our conscience reminded us that the previous two versions of our triage tag seemed perfect before they were actually implemented. We decided to test the tag. We gathered prehospital and hospital personnel. The providers were given 30 to 60 minutes of familiarization before the exercise. The exercise was very simple and involved no moulage. The "patients" were triaged at the "incident site" and moved to two mock hospitals staffed by



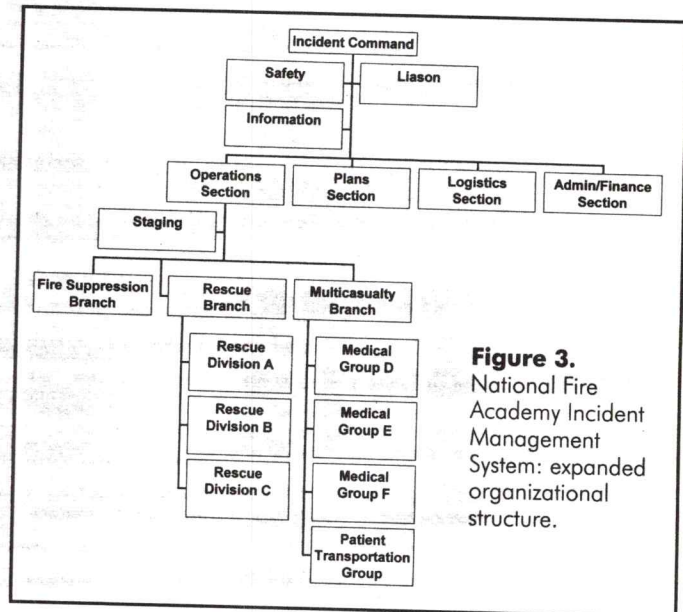
hospital personnel. The providers scored an A+, the tag a B+. There was some confusion over multiple variations of worksheets suggested by the Virginia system, but care providers found the tag much easier to handle than the carbonless "cheat-sheet" tag. They especially favored the move from writing to fast interaction. Hospital personnel found the space on the back of the tag perfect to begin documentation of care in the ED while hospital paperwork is being initiated. All the participants agreed that the system was workable, but concluded that minor modifications to the tag and the training programs would enhance the operations greatly. It was also suggested that the tactical worksheets labeled for each area should be a more generic form to decrease confusion over which was to be used where. The group went back to the lab for the modifications.

As the work group expanded, it was learned that the Washington (District of Columbia) Area Council of Governments was also planning to adopt a similar tag. They had already run into the roadblock we were about to encounter—cost. Since the tags cost more than \$1.00 apiece, the \$6,000 originally budgeted for the project would not suffice to outfit all ambulances and various first responder vehicles around the state. We were able to reduce the price by switching from the original material to a vinyl stock label sheet. Although it was better than anything else on the market, the original regional work group still had concerns about the durability of the new stock. After negotiation with the vendor, a bulk purchase was arranged to reduce the price to less than \$0.80 per tag. MIEMSS bid the job and several local jurisdictions piggybacked onto the purchase, reducing the cost even further. Between a generous grant from our State Highway Administration (nearly 70% of our multiple-patient incidents arise from transportation-related incidents), additional funding from MIEMSS, and local piggyback purchases, we were able to distribute more than 70,000 tags throughout Maryland. Large supplies of a less expensive "drill" tag (similar to that developed by the Washington COG) were also purchased.

The only task remaining was to familiarize providers with the new system and the tag. The Virginia training program was based on the National Fire Academy's Incident Management System for EMS program. Although an excellent program for more experienced providers, this was viewed as being too long to be incorporated into existing classes. The work group opted to select only those portions directly associated with patient care and to establish a program that company-level officers could present easily. We limited the length of training to 1 hour to encourage incorporation into entry level certification and orientation programs. The Simple Triage and Rapid Treatment (START) method,<sup>5</sup> published by Newport Beach Fire and Marine, was also strongly recommended. This program allows the categorization of individual patients in less than 30 seconds by assessing respiration, pulse, and mental status (RPMS) in an easy-to-remember mnemonic. A short slide program describing START was developed to accompany the main training program. Eventually, both Newport Beach Fire and Marine and the National Fire Academy granted us permission to reproduce and distribute both programs with our triage program. A package was assembled, including printed materials, a CD-ROM with the slide programs and printed materials, a videotape, and a

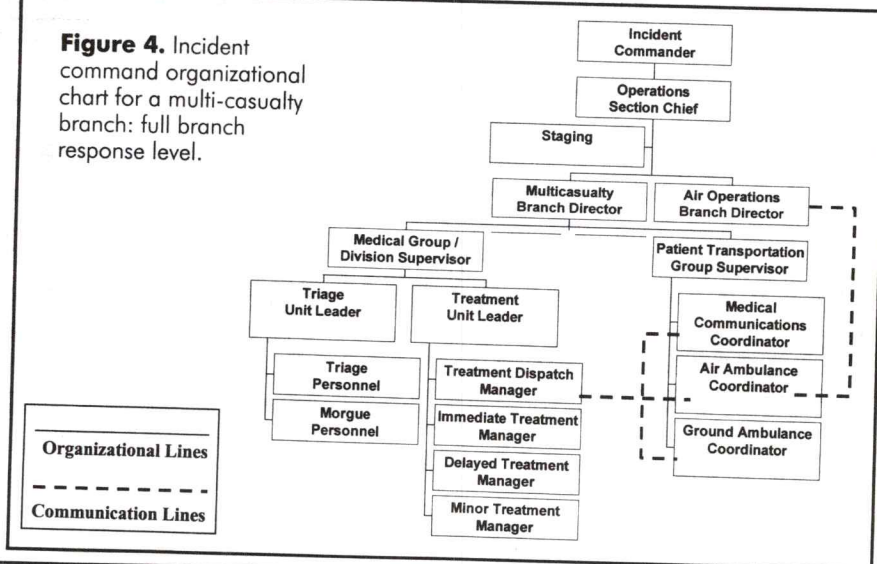
35-mm slide set. This was distributed to all 9-1-1 and interhospital ambulance companies and each hospital in the state. We also made the basic program and the START slides available on our Web site (<http://www.MIEMSS.umaryland.edu>). Train-the-trainer programs were conducted in various areas. Some organizations have elected to include their command structure and nomenclature into the program, simply by making minor modifications to the CD programs.

Our triage system is designed to merge with the hierarchy described in the National Fire Academy incident management program (Fig. 3). In that program, the command structure begins with the "incident commander" at the pinnacle and moves to four second-level sectors: planning, finance, logistics, and operations. In the operations sector, the actual search, rescue, fire suppression, and patient care occur. The structure can be expanded or collapsed to match the magnitude of the incident simply by combining similar tasks for the smaller incident or assigning multiple personnel to one task for the larger ones. The scope of responsibility for one manager or coordinator does not exceed more than 5 to 10 individuals.



**Figure 3.** National Fire Academy Incident Management System: expanded organizational structure.

**Figure 4.** Incident command organizational chart for a multi-casualty branch: full branch response level.





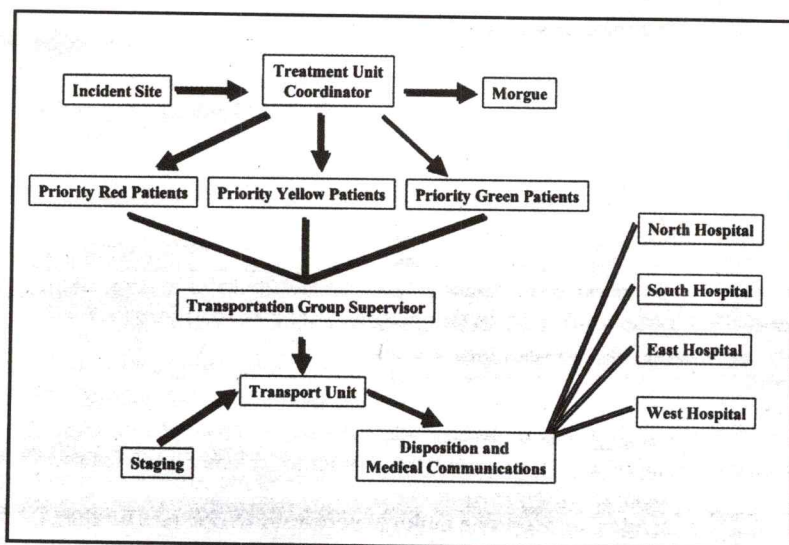


Figure 5. Maryland triage system: mass casualty branch, geographic representation.

Actual medical care occurs in the multi-casualty branch of the operations sector (Fig. 4). This area controls triage, treatment, hospital communication, and transportation operations. Subbranch groups, units, or areas reflect those operations with communication lines that cross between areas and into other related branches such as air operations. The geographic representation of our triage structure mirrors the concerns of the multi-casualty branch (Fig. 5).

### The Maryland Triage Tag

In Maryland, the triage tags (Fig. 6) are uniquely numbered and contain several well-identified sections. The patient information section contains items such as name, age, sex, and address. This information is either obvious or not immediately necessary. Gathering this information is not emphasized in the training program. The triage status section contains space for an initial identification of priority and up to three reassessments. A chief complaint section follows and includes a figure, on which any abnormalities can be indicated. A transportation line allows space

to indicate the transporting unit, the destination, and the time of arrival at the hospital. The eight peel-and-stick labels follow. One is labeled for use by the treatment area and one for the hospitals. The other six could be used for any other possible purpose. The last section on the first side is the tear-off transportation ticket. This is also a label, eliminating the need for a stapler or transparent tape.

The reverse side of the tag includes areas for vital signs, which were organized in RPMS order to jog a few memories from the START program. The remainder is used to record treatment including check boxes for common procedures.

The associated system includes a series of colored ribbons (red, yellow, green, and black), triage tags, tactical worksheets, transportation logs, the National Fire Academy Incident Command System structure, and, of course, the appropriate number of providers and command personnel. Upon entering a disaster site, the initial providers begin to establish the command structure, communicate with in-bound units, and quickly remove all ambulatory patients from the area. Those patients are identified as Priority 3, or minor, by tying a green ribbon to their arm during their exit. The remainder of the patients are also triaged quickly utilizing START, then identifying their priority with the use of colored ribbons (red for immediate or Priority 1 and yellow for delayed or Priority 2). In most cases, the deceased can be tagged with a black ribbon and left to be dealt with by our medical examiner and law enforcement officers, who decide

**TRIAGE TAG DO NOT REMOVE**

**PATIENT INFORMATION**

NAME: \_\_\_\_\_ AGE: \_\_\_\_\_ WEIGHT: \_\_\_\_\_

SEX: ☐ MALE ☐ FEMALE

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ PHONE: \_\_\_\_\_

**TRIAGE STATUS**

INITIAL: \_\_\_\_\_ SECONDARY: \_\_\_\_\_ HOSPITAL: \_\_\_\_\_

**CHIEF COMPLAINT**

Head Injury: ☐ Blunt Trauma: ☐ Penetrating Injury: ☐ Burn: ☐ Laceration: ☐ Fracture: ☐ Amputation: ☐ Medical: ☐ Cardiac: ☐ Diabetic: ☐ Respiratory: ☐ OB/GYN: ☐ Haz-Mat Exposure: ☐

**TRANSPORTATION**

AGENCY/UNIT: \_\_\_\_\_ DESTINATION: \_\_\_\_\_ TIME ARRIVED: \_\_\_\_\_

**TREATMENT**

TREATMENTS: \_\_\_\_\_ HOSPITAL: \_\_\_\_\_ OTHER: \_\_\_\_\_ OTHER: \_\_\_\_\_ OTHER: \_\_\_\_\_ OTHER: \_\_\_\_\_

**PATIENT RECORD**

NAME: \_\_\_\_\_ AGE: \_\_\_\_\_ WEIGHT: \_\_\_\_\_

SEX: ☐ MALE ☐ FEMALE

CHIEF COMPLAINT: \_\_\_\_\_

DESTINATION: \_\_\_\_\_ HOSPITAL: \_\_\_\_\_ TIME OUT: \_\_\_\_\_

TRANSPORTATION AGENCY/UNIT: \_\_\_\_\_

**VITAL SIGNS**

TIME	RESP	PULSE	MENTAL STATUS	B/P
			AVPU	
			AVPU	
			AVPU	

**MEDICAL HISTORY**

ALLERGIES: \_\_\_\_\_

MEDICATIONS/MEDICAL PROBLEMS: \_\_\_\_\_

**TREATMENT RECORD**

TIME	TREATMENT RECORD	INITIALS
	<input type="checkbox"/> BVM <input type="checkbox"/> ET	
	<input type="checkbox"/> Oxygen by _____ at _____ L/min	
	<input type="checkbox"/> Bleeding Control <input type="checkbox"/> Tourniquet @ _____	
	<input type="checkbox"/> Spinal Immobilization <input type="checkbox"/> Extremity Splint	
	<input type="checkbox"/> IV Started at _____	
	<input type="checkbox"/> PASG Inflated at _____	
	<input type="checkbox"/> Gross Decon. <input type="checkbox"/> Final Decon.	

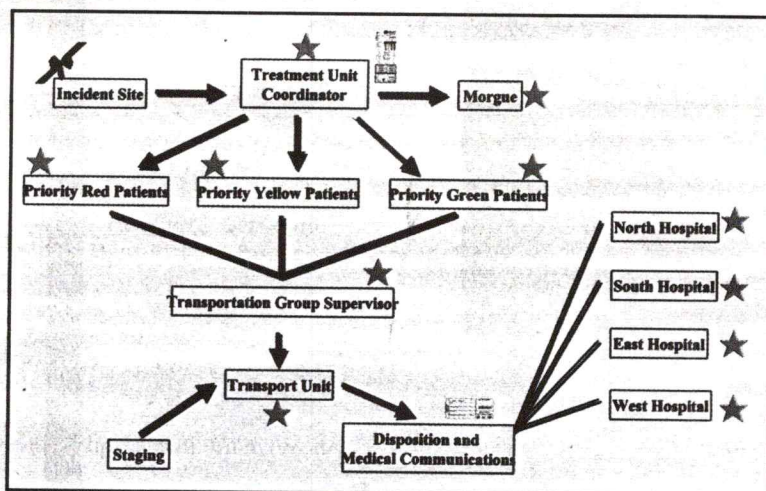
**TRIAGE TAG**

Maryland Emergency Medical Services

Maryland Department of Transportation

Figure 6. The new Maryland triage tag allows collection of patient information, triage status, chief complaint, transport method and destination, vital signs, history, and treatment. In addition, peel-off bar codes are provided.





**Figure 7.** Placement of ribbons, tags, labels, and tickets.

disposition. After patients are removed from the site, a treatment unit coordinator or designee attaches a triage tag to the patient and directs that patient to the appropriate area for additional treatment and eventual transport.

Throughout the flow of patients, the peel-and-stick labels are removed and placed on tactical log sheets, as indicated by stars in Figure 7. The labels can also be used to identify personal belongings that may be separated from the patient such as during decontamination procedures. Our chief medical examiner and law enforcement officials were pleased with the system because the labels could identify the location of bodies that had to be removed and track movements of all involved in the incident.

When the patient is loaded for transport, the transportation unit coordinator tears off the transportation ticket so hospitals can be notified of the priority and number of patients destined for them. There are also peel-and-stick labels for use on a status board that tracks the available resources of hospitals. Communication to hospitals is limited to this information by having medical control physicians respond to the scene. These "Go Teams," such as the one established by the R Adams Cowley Shock Trauma Center at the University of Maryland Medical Center, are oriented to the field command process, appropriate use of personal protective equipment, haz-mat operations, and the triage system.

As with the National Fire Academy system, this operation can be expanded and collapsed to match the size of the incident. To ensure that all personnel are familiar with the tag and the system, MIEMSS has recommended that each response organization establish policies that require personnel to institute the incident

management and triage systems on a regular basis. The response organizations in the Baltimore metropolitan region have agreed to use the tags on any incident involving more than two priority 1 patients or any time a patient is evacuated by helicopter from the scene. This not only assists familiarization but also ensures that documentation of care from the initial responders reaches the hospital simultaneously with the patients.

We have yet to decommission the Maryland triage work group. Their new mission is to plan methods to "electrify" the tag, that is, to have the peel-and-stick labels contain barcodes of their individual numbers. We are already planning for the time (not far in the future) when many ambulances will carry some sort of computer. A standard program will be distributed to replace the tactical work sheets. Wireless local networks and a system-wide area network are being conceptualized to transmit this information in a usable format to all participants in the response to an incident.

## Conclusion

We have come a long way from Baron Larrey's simple concept of triage. In attempting to make it more precise, it appears we may have complicated it to the point that it interferes with our real reason for being there in the first place—caring for the unfortunate victims. We hope the new system in Maryland will return some sanity to the process. We cannot promise that it will work for every system around the globe. We really have no proof it will work for us. We can only hope that you can learn from our experiences and that all our work will pay off for us. You are invited to learn more about the program on the MIEMSS Web site.

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