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This year the Academy celebrates 20-years of EMD professionalism—made possible by the MPDS Protocol.

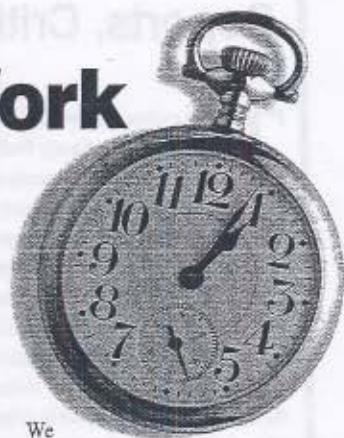
Creating Time Standards That Work

Jeff J. Clawson, MD, Board of Certification Chair
Bob Sinclair, PhD, Senior Technical Editor and Research Specialist

One of the most controversial challenges to EMDs today is the pressure to be fast—very fast—in their call processing times. We've all heard "the clock is ticking and patients are dying or going downhill with every second that passes"...but are they?

As Brian Dale writes in this issue's CDE article (page 2), taking the time to get the chief complaint right the

first time is critical to giving the patient the best possible care. It does no good to be quick but wrong. In terms of patient outcome, the truth is the vast majority of calls are not time sensitive. Inflexible and arbitrary response time standards for EMS agencies (that further pressure the communication center) are not based on research related to patient outcome but largely on politics and perceptions.



We all recognize that the goal is to be quick and right during call processing, but what is the appropriate amount of time that an EMD should spend in call processing in order to respond accurately and appropriately? As we've discovered through reviewing our extensive database of calls throughout the world, the answer is not simple. In fact, before we can begin to address this question we must define our terms—the mileposts that represent the critical time junctures in a call—so that we're all talking the same language and comparing the same times.

Several years ago, on the Norwegian isle of Utstein, cardiac-oriented clinical investigators established a universally acceptable set of criteria that would aid in the study, as well as in the interpretation, of data pertaining to cardiac resuscitation science. This led to the more realistic comparison of "apples to apples" in cardiac care, but in emergency dispatch we are often comparing Lamborghinis to lemons.

Last year at the Navigator '98 Conference, in the Norwegian-like setting of the mountainous Snowbird resort, several attendees recognized the need to agree on definitions for the various time sub-intervals found in call processing. Preliminary work

Continued on page 14

Preparing for the New Millennium

Alexander Kuehl, MD, MPH, FACS, FACEP, President NAEMD



Welcome to the first edition of the *National EMD Journal*. You'll note numerous additions and improvements from the old *Dispatch* format. Foremost is an emphasis on CDE, call center operations, and research. The mission of the Academy is to advance the profession and the *National EMD Journal* will become an important tool in that endeavor. The *Journal* will be growing and evolving over the next year and we look forward to receiving your comments, suggestions and contributions.

One of the great honors of serving as your President has been to preside over the Annual Leaders Summit at the Navigator Conference. The Academy is especially proud to host the NAEMSP Medical Director's Course and the NAEMSP Research Workshop as pre-conference events. This will attract a gathering of many of the most innovative and challenging EMS/EMD leaders in the country including Dr. Joe Ryan, Dr. Jeff Clawson, Dr. Harry Baker, Larry Anderson, Steve Fourn, Jerry Overton, Mike Taigman, Carl VanCott, Dr. Paul Pope, Mic Gunderson, Dr. Bob Bass and Dr. Ray Fowler. Think of the opportunities for interaction which will emerge.

Many of the workshop participants and faculty will join us on September 1st in the 1999 EMS/EMD Futures Summit. If you would like to participate in shaping the future of prehospital care for the next century—or if you've been searching for a new discussion forum to recapture the excitement and optimism of the "Sand Key" conferences—this is it! We'll see you in San Antonio. I promise that you will remember the Alamo!

The Emerging Science of EMD

Reports, Critiques, and Lessons Learned

The Academy is putting its money where its mouth is by, as Jimmy Buffett sang, "searching for answers to questions that bother us so." We have long been concerned about the lack of credible research into many aspects of the EMD process, and have at times questioned or criticized published papers that have presented results that were collected without fully controlling the research environment. (The worst offenders being studies that report efficacy of a protocol without showing that the dispatchers were actually using that protocol.) *Effect of a comprehensive quality management process on compliance with protocol in an emergency medical dispatch center*, Clawson, JJ., Cady, GA., Martin, RL., and Sinclair, R., *Annals of Emergency Medicine*, 32(5)578-584 (1998) is the first research paper in what we anticipate will be an extensive series. We will use it to kick off this new column, Research and Ruminations, in the next issue of *The NEMD Journal*. Research and Ruminations will report on some of the studies we are conducting; it will review, applaud, or criticize work that appears in the EMD literature. It will teach you what you need to know to understand and evaluate published work. Sometimes it will simply chew over areas that need thought or additional work.

Acceptance in a peer-reviewed journal of the above mentioned paper establishes an important concept in the emerging science of EMD: it is absolutely possible to measure dispatcher compliance to a protocol. This should come as no surprise to MPDS users, but its importance cannot be over-emphasized. We are aware of no other study of an EMD protocol where dispatcher compliance to the protocol was reported. If a study that purports to analyze a protocol does not examine and report dispatcher compliance to that protocol, the researchers cannot determine whether they are studying the protocol *per se* or the experience and skill of the dispatchers

who are using it. While skilled dispatchers are an asset to any center, if their experience overrides failings or weaknesses in a protocol, then that protocol will not be able to grow and mature in the same way that the MPDS has. This paper effectively raises the bar on reporting studies that involve EMD (and other) protocol use.

We are convinced that careful studies will become vital to the directed evolution from MPDS version 10.3 to future versions. The Academy is therefore becoming more involved in the fundamental research that is needed to understand how the protocol must work, and why. We are also encouraging you, as MPDS users, to get involved. Developing knowledge and understanding through research is one area where each of us has the potential to make an enormous difference. We encourage your investment, collaboration, expertise, and advice in forwarding research by all centers or individuals using the MPDS. Please contact us if you have ideas or topics you think should be examined, but don't quite know how to begin (or how to finish!).

We are also providing a forum at the 4th Annual Navigator Conference, Sept. 1-3 1999, in San Antonio, Texas, for people outside of the Academy who are studying some aspect of EMD, to present their work and solicit feedback and comments. We are accepting abstracts to be presented at Navigator '99. Submissions will be evaluated by members of the National Academy of EMD's Research Council. Authors of those abstracts that are determined to be of most value or interest to the Navigator attendees will be invited to present their material during the research session. Submissions not selected for oral presentations will be considered for posted presentations. Contact us at the Academy if you would like to receive a copy of the Call for Submissions.

We are interested in your ideas. We'd love to hear your views on what we should be studying. If you

find interesting EMD-related articles or news stories that you think we should cover, please share them with us. And we'd love to get copies of tapes that might illustrate important strengths or weaknesses of some of those elegant moments when the call almost flows along by itself.

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BOB SINCLAIR, PhD: Dr. Sinclair guides the research activities of the Academy as its Senior Technical Editor and Research Specialist. He holds a doctorate degree in biotechnology from the University of East Anglia, Norwich, U.K. and has broad scientific research experience that includes work on the human genome project and almost 10 years' managing the National Center for the Design of Molecular Function, an NIH research resource focused on biotechnology and instrument development.

CREATING TIME STANDARDS

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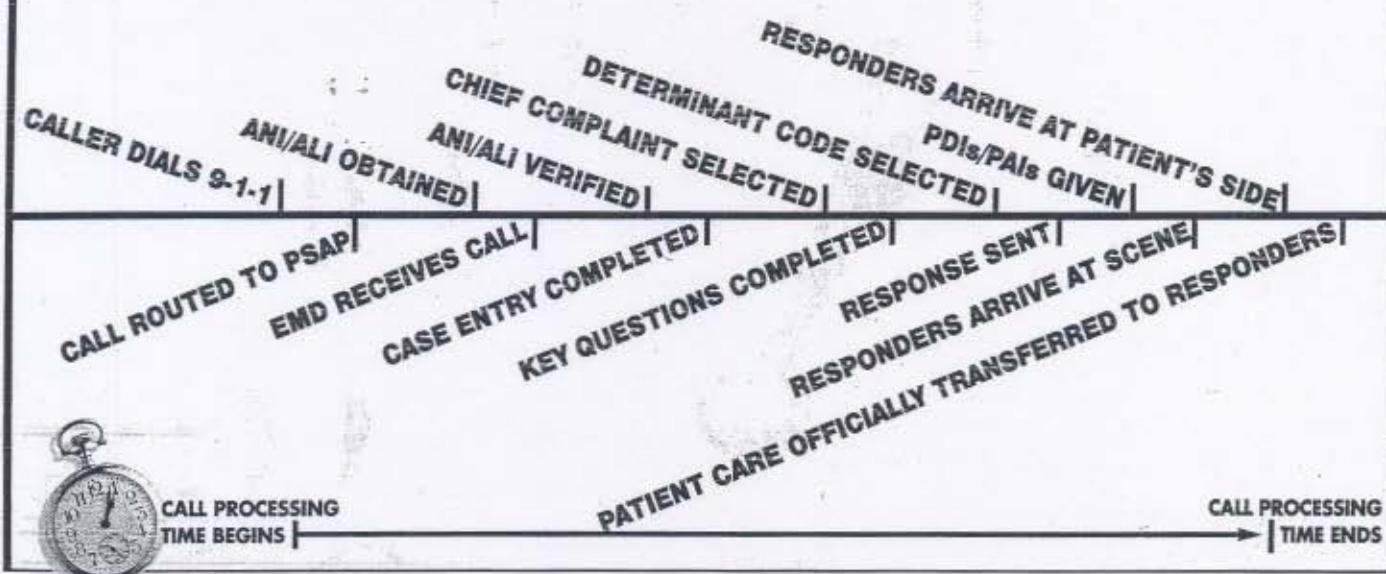
has led to the development of what we now refer to as the "Snowbird time standards." The further refinement and industry-wide acceptance of the Snowbird times is as essential to the world of public safety telecommunications as Utstein was to cardiac science.

The National Academy of EMD has charged its newly organized Call Processing Board to rigorously define the proposed Snowbird time standards and to aid the Academics and Standards section of the Academy in publishing the definitions. Once public disclosure of what defines each time interval has been made, the Academy can begin to study the large data sets obtained through the use of the automated MPDS at communication centers that share their data with the Academy. (These data sets contain time-stamped information about many stages of the dispatch process, and can be validated based on the compliance of the center to the MPDS protocols.)

Obviously, the need for a public safety medical response begins at the time the accident or medical event occurs. After the event, the time to access 9-1-1 is traditionally very difficult to objectively establish (although some published data suggests that 9-1-1 access times are much longer than would be guessed by most lay people, even when phones are readily accessible¹). Once the caller has reached a telephone, the progress of the incident through the EMS system can be broken down into a series of steps, each of which can be defined by a specific milestone. In some systems, the earliest steps occur automatically using ANI/ALI information; in other systems, these steps must be performed manually. Similarly, steps may be omitted in some systems (such as in a combined police/fire/medical center where it is not necessary to re-route the call). The main milestones include:

- The caller dials the three digit universal num-

Call processing mileposts:



CALL PROCESSING
TIME BEGINS

CALL PROCESSING
TIME ENDS

- ber (9-1-1 in Canada and the US, 9-9-9 in the UK, 0-0-0 in Australia, 1-1-4 in Germany, etc.).
- The telephone system routes the call to the most appropriate PSAP and, in enhanced systems, attaches address and telephone information.
- The PSAP may further route the call to a police, fire, or ambulance call center or to a different caller within the same consolidated center.
- The medical call center's CAD verifies and accepts the address and phone information from the system.
- The EMD receives the call and begins interrogation using the MPDS case entry sequence.
- The address and telephone number are verified (or entered and verified).
- The case entry question, "What's the problem? Tell me exactly what happened," is asked. This is a key milestone that many agencies use as the actual starting time for measuring how long it takes to mobilize an appropriate response.
- The case entry sequence is completed.
- An emergent response is sent if the patient is unconscious and not breathing.
- A chief complaint is selected.
- The key questions sequence is completed for the appropriate chief complaint protocol.
- A determinant (clinical/incident-type) code is selected.
- The appropriate response (locally assigned to each code) is queued.
- The response is activated (responders begin egress from a stationary location or begin response if mobile).
- The EMD provides post-dispatch or pre-arrival instructions whenever possible and appropriate, or proceeds with the case exit sequence.
- The emergency vehicle arrives at the scene.


- The responders arrive at the patient's side.
- The patient's care is officially transferred to responders.

After this sequence, another series of time segments can be defined, including on-scene assessment, on-scene treatment, loading into the ambulance, transport, and delivery to the ED; however, these are outside of the scope of the Academy's immediate interest.

A series of factors can affect each of these time segments. In addition to identifying the milestones that define the segments themselves, these factors also need to be identified and evaluated—whether they can be accurately measured or not. This information in hand, it becomes possible to list the individual parts of the emergency response and the things that influence how appropriately or rapidly they can be performed. Two things can then happen: (1) analysis of thousands of compliant MPDS cases will place average times (and statistically valid ranges) on many of these time segments and (2) comparison of these average times with perceived medical need can be performed on a determinant-by-determinant basis.

Once the definitions and ranges for these time intervals are accepted, the EMD and other telecommunicators can be freed from the slavery of what has been in the past referred to as the "60-Second Dilemma." It was clear from the Snowbird discussions that a one-size-fits-all approach to call processing times is inappropriate and no longer valid. This is apparent when one is listening to a trained EMD correctly interrogate a first versus third party caller reporting a traffic accident, or a caller reporting a patient with abdominal pain versus a caller reporting a patient having a seizure. Where second-

ary surveys require more evaluation due to safety or more complex clinical issues, appropriate processing times will legitimately vary. As Thera Bradshaw famously stated several years ago, moments before going live in her center with the newly installed MPDS, "It's time we start doing it right, not just fast."

What was clearly important from the Snowbird forum is that a blanket approach to establishing a time standard for dispatch (such as the idea that, say, 80 percent of all category x responses must arrive at the scene within y minutes) is a concept that has no basis in reality—until "category x" can be defined to the level of a specific type of event (such as an MI) and when it occurred. The MPDS, as it stands, has over 240 different determinants (each a different category x in the above scheme). These could be used, in conjunction with sound medical data that relate to how the symptoms that led to a given determinant are likely to change over time, to establish real—medically rather than politically—driven time standards for specific complaints. These, combined with realistic estimates of how long each sub-section of the dispatch process actually takes, will eventually allow us to define more realistic clinically-based time goals for a wide variety of EMS responses. 

¹National Institutes of Health. Rapid Identification and Treatment of Acute Myocardial Infarction: Patient/Bystander Recognition and Action. NIH Publications 1993; No 93-3303

JEFF J. CLAWSON, MD: Widely recognized as the "Father of EMD," he is a founder of the Academy and inventor of the Medical Priority Dispatch System.