

# Manhunt! Improve AED Response

## Helping Police Enrich “The Cardiac Arrest Quotient”

Dispatch is an often overlooked but critically important component of a successful AED program. Some law enforcement AED programs find themselves responding to a high number calls for an AED that don't actually require a device. To effectively add early defibrillation to its mission, law enforcement management must be able to reliably commit resources. The solution to this challenge? Learn from the experience of others by collecting and analyzing dispatch call data.

The National Academies of Emergency Dispatch (NAED) was asked to help a prominent metropolitan dispatch center resolve a major discrepancy between their “dispatched as” vs. “scene-findings.” The agency's governing council purchased 1,400 AEDs and deployed them on police squad cars in their jurisdiction. Cardiologists and EMS physicians subjectively selected 33 of the 250 dispatch protocol determinant codes thought most likely to detect an at-scene finding of a cardiac arrest.\* AED-equipped police squads were then assigned a co-response based on these specific codes. To their great frustration,

of sudden cardiac arrest will likely survive. But the 911 call to dispatch is not just important for quickly setting the call into motion. The initial choices made by EMDs as to which patients should be dispatched an AED dramatically, if not profoundly, affect the actual chance of finding a cardiac arrest at-scene. More importantly, such choices determine which arrests, when found, have the chance to be effectively reversed. Arrests are not purely predicted at dispatch by the emergency medical dispatcher's (EMDs) identification of a not conscious and not breathing patient. Many complaints initially presented at dispatch masquerade as other types of problems and are found later, at-scene, to be arrests. Not including dispatch into the equation creates the incorrect assumption that all arrests are “born equal,” easily found and that all first responders are equally able to provide defibrillation.



at-scene arrests. We modified the initial 33 subjectively selected codes by dropping many weak CAQ codes and adding several new, richer ones. The result: predicted at-scene arrest findings went from under 10% to nearly 27%. This agency can now control its AED response destiny. Any program can do this, if it has

reliable CAQ data, whether from highly protocol-compliant systems or its own compliance-based data. It can then modify its code selections to pick up more arrests for the same number of AED responses made, or keep the number of arrests constant while reducing the number of responses necessary to capture them.

The next step in this process is fine tuning the codes to determine the Cardiac Arrest Resuscitation Survivability (CARS) factor. Essentially, what CARS is to the quality of arrests, CAQ is to their quantity (to get more information on CARS and sub-codes visit [www.early-defib.org](http://www.early-defib.org)).

### The Cardiac Arrest Quotient

Communication centers using the NAED's Unified EMD Protocol codes collect comparable data, allowing the Academy to review a vast fund of information. To answer the challenge presented by this department, we studied outcome data from a variety of similarly sized cities. In doing so, we created the Cardiac Arrest Quotient (CAQ). The CAQ is simply the number of arrests found at scene within a particular dispatch determinant code divided by the total number of responses generated by that code.

Figure 1 shows the differences in cardiac arrest “richness” within apparently similar chief complaint determinant levels. It's important to note that the problem type “Falls,” while not usually associated with cardiac arrests, contains a significantly rich CAQ. One special group of determinant codes represents what we refer to as “ethical” responses that are not specifically rich in cardiac arrests but virtually demand an AED response.

To help the agency mentioned earlier, the Academy used the CAQ to help select

Figure 1: Cardiac Arrest Quotient “Richness” Comparisons

SUB-CODE	PROBLEM	ARRESTS	RUNS	CAQ
6-D-1	Severe Respiratory Distress	78	1,433	5.44%
6-D-2	Breathing problems/Not alert	53	1,348	8.09%
6-D-3	Sweaty or changing color	59	7,521	0.78%
10-D-1	Severe Respiratory Distress	2	336	0.60%
10-D-2	Chest Pain/Not alert	53	441	12.02%
10-D-3	Sweaty or changing color	56	6,517	0.86%

initial data showed that less than 10% of the responses resulted in at-scene finding of cardiac arrest. How could dispatch better identify those calls that might benefit from the rapid response of an AED-equipped officer?

The Chain of Survival cites early access as the first link in the chain of events that determines whether a patient

\*The program used version 10.3 of the Medical Priority Dispatch System™ as the primary tool for response decisions and is an NAED Accredited Center.

### Conclusion

The number one employer of EMDs in the United States is not ambulance services, hospitals, or fire departments, but law enforcement-controlled communications centers. It is critical they make intelligent choices in selecting and correctly using standardized dispatch protocol as well as establishing a sound dispatch quality assurance program.

The EMS community and law enforcement-based AED programs can improve their effectiveness by taking greater advantage of the data available from their dispatch centers. Use of the CAQ concept using comparable dispatch data from other systems should be an essential part of any selective defibrillator deployment program. ■

Jeff Clawson, MD, is considered the father of modern emergency medical dispatch and is chief architect of the Medical Priority Dispatch System. He is the founder of the non-profit National Academies of Emergency Dispatch, the largest certifying and standard setting dispatch organization in the world, with 33,000 members in 15 countries.