Lights and sirens save a significant amount of travel time and save lives

As a kid growing up in Fort Worth, TX, I remember the funeral home ambulances of the era. In fact, in the late 1950s, my father sold ambulances and hearses for a company named Hess and Eisenhart. Ambulances at that time had little in the way of medical equipment. In terms of patient care, they offered little more than oxygen and rapid horizontal transport. The ambulances of that period were designed for speed. They had high-performance engines, numerous flashing lights and large, loud mechanical sirens. When you heard one coming, if you looked out the window quickly enough you could see a flash and a blur as it sped by. They were neat.

In the 1960s, the city of Fort Worth had an unusual custom. They used to paint a large white “X” on the street where there had been a traffic fatality. I remember an intersection on Camp Bowie Boulevard where there were two “X” marks. These were the result of two ambulances colliding at tremendous speed at the intersection en route to a 10-50 major (major accident) somewhere west of town. Today, the two “X” marks on Camp Bowie Boulevard are gone, but every time I drive by that intersection, I remember the story of the two ambulance drivers who died there.

History

Despite being significantly more medically sophisticated, many EMS services still routinely respond to all emergency calls, regardless of the nature, with emergency lights and sirens. Some routinely transport patients to the hospital using emergency lights and sirens, using the argument that they are able to get the unit back in service quickly. Many times, even in large EMS systems, I have seen an ambulance asked to increase to Code 3, not because of patient condition, but just because the system was busy. This practice contradicts one of our EMS prime directives: Patient care comes first.

Does the use of lights and sirens in emergency response and transport save a great deal of time? Should patient condition and nothing else guide usage of emergency lights and sirens? Do the benefits of lights and sirens transport outweigh the possible risks?

The Scientific Evidence

Unlike many of the topics we have addressed in this series on EMS myths, the scientific literature related to use of emergency lights and sirens is quite limited—and what literature does exist does not clarify the issue. First, do lights and sirens save a significant amount of time? Researchers in North Carolina compared lights and siren transport to non-lights and siren transport in an urban setting where transport time to a universal hospital involved distances of 10 to 24 miles or less. They found that lights and siren transport only averaged 43.5 seconds faster than non-lights and siren transport. They concluded, “Although the mean difference is relatively small, it is not clinically significant, even in rare circumstances.” A similar study conducted in Syracuse, NY, found that lights and siren response reduced response times by an average of 1 minute, 46 seconds. They concluded, “Although statistically significant, this finding is likely to be clinically relevant to only a few cases.” Researchers in Minneapolis, MN, similarly studied the role of emergency lights and sirens in emergency response times. They studied 64 runs over a nine-month period and concluded that responses with lights and sirens saved an average of 3.02 minutes over non-lights and siren responses. Additional studies are needed to clarify this issue. But geographical differences, distances to hospitals and other variables may never allow the question to be adequately studied.

So, should patient condition, and nothing else, guide usage of emergency lights and sirens? This may be a little clearer. Pennsylvania researchers studied a county-wide, single-provider, private EMS system that uses 11 ALS ambulances. Annual call volume of the service area was 14,000, and the county population was approximately 90,000. A medical protocol was developed, and criteria for lights and siren transport. A total of 1,625 patients were entered into the study. Based on the medical protocol, 92% of patients were transported without lights and sirens, while 8% were transported with lights and sirens. No adverse outcomes were identified as being related to non-lights and siren transport.

How much time makes a difference? It remains unclear. Much EMS practice is based on the concept of a so-called “Golden Hour.” However, recent studies have shown that there is little evidence for either support or refute the concept of “Golden Hour.” Intuitively, some emergencies may benefit from rapid response and transport; however, most probably will not. With this in mind, we must weigh the benefits of lights and siren response (which appear fairly minimal) with the potential risks (which appear to be fairly significant).
It is true that, in most cases, time can be saved with lights and siren response. However, this rapid response may only benefit a very small number of patients. To quote the great philosopher Mr. Spook, "The needs of the many outweigh the needs of the few." A patient's medical condition, and nothing else, should determine whether lights and sirens should be used. For the response phase, dispatchers should utilize medical protocols to determine which patients should receive a lights and siren response. Likewise, EMS field providers should use a similar medical protocol to determine which patients will potentially benefit from emergency lights and siren transport. It is as simple as that. We've seen enough white "X" marks on the roadways.

References

Next Month: EMS Myth #5
Steroids are effective in the treatment of acute spinal cord injury

Bryan Brodsky, DO, FACEP, EMT-P, is an emergency physician, author and former paramedic whose writings include Paramedic Care Principles and Practice and Paramedic Emergency Care. Bryan is a featured speaker at EMS Expo 2003, scheduled for September 21-25 in Las Vegas, NV. For more information, call 877/EMS-EXPO, or visit www.emsmagazine.com.

The next installment of Ambulance A & P will appear in the August issue of EMS Magazine.

Cap (Tony) Urmian worked as an EMT for five years with Children's Hospital of Denver and Colorado's Ambulance Service Company. He now owns EV/MARS, a comprehensive fleet service company that has maintained several Denver-area EMS fleets since 1981. He has an ASE certificate (Automotive Service Excellence) and is also a certified Emergency Vehicle Technician (EVT).

Thom Dick has been an EMT and paramedic for 23 years, and is currently quality control coordinator for Pridemark Paramedic Services in Arvada, CO. Contact him at Brodac14@msn.com.