

“8 Minutes” May Matter After All

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Denver Health has recently cited the study they published in 2005 about the effect an eight minute response times supposedly had on survival in Denver in 1998. The most questionable thing about this “study” is that most of the patients in Denver who would have had their survival affected by a prolonged response time were eliminated from the study. The authors also used totally different definitions for time parameters for this study than those that were used to report response times to the city in both the studied year (1998) and the year of publication (2005). The author’s conclusion raises serious questions about the purpose of the study. The Authors found a survival benefit at four minutes but not at eight minutes. Their conclusion was not that Paramedics should try to make it to as many emergencies in four minutes as possible, their conclusion was that EMS agencies (I.E. Denver Health) should be allowed to stop trying to make it in eight minutes.

There are a number of issues that raise concern about using this study to justify lowering response time requirements. The first issue is the patient population that was evaluated. The study only looked at patients that were transported to Denver Health. In fact most EMS patients in Denver are not transported to Denver Health. The majority of critical patients are also not transported to Denver Health. If critical patients are the key to identifying a potential benefit from a quicker response time the “study” is even more questionable. In the study critical medical patients who were most likely to get an extended response time were not included. Patients in areas outside of the center of the city were the ones most likely to get a prolonged response time. When one of these patients was critical they would, by protocol, have been transported to the closest hospital, not Denver Health. In fact only a small area of the city is closer to Denver Health than it is to another hospital.

The next area of concern is how response times were calculated for the purpose of the study. In their 1998 report to the city on their compliance with the contract Denver Health used a clock start time of when the EMS call taker had an address, call type and call back number to calculate their response time. Denver Health also advised the City of Denver that eight minutes was really eight minutes and fifty nine seconds. This is markedly different from the clock start time and definition of eight minutes used in the study. The study uses the time when the 911 call was received as clock start and eight minutes is eight minutes and zero seconds.

The next area of interest is the categories that patient were separated into for analysis. Patients were placed into subjectively chosen categories of “illness severity”. They were not separated by Pts returned to the hospital code 10 (emergency) or patients who were critical, admitted to the ICU or operating room from the ER. The study did however include thousands of people who were not even admitted to the hospital.

The most serious group (High risk) included only medical and traumatic cardiac arrests returned to Denver Health. It is notable that they did not separate medical and traumatic cardiac arrests in view of the fact that previous studies that showed a survival benefit from response times were about medical cardiac arrests. In addition to this, according to Denver Health traumatic cardiac arrest has a survivability of virtually zero.

The second group was called “intermediate risk” and included all suicide attempts, accidental and toxic exposures, unconscious patients, penetrating trauma, respiratory complaints and pre-hospital hypotension (low Blood Pressure). All other patients were considered low risk. Strokes, and all blunt traumas were considered low risk along with minor lacerations, sprained ankles and cold symptoms.

During the study period The Ambulances were based at Denver Health and ambulances were frequently available to respond from the ER at Denver Health after dropping off a patient. This improved response times around Denver Health and may be part of why Denver Health chose to manipulate the definition of response time. By manipulating the definition of response time they increased the apparent number of patients that came to Denver Health after an extended response time. Patients who were stable were brought to Denver Health from all outlying areas of the city if they requested it. In order for a patient to come from the outlying areas of the city, where they were most likely to get an extended response time, the paramedic had to determine that the patient was not critical and would not benefit from going to a closer hospital. This made the likelihood of not surviving the hospital visit very low for this group. This large group of patients was added to the patients who came from the area closest to Denver Health to make up the study population.

Another key point about these “8 minute survival statistics” is that in general they did not include Myocardial Infarctions (heart attacks.) During the time frame of the study Pts who were closest to Denver Health, but not a cardiac arrest, who the paramedics suspected of having a Myocardial Infarction (heart attack) were by protocol not transported to Denver Health. This is because Denver Health did not have a cardiac catheterization lab and did not do coronary bypass surgery. This time sensitive group of patients with a known high mortality rate was not included in the study because they were not taken to Denver Health.

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