The Effects of Emergency Department Delays on Fire-Based EMS

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

The prehospital setting is seeing a rise in wait times from arrival at emergency departments to the time the patient is placed on an emergency department bed and the ambulance is placed available. The problem is the Lee's Summit Fire Department is unsure how this might be effecting its response times. In an effort to determine its effects, the following questions were answered;

1. What are the current Lee's Summit Fire Department policies and procedures on ambulance responses? Current policy allows patients to be delivered; once the cot is made and the ambulance is cleaned, it is to report in-service unless it cannot for underlying circumstances.

2. What are the hospital policies and procedures for accepting patients from ambulance services? Hospital policies are to unload the patient from the ambulance cot as soon as an emergency department bed is available. This is sometimes delayed due to overcrowding of the emergency department.

3. What are the actual practices of ambulance personnel upon arrival at the emergency department? Most are following the policy set forth by the department although, if busy, they may take a break and eat before reporting available, which may have affected the wait times.

4. What is the impact of hospital delays on the response times for the Lee's Summit Fire Department? A 30% increase in wait times has been seen when transporting patients to area facilities; however, when patients have been transported to local facilities very little change has been noted.
This seems to be a national problem on the rise and one that the fire department will need to continue to monitor for further trends identifying the issue as compounding in Lee's Summit.
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Introduction

One of the most significant issues that face us, not only today, but well into the future is the state of our healthcare. Everyday the state of our healthcare is the focus of talk on the street and in the media. One big issue that has come to the forefront in recent months is the current and future state of the hospital emergency departments. According to an article in the Kansas City Star dated February 19, 2008, an emergency is erupting in the Emergency Room (ER). The early warning signs began in 2006 with a report by the Institute of Medicine that found from 1994 to 2004, the number of emergency department visits in the United States increased in range of 18% to 26% while the number of emergency departments dropped in the range of 9% to 12%. (Karash, 2008, D-12)

In 2007 the American Hospital Association survey of hospital leaders showed that emergency departments at 65% of urban hospitals and 73% of teaching hospitals were either at or over capacity. (Karash, 2008, D-12) "As emergency rooms become more crowded, all resources become strained, including hospital revenues, community taxes designed to help pay for health services, and ultimately health-care premiums." (Johnson, 2008, D-12)

EMS leaders in the Kansas City Metropolitan area sensed a problem beginning as early as six years ago and developed what is known as the EMS System. This is a web-based tracking network that alerts all area hospitals of availability status as well as area ambulance services availability. The service operates on diversion guidelines established by the Health Alliance of Mid-America and the Mid-America Regional Council Emergency Rescue Committee. In the actual KC Ambulance Diversion Community Plan it states that "the EMS System is a Web-based program providing real-time information on hospital emergency department status, hospital
patient capacity, availability of staffed beds and available specialized treatment capabilities. The EMSSystem is used to coordinate "routine" and emergency medical operations (e.g. mass casualty incidents or MCIs) throughout the region." While many members of the EMS community feel comfortable with the planning that has taken place in this arena, many answers still remain at large.

A review by the administration of the Lee's Summit Fire Department has identified an increase in hospital delay of ambulances. The problem is that the Lee's Summit Fire Department questions the impact of these delays on response times. The purpose of this research project is to determine the impact of hospital delays on the Lee's Summit Fire Department ambulance response times. Many communities are addressing some of the health care issues and are looking at ways to decrease the time spent between delivering the patient to the emergency department and the ambulance reaching available status; but the Lee's Summit Fire Department is unsure how this issue may be affecting response times. This research project will focus on answering the following questions:

1. What are the current Lee's Summit Fire Department policies and procedures on ambulance responses?
2. What are hospital policies and procedures for accepting patients from ambulance services?
3. What are the actual practices of ambulance personnel upon arriving at the emergency department?
4. What is the impact of hospital delays on the response times for the Lee's Summit Fire Department?
Background and Significance

The city of Lee's Summit Missouri Fire Department (LSFD) serves a community of approximately 90,000. It is the second fastest growing city in Missouri. The department has seven stations staffed with 140 line personnel and 11 support staff. Its services include fire suppression, fire prevention, fire investigation, emergency medical services and transport, hazardous materials response and mitigation including Weapons of Mass Destruction (WMD) response as part of the Office of Domestic Preparedness (ODP), Homeland Security Response Teams (HSRT). The department also conducts plans review, fire code inspections, public safety education programs, Community Emergency Response Training (CERT), dive rescue, technical rescue including high angle, trench, confined space, and training of all city employees in emergency management. LSFD develops and conducts a bi-annual WMD full scale exercise that has grown to over 60 agencies with over 400 participants.

The Lee's Summit Fire Department has been providing the citizens of Lee's Summit with advanced life support since the early 1970's and has tried to maintain a very aggressive stance on health care in the prehospital setting. They provide ambulance service and transport to all citizens of the city of Lee's Summit and have a contractual agreement to provide all advance care and transport to the citizens of Greenwood, Missouri also. As the city has continued to grow, the need for more transports parallels with the growth of the city. The fire department added three ambulances in the past 11 years and will soon be looking at adding another to bring the total ambulances serving the citizens to six which would be in service 24 hours a day. The increase in the number of requests for ambulance service from the LSFD is certain; but remaining unclear is the impact of delays, within the emergency departments that effect response times and availability of the ambulances.
The LSFD consistently tries to achieve the goal of reaching every EMS call in the city within five minutes, 90% of the time. The figures based on the 2007 run report and the 2008 run report to date, show LSFD is meeting that goal. The real question remains as to how long the patient may be waiting on ambulances. The department runs advanced life support fire trucks and counts those units on scene as rendering care, which in deed they can. The question still remains as to how long some of these transports may be delayed because of the emergency departments and the ambulances being delayed in returning to service.

With the city of Lee's Summit being so close to the core of the Kansas City metropolitan area, it has been a practice that if a patient wanted to be transported to an area hospital, the fire department would provide that service. According to a recent random review of reports, requests for transports to area hospitals has not risen by the citizens, but there seems to be a marked increase in hospital request for transports to area facilities (Lee's Summit Fire Department. [LSFD], 2006-2007, 3) The city of Lee's Summit has opened a new hospital with the St. Luke's System and now has two local hospitals as opposed to only one thirteen months ago.

This growing community exemplifies a situation in which the emergency response system must constantly be re-evaluated to determine whether it is meeting the needs. This applied research project is being completed as part of the Executive Leadership course at the National Fire Academy and is directly related to Chapter 6, "Being in Transition" and Chapter 10 "Networking." It also ties directly into the United States Fire Administration operational objective of "to appropriately respond in a timely manner to emergent issues."
Literature Review

Numerous periodicals, newspapers, and investigative reports have been documenting the variety of issues surrounding health care in the United States, and its affects on citizens, communities, and EMS services. Take as early as 2003 when the Canada Medical Association Journal stated, "An increase in overcrowding in the emergency department was associated with a substantial increase in the system response interval and the ambulance transport interval for patients with chest pain." (Schull, Morrison, Vermeulen, & Redelmeier, 2003, 1) Even earlier in 2001 the "American Hospital Association (AHA) Survey of emergency department and hospital capacity (The Lewin Group, 2002), 62% of the emergency departments reported being at or over capacity and one-third reported ambulance diversions. Sixty-one percent of the large hospitals reported over capacity." (Bradley, 2005, 3)

One of the most common issues that most EMS services identify as one of the issues pertaining to delays in the emergency departments is overcrowding. "Emergency Department crowding is a major public health crisis in the United States. A central cause for emergency department crowding is hospital crowding, which occurs when demand for inpatient beds outstrips supply." (Garson et al., 2008, 9) "Reduced inpatient capacity, increased volumes, and other factors such as an aging population, escalating standards of care, and limited primary care resources in the community have resulted in significant crowding in the Emergency Department." (McCarthy et al., 2008, 15)

In a recent article by the American College of Emergency Physicians (ACEP) stated that many emergency departments in the United States today are critically overcrowded and unable to respond to the day to day emergencies, let alone disasters and acts of terrorism. The author contends that until all the stakeholders agree that the problem is systemic and hospital-wide, that
solutions will not, and cannot be implemented. The author goes on to say that then and only then will Americans access to emergency care be protected. (American College of Emergency Physicians [ACEP], 2008, 4) It seems that overcrowding is a big contributor to the delays in the time from ambulance arrival at the hospital to time of availability.

This crisis is not limited to a community, state, or even country, but it is global. The Emergency Medicine News reported in November 2007 that the Emergency Medical Services of Edmonton, Canada told a council committee of community services that paramedics are waiting an average of more than one hour to turn over their patients to hospital staff because there aren't enough beds to take them. (Lippincott, Williams, & Wilkins, 2004, 6) The longest time that has been documented by LSFD for a wait time has been 45 minutes. (LSFD, 2006-2007, 4)

In Riverside County California, ambulances waited a total of about 1000 hours at hospital emergency rooms in one month. That was more than twice as much delay time as any other month last year. Delays of one hour are not uncommon. (Beeman, 2006, 1)

In a survey of ED directors of all 50 states, Derler et al. (2001) reported delays in diagnosis and treatment (37%), a higher risk of poor outcomes (67%), and a few patients had actual poor outcomes (33%) due to overcrowding and delays in patient care. (Bradley, 2005, 24)

There is article after article on emergency overcrowding and its effects on patient care. With overcrowding, comes a delay in delivery of patients in the emergency departments and an increase in diversions, which causes further delays in delivery of patients and decreases the ability for ambulances to return to service. Research that reflects delays due to diversions and its effects include: "The frequency of ambulance diversion in NJ underscores the stress on capacity that is often experienced by hospitals in the state. Data from December 2006 and January 2007 reveal that, on average, an ambulance diversion occurs once every hour in NJ. This is similar to
The effects of an often cited national statistic that there is a hospital on diversion about one every minute in the U.S.". (Deliah, 2007, 11)

In 1994 researchers had identified that the incidence of ambulance diversions were on the rise. The research stated that the diversion rate in the EMS System they had studied had increased 453% during their three-year study. One in nine transports was noted to have been diverted by the conclusion of the study. (Redelmeier, Blair, & Collins, 1994, 14-18)

"The diversion of ambulances, because of temporary shortages of emergency department (ED) or inpatient facilities, may have adverse effects on patient care and the EMS system as a whole. EMS personnel are limited in their ability to definitively treat and stabilize critically ill or injured patients in the field." (Glishak, Delbridge, & Garrison, n.d., 1)

Research points to the issues of overcrowding and diversions and seems that this problem is surfacing throughout the United States and abroad.

"While many emergency departments across the country reported some degree of crowding, the problem is more pronounced in certain hospitals and communities. For example, while 2 of every 3 hospitals reported asking ambulances to be diverted to other hospitals at some point in fiscal year 2001, a smaller portion—about 1 of every 10—reported being on diversion status for more than 20 percent of the year." (United States General Accounting Office [USGAO], 2003, 1)

In an article in EMS Responder in May of 2006 it reported that in Sacramento, California diversions were happening at alarming pace. It reported in 1999 area hospitals were on diversions for a cumulative total of 4131 hours. By 2001 that jumped to 23,785, an increase of 476%. (Erich, 2006, 43)
In an article in *Annals of Emergency Medicine* an article that is discussing ambulance transports and diversions it states that the number of emergency department visits have increased by 26% while the number of emergency departments has decreased by 12%. It also states that diversions due to ED overcrowding can cause an increase in the time that EMS providers remain with the patient which ties up resources longer, increasing response times and creating conflict with ED staff. (Burt, McCraig, & Valverde, 2006, 317)

The literature review has confirmed that ambulance delays are prevalent throughout the United States. Its impact on ambulance services are thought to increase the time of response as well as increase out of service time. While this problem is not new as shown in the literature, it also shows that it is a growing problem and now occurring in most communities to at least some degree. Lee's Summit is likely not immune to the same issues that have faced other communities on the topic of ambulance delays and the impact it may have on customer service.

**Procedures**

The purpose of this applied research project was to define the impact of ambulance delays in the emergency department on the response times and availability of LSFD ambulances and its delivery of service. If ambulance delays were identified, it was also to recommend ways of accomplishing a process that could assist not only the fire department, but also the emergency departments in developing a system to reduce, if not eliminate, ambulance delays in emergency departments to better serve the community. Descriptive research methodologies were utilized to help guide the applied research project to find answers to the research questions.

Research and data collection began with a literature review at the National Fire Academy's Learning Resource Center in May 2008. This research included a review of previous Executive Fire Officer applied research projects as well as technical reports, fire service
professional journals, and fire service books. The focus on the research was to find articles that would aid in the identification of any supporting or disclaiming articles on emergency department delays and their effects of ambulance service delivery. An electronic search on the Internet was also conducted with the terms of "emergency delays" and "ambulance diversions." This search was conducted in May, June, July and August of 2008. The focus of this electronic research was to strictly utilize those items that could be traced to accuracy with affiliations or publishing groups known to provide quality information.

The City of Lee's Summit Fire Department library was utilized for the research in the facts of response times in Lee's Summit, the unavailable times, and the cause of unavailability of ambulances from the statistics in 2007 and 2008. Reports generated from the Fire Data Management System utilized by the Lee's Summit Fire Department was also used to explore arrival times at hospitals as well as available times, and comparisons were made to see if this issue was truly effecting our availability to serve the citizens of Lee's Summit.

The criterion for the utilization of information gathered during the research was to focus on the facts for ambulance delays at emergency departments and those communities that have gone before Lee's Summit in identifying an issue as well as solutions that have been applied with positive results. A further review was conducted to find any disclaiming information that could disprove the fact that emergency department delays have an adverse impact on fire-based EMS systems. First, the information obtained had to be as current as possible. However, a pattern was seen in researching some of the more dated material, and as the research continued, showed a relevancy in this project. Third, if the research identified standards or performance criteria relevant to this applied research project, they had to be professionally recognized standards or criteria.
In addition to performing a literature review, the author conducted an interview with the representation of hospitals. These interviews were specifically designed to identify common practices for delivery of patients from ambulances to the emergency department as well as identifying possible causes of delays for the ambulance from arriving to reporting available for service. A questionnaire was also circulated to all personnel of the LSFD asking them to report if they felt delays had been experienced when delivering patients to the emergency department and the degree to which they felt that this issue had been experienced. They were also asked to explain what they felt to be the cause of the delay, and to what extent it affected their ability to respond to additional calls.

In the questionnaire that was distributed to all members of the LSFD personnel, the issues of emergency department delays were examined. The following are the results of that questionnaire.

1. Do you feel that you have been delayed at hospital emergency departments in delivering your patients and returning to service?
   a. 72% of those responding stated that they felt they had been delayed at least sometimes at emergency departments.

2. If you feel you have been delayed, what do you feel was the most common contributing factor?
   a. Emergency departments busy was the most popular response at 77.8% of the responses. Second was ambulance diversions at 23.2%.

3. On a rating scale, how often does it occur?
a. The response was less than 20% of the time by 44.4% of the responses that was collected. Second was 20-40% of the time by 38.9% of the responses collected.

4. How many feel that this problem, if present, will only increase?
   a. All the collected responses showed that 72.1% felt this problem would only increase in the future.

5. What is your common practice upon arriving at the hospital to deliver the patient from arrival until you report available?
   a. Most answers seemed to be very similar in that they all stated that they reported arrived at hospital, parked the ambulance and unloaded patient from the ambulance after helping the paramedic secure the equipment and ensuring that the patient and equipment were mobile. They then entered the emergency department and made contact with the receiving facility and either moved patient to a room or stood by awaiting a room to place the patient. They then, if delayed, called their captain to advise of delay in unloading patient at hospital. If no delay, then they would unload patient, the EMT would remake the cot, secure and clean the back of the ambulance while the paramedic completed the report. As soon as the ambulance is cleaned and readied for the next call, the EMT would call for times for the report and placed them available. Some did admit on the questionnaire that they sometimes got a snack and drink prior to calling and placing themselves available if they had been very busy for the day. It is unknown to what percent this action occurs.
While this questionnaire did show some issues that are present, the response to the questionnaire was very low. Only 90 questionnaires were returned out of 140 that were sent out, which was less than expected and could ultimately affect the results of this applied research project.

In the interview with the current emergency department managers of both local hospitals which took place in a joint interview on September 23, 2008, three specific questions were asked. A fourth was asked: however, it was determined that the results of the fourth question were deemed inappropriate due to misunderstanding of the question. The question was thought to mean that I was asking them to comment on why they board patients and to what extent they do it. The following responses were collected as a result of the interview.

1. Do you feel that ambulances have been delayed in delivering patients to your emergency department and if so, how often?
   a. Both responded with the statement yes it does occur and they felt that only sometimes, less than 30% of the time.

2. If you feel they have been delayed, can you list the causes for those delays?
   a. Both stated that the number one cause would be the emergency department was busy. They also both stated that some boarding of patients, (when the floor of the hospital has no beds on which to put patients who are being admitted, they are left in the emergency department while waiting for a bed on the floor) does occur occasionally, but not frequently enough to cause significant delays in the emergency department. Even so, they both stated that sometimes the busy emergency department can be attributed to this. Questioned on how they felt they could help reduce the wait time, both answered they felt for the most part, the
crews were in and out quickly and they did not see a tremendous problem with their wait time. When given the facts of increased times between arrival and reporting available, neither immediately understood the concern.

3. What is the standard practice and policies for accepting patients from ambulances into the emergency department?

a. They both answered the same in that the ambulance arrives and is assigned a room. If no rooms are available, then they are asked to stage in the emergency department hallway until a room becomes available. It was not discussed at this point who was responsible for patient care, although it was assumed by this author that the ambulance crew was responsible until report is given to hospital staff. If a room is available, they are taken into the room, report is received by hospital staff and the ambulance crew, with help from the hospital staff, transfers patient to hospital bed. The crew then remakes the cot, services the back of the ambulance and reports available.

The question removed from the interview was how often they boarded patients. The ED directors were given a scale to which both stated they were unable to use to identify extent of situation. The question was trying to elicit a response as to what percentage of time they felt the emergency departments were boarding patients, which resulted in a delay in ambulance delivery of the patients and the ambulance's ability to report available. The final question discussed was that of diversions and it offered the manager of Lee's Summit Medical Center to make this statement. He said, "When the other local hospital went on diversion, it added to their overcrowding and with their policy of only going on diversion as a last resort, this diversion issue added to their overcrowding. The manager from St. Luke's advised that the Chief
Executive Officer. Mr. Paguls stated that if they had no floor beds, it was his interpretation of the law that they had to go on ED diversion. While neither of us agrees with that interpretation of the law it is their policy.

Assumptions & Limitations

An assumption was made by this author that the material collected is correct and accurate in the accounts of ambulance delays in emergency departments as well as ambulance diversions. An assumption was also made that during the interview process, the questions were understood as described by the author and nothing was misconstrued as to its meaning.

The limitations of this research project were time, lack of some specific data that would have been beneficial to the outcome, such as other communities measuring the true time that has been documented in emergency department delays to ambulances reporting available. Another limitation is that of human error. Lee's Summit Fire Department data had errors in the total of how many delays occurred. When an ambulance delivers a patient to an in-city hospital, it is forced available in twenty minutes. However, some calls were given to these units who then reported unavailable after being forced available. They failed to notify that they still had the patient in their care. Finally, due to the research abilities of this author, research material pertinent to this applied research project could have gone undetected, which could have changed the results of the research.

Results

The healthcare system in the United States has experienced some problems as well as significant changes in recent years, and the emergency medical services are no exception to this rule. With the literature review as well as talking with the managers of the healthcare system in
Lee's Summit, there seems to be a trend of longer waits developing. It also is apparent with the research that this is an international issue, and not just unique to the area but globally as well.

The first research question, *What are the current Lee's Summit Fire Department policies and procedures on ambulance responses?* was answered by the Standard Operating Procedures (SOP) of the fire department. In section 14 of the SOP it states that all ambulances shall report that they are enroute, on scene, action taken, transporting, arrived at hospital, and available. These times have explanations that include, en route—when tires are moving toward address, on scene upon arriving at or near location. Can use near location if in area and awaiting scene security from law enforcement. The term action taken when personnel arrive at the patient. Transporting when the ambulance has began moving toward hospital. Arrived at hospital when pulling into ambulance bay and available when ambulance is readied for another call. The LSFD began to force ambulances available after 20 minutes at a local hospital unless they advise of circumstances that prevented them from being placed available. This was done in part due to the increase in requests for ambulances and many sitting at hospitals in unavailable status. This seems to be what typically happens in most circumstances. It is unknown if there are any delays in arrival and available time resulting from crews failing to report available when they accurately could have been.

The second question, *What are the hospital policies and procedures for accepting patients from ambulance services?* was answered identically by both managers who stated that the ambulance arrives, and if a room is available, the ambulance crew takes the patient into the room, moves the patient with help from the hospital staff, gives a report, is then freed to remake cot, service ambulance, write report and then leave after signing report and giving copy to hospital. It was determined in further research after this response with on-duty crews that many
times, they go available at the hospital, and then complete the report while available at the hospital. The crews also stated that if they receive another call, they go en route and may return to the hospital to finish report and leave copies for the hospital.

The third question, *What are the actual practices of ambulance personnel upon arriving at the emergency department?* was completed with the questionnaire that was sent to all members of the fire department. They reported their routine procedure as: arrived at hospital, parked the ambulance and unloaded patient from the ambulance after helping paramedic secure the equipment, and ensuring that the patient and equipment are mobile. They then entered the emergency department and made contact with the receiving facility and either moved patient to a room or stood by awaiting a room to place the patient. They would then if delayed call their captain to advise of delay in unloading patient at hospital. If no delay, then they would unload patient; the EMT would remake the cot and secure and clean the back of the ambulance while the paramedic completed the report. As soon as the ambulance is cleaned and readied for the next call, the EMT would call for times for the report and placed the ambulance in available status. Some did admit on the questionnaire that they sometimes got a snack and drink prior to calling and placing themselves available if they had been very busy for the day. It is unknown to what percent this action occurs.

The fourth question, *What is the impact of hospital delays on the response times for the Lee's Summit Fire Department?* was answered by the reports that were obtained from the communications division, produced by the data management system that tracks call times. Information was gathered from 2007 to the current time documented at the time of this component of the research, which was August 2008. In 2007 the average time from ambulance arrival at the hospital to time available was an average of all four ambulances at only one of the
local hospitals and was 38 minutes. In 2008, the average time was 31 minutes. This hospital actually allowed a shorter turn around time in 2008 than it did in 2007. The second local hospital showed an average time for all 4 ambulances at 26 minutes in 2007 which increased to 35 minutes in 2008. When you crunch the numbers, the average time for 2007 locally was 32 minutes and in 2008 it rose to 33 minutes. This showed that only a minimal increase occurred with local facilities.

A look at the metro area hospitals revealed a far bigger picture as to the extent that this issue may be impacting the fire department-based EMS service. A look at the metro hospitals showed a marked increase in turn around time for the ambulances. This was studied since the fire department policy was to transport patients to area hospitals if requested, or if a tertiary care facility was required. The average turnaround time for area hospitals in 2007 was 63 minutes and in 2008 was 80 minutes. This area saw an increase of 18 minutes.

Discussion

In analyzing the research and literature, it seems that delays in emergency departments are, in fact, a very constant problem not only in the local area, but also nationally. In a recent article by the American College of Emergency Physicians (ACEP) they stated that many emergency departments in the United States today are critically overcrowded and unable to respond to the day-to-day emergencies, let alone disasters and acts of terrorism. It goes on to state that until all the stakeholders agree that the problem is systemic and hospital-wide, that solutions will not and can not be implemented. They go on to say that then and only then will Americans access to emergency care be protected. (American College of Emergency Physicians [ACEP], 2008, 4)
When you look at the correlated results from the Lee's Summit Fire Department it becomes clear that while this does seem to be a growing concern, it is not at the extent of the national problem that exists, at least not at this time. In a recently attended conference EMS Summit by this author, it was discovered in one of the presentations on ambulance delays that some services were waiting for over one hour for a bed to which to deliver their patients, and in isolated incidents some reports of 13 to 22 hours of wait times were reported. In Riverside County California, ambulances waited a total of about 1000 hours at hospital emergency rooms in one month. That was more than twice as much delay time as any other month last year. Delays of one hour are not uncommon. (Beeman, 2006, 1) As one can see, this issue is at a critical level nationwide.

While the research showed that the issue at Lee's Summit is not currently as critical as many communities are experiencing, it does show that it is an issue that warrants continued monitoring because the issue is on an upward trend. One of the issues that were not studied was that of diversions. It would be interesting to see the impact of times and movement of ambulances that might deliver patients to local hospitals that are then required to transport outside of the city and extend the transport time. This research did show that there is an increase of around 30% for wait times in one year when transporting patients to area hospitals while the local hospitals showed a virtual tie within the same time frame. One can only forecast that next year will not have any answers, and one can expect even longer turn around times, which does impact the availability for ambulances to respond to others emergencies. One aspect that is currently under development by not only emergency departments, but private entities is that of urgent care centers. Currently two are being developed in Lee's Summit and the impact of these
The effects of emergency services is yet to be calculated in a solution. Some medical personnel are speculating that an increase in ambulance requests will be made as a result of these services.

In a recent article by the American College of Emergency Physicians (ACEP) the statement that many emergency departments in the United States today are critically overcrowded and unable to respond to the day to day emergencies, let alone disasters and acts of terrorism. It goes on to state that until all the stakeholders agree that the problem is systemic and hospital-wide, that solutions will not and can not be implemented. They go on to say that then and only then will Americans access to emergency care to be protected. (American College of Emergency Physicians [ACEP], 2008, 4)

Ambulance delays requires that ambulances further from the call will have to respond due to the closer units being tied up at the emergency departments, which in the Lee's Summit area, may not impact arrival times and action times since the fire apparatus may be the first arriving unit, but will impact transport times. The current issue that concerns this author was during the interview of the current managers of the local hospitals; they did not seem to think that this was an issue and even commented on how they felt our crews got in and out of their facilities pretty quickly. It seems that when the ambulance crews are waiting with the patient, the hospital staff views that as part of the EMS responsibility and does not count that as a delay. More training and discussion on how the fire-based EMS system works and the responsibility of the crew as well as the hospital is going to have to be a topic of discussion for not only fire department managers, but also hospital manager. A task force from each entity would be suggested to help move the process into a true improvement for patient care.

This is a national issue that it seems according to the research may have been experienced earlier in Canada than in the United States. The research showed that Canada was addressing the
The effects of issue and were innovative in trying to establish solutions to this very problem. During the EMS Summit conference, the presenter Ms. Kelly Turner from the Hamilton Ontario Emergency Service Network stated that some of their hospitals were now staffing what they referred to as transitional care beds for those acute patients that were in the emergency department awaiting beds on the floor to be admitted, this system, hospitals felt, would free up more emergency department beds. They were also experimenting with hiring additional nurses so that if the ambulance crews were being delayed waiting for beds, the additional nurses could assume care of the patient and allow the ambulance crews to report available.

The use of the EMS system in the metropolitan area does seem to be of some value in making sure that the transport of patients are being diverted to emergency departments that are reporting open; however, it has been discovered by this author that some hospitals will go on diversion when they may not meet the criteria for diversion, while yet others will not go on diversion when they meet the criteria because of CEO decisions.

This is a condition that warrants a continued monitoring to trend the pattern that will develop, and whether or not this trend will follow the national trend and continue to increase, or if the problem of turnaround time will remain unchanged or even lessen in coming years.

**Recommendations**

It is apparent that at least the managers of the local emergency departments do not recognize this as an issue, and while at this time, it seems to be only a minor issue, unless the fire department or others can influence these individuals or other stakeholders within the hospitals to at least discuss the issue of ambulance turnaround time, it may become a significant issue in the coming years. This research supports the need to maintain limited turnaround times in order to provide efficient EMS service to the community.
Meeting with the local emergency departments as well as nursing organizations seems to be one way that the issue of ambulance delays could at least become reviewed and maybe in this area even avoided. While this research did show an increase in turnaround times within the timeframe studied, it was not as drastic as what they research seemed to point to nationally. If the Lee's Summit community could divert or at least slow this trend, one could count that as a true victory in the realm of healthcare.

It would be a recommendation that the issue of diversions also be further studied so that the impact of diversions on the fire-based EMS system could be truly defined. It only seems to this author that the impact of local hospitals going on diversions would have a direct and increasing effect on time between ambulance arrival and available time. Each ambulance would have to travel further to deliver patient as well as travel further to return to the city before reporting available.

A task force assembly to look at true times would also be a recommendation in that it is unclear in this research if the times are truly accurate as human omissions as well as differences in reporting times are probable. A uniform reporting standard would help keep more accurate time that would allow a more plausible research on the true turnaround time. The soon-to-open urgent care center within the Lee's Summit area seems to be a possible short term solution to the overcrowding that is being reported in the local emergency departments. This author would recommend that a further study of ambulance delays at hospitals be revisited after the Urgent Care Center is open for one year to determine if the impact has directly correlated with the turnaround times of the ambulances.
References


