

Exploring Opportunities in Interfacility Ambulance Transport for the Dubuque Fire Department

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Certification Statement

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

Signed: _____

Abstract:

The Dubuque Fire Department (DFD) has primarily served the community with emergency 911 ambulance response. DFD does not know what the required resources would be to provide interfacility ambulance service for healthcare facilities in the community. This research will identify factors to help the Department with decision making on whether to provide local non-emergency and out-of-town hospital transport. A descriptive research method was used to gather data and recommendations from other agencies to help the department understand how adding the service would impact operations. The questions designed in the research were: a) what is the projected call volume generated from interfacility transfers? ; b) what additional training would be required for members to provide critical care paramedic ambulance transports?; c) What are the staffing requirements for the Fire Department to offer non-emergency out-of-town ambulance service operations?; d) what are the projected expenses for providing out-of-town interfacility transports?; and e) what revenue could be realized for the Fire Department based on current billing and reimbursement models? It was determined there was sufficient volume of interfacility calls within the corporate city limits that would help minimize the current deficit in ambulance operations. The Department could provide out-of-town interfacility transports with a net increase in revenue. One immediate obstacle for this expanded service would be the need to increase the vehicle fleet. The recommendations from the research would begin with education to community members and administrators at the healthcare facilities to demonstrate the Fire Department's ability to provide interfacility transfers. It would be important to engage the DFD members to establish a working model as they are significant stakeholders in the success of the program.

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Introduction:

The Dubuque Fire Department (DFD) is no different from any other fire-based EMS agency throughout the nation in the evolutionary transformation with the way ambulance service is delivered in the community. The department had been the primary ambulance service operating up through the 1970's, as the agency responsible for 911 emergency response and non-emergency local interfacility transports between nursing homes and hospitals. Private ambulance service began to emerge in the early 1980's within the City of Dubuque, creating competition to the DFD ambulance service, which resulted in a decrease of the interfacility transports.

In January 2012, one of the two private ambulance services announced that their Dubuque based operations would discontinue, with only an eight hour advance notice. This termination of service leaves a dependency for interfacility transports in the Dubuque area to one private service. The problem is that DFD does not know what the required resources would be to provide an expanded scope of ambulance service outside of the 911 emergency dispatches.

The purpose of this applied research paper is to identify factors that will assist the DFD in decision making on whether to provide an expanded ambulance operation model of local non-emergency and out-of-town interfacility transports for the community. Using the descriptive research method, the researcher will gather data to help the department understand the resources it will need to operate expanded ambulance service to the community. The questions designed to assist in this research will be:

1. What is the projected call volume generated from interfacility transfers?
2. What additional training would be required for members to provide critical care paramedic ambulance transports?

3. What are the staffing requirements for the Fire Department to offer non-emergency and out-of-town ambulance service operations?
4. What are the projected expenses for providing out-of-town interfacility transports?
5. What revenue could be realized for the Fire Department based on current billing and reimbursement models?

Background and Significance

The City of Dubuque is Iowa's oldest city and was chartered in 1837. It borders the Mississippi River and is located at the tri-state region of Iowa, Illinois and Wisconsin with a 2010 United States Census of 57,637 citizens (City of Dubuque Website, 2013). The community is served by two full service hospitals, Mercy Medical Center and Finley Hospital. Due to the high level of quality patient care provided by these two facilities, the tri-state region has access to regionally and nationally recognized advanced medical services in a variety of specialties including cancer, cardiac angioplasty, and cardiac bypass surgery. With the limited frequency of cases, neither healthcare facility can provide long term care for a burn injured patient or neurosurgery. Patients who have these types of injuries or need to have other specialty medical care or follow up, have access to two teaching hospitals that are located within about 90 miles of Dubuque: the University of Iowa Hospitals and Clinics in Iowa City, Iowa and University of Wisconsin Hospitals in Madison, Wisconsin.

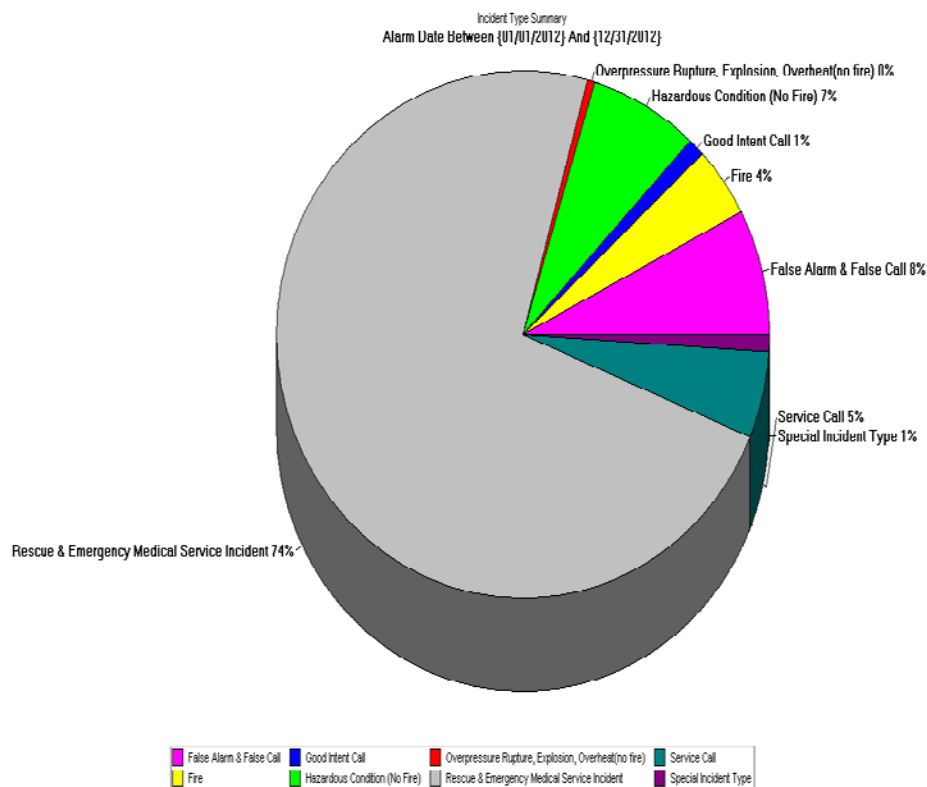
The City of Dubuque Fire Department is an all hazard response department providing fire suppression, technical rescue, hazardous material mitigation, and EMS response. The 89 civil servant employees are also charged with fire prevention tasks including business and apartment inspections, smoke detector installation, facility pre-plans, fire hydrant flushing, fire station tours and community presentations. The net operating budget for the Fire Department in 2012 was

\$7.7 million dollars which reflected 21 % of the annual budget for the City of Dubuque (FY 12 Citizens Guide Part 2, 2012, p. 137)

The Department responded to 5, 437 calls for service in 2012 with 74% representing ambulance service (*Firehouse Software, Version 7.14.19*).

Figure 1:

DFD call comparison from January 1-December 31, 2012



Beginning in 1996, the Department required all new hires to possess a valid state of Iowa Paramedic Certificate at the time of a conditional employment offer. This enabled the Department to have a higher trained medical service provider available to respond on dispatched calls. The requirement also gave the Department immediate savings in its training budget since it

would not have to send an employee through the paramedic program. By attrition, the Department now is staffed with 66 paramedics or paramedic specialists.

The evolution of the ambulance service in the City of Dubuque has been quite interesting. The very first ambulance, donated to the Finley Hospital, was a horse-drawn carriage. In 1910, the City considered the purchase of a public ambulance after concerns that individuals who provided the service at the time were overcharging patients and indigent persons had a difficult time paying for a ride to the hospital. To resolve the issue, the City offered additional compensation to the transfer service. Years later, momentum in the community intensified with a call for change in the way ambulance service was provided.

The city should have its own ambulance so that when there is a call for it, the injured person may not have to lie at the side of a railroad track or elsewhere while the owners of a private ambulance are debating about whether they will be paid an exorbitant price for their services ("City may purchase public ambulance," 1913).

Dubuque's first public ambulance entered into service in November 1914 and provided coverage 24/7 at no charge to the community. Initially, the ambulance was stationed at the Fire Headquarters and operated by one hired employee. The employee's family would reside in an apartment above the fire station so he was available for an expedient response. The service expanded through time to become a two-man position. The individuals who ran the ambulance typically had first aid skills to treat major injuries, but emergency medical training still had not been developed.

Historically, like other communities, the funeral homes provided transfer service as well; however, in 1969, the Dubuque funeral home owners decided to get out of the business for local transports but remained committed to offer out-of-town interfacility transports. The City at this

time amended its policy and eliminated emergency “long trips”, mainly to Iowa City, Iowa and Rochester, Minnesota since only a few calls for transport were ever provided by the Dubuque Fire Department ("City’s own ambulance service will continue; rates going up," 1969).

Department EMS personnel evolved like many other communities in the United States. City of Dubuque Fire Chief Brown noted that Dr. John Chapman, M.D. was instrumental in advancing the care for the community. He provided additional medical skill training to the Fire Department staff so they could deliver an expanded scope of care to the citizens. This was before the State of Iowa created advanced EMS provider levels (E. D. Brown, personal communication, February 14, 2013). This extra training and dedicated personnel enabled the Dubuque Fire Department to be one of the first paramedic services in the state of Iowa.

In the late 1970’s, an 11 person taskforce was convened to determine the best operating model for ambulance service for the community. The group evaluated options to: a) offer it to a private ambulance service; b) create hospital based EMS; or c) to allow it to remain within the control for the Fire Department. As the options were being evaluated, the plan that received strong support would move the public ambulance to being based at the hospital, with the ambulance members, EMT’s or nurses working in the emergency department when not on transports. The plan had proposed a third ambulance that would be staffed at an advanced life support level and would provide interfacility transports. The local newspaper offered a sounding board for the community and encouraged community members to call-in their opinions. Ninety-four out of 101 responses of this informal survey supported the Department retaining control of the operations with the understanding that the City would subsidize the operations for this service ("City-run ambulance service supported," 1979).

The task force decided that the best option would be for the Department to retain control and operate the ambulance service. The Department's mission was to continue to provide emergency and non-emergency service with two front line ambulances and one reserve ambulance. Out-of-town interfacility transport would continue to be provided by the funeral homes. The Department ambulance service had its shortcomings with the non-emergency interfacility transports as recounted by Ric Jones, former EMS supervisor of the Dubuque Fire Department. He stated that there were inefficiencies in how the service was operated because of the volume of calls there was no means to schedule transfers for the day, so some patients wouldn't be picked up for several hours after their planned discharge (R. Jones, personal communication, March 6, 2013).

In 1979, three individuals from a neighboring volunteer fire department established Dubuque Medical Transport, a corporate entity with a vision to provide non-emergency ambulance transportation from nursing homes, hospitals and physician offices in the Dubuque community. The company contended that its for-profit private ambulance service would not target the emergency 911 response provided by the City and that by focusing on non-emergency transports; it would lessen the workload of the Fire Department. This would allow the Department to provide a quick and efficient response for true emergency 911 dispatches. The group applied for a license to operate the ambulance service with the City Clerk, but under the direction of the City Manager the license was denied. The City Manager at the time contended that his main concern was that the private ambulance service would reduce the revenue stream that the Fire Department received from the non-emergency interfacility ambulance transports.

Dubuque Medical Transport filed a lawsuit in 1980, contending that the City illegally denied it a permit to operate. The case went before the Iowa Supreme Court in November 1982.

The Court ruled for Dubuque Medical Transport concluding that there was “evidence of intentional delays by the city and its legislation aimed at stifling competition” (*Scott Neyens, Theodore A. Pfiffner, and Charles S Uskavitch, Appellants, V. City of Dubuque*, Nov. 24, 1982). The Supreme Court also found that the City’s denial of licensure amounted to an anti-trust violation and awarded treble damages. Dubuque Medical Transport was given a license, while serving as the primary provider of interfacility transports out-of-town, quickly began to have a significant impact on the Fire Department with a decline of local interfacility transports.

In the fall of 1993, Criti-Care Mobile Medical Services entered competition with Dubuque Medical Transport, and provided specialized advanced life support transport. With two competing private ambulance services in the area, the call volume and revenue for both private agencies had been compromised. The ownership groups met the following year and agreed to merge into a new organization known as Heartland Ambulance Service. This service maintained interfacility paramedic and critical care paramedic service for the Dubuque community (D. Sechler, personal communication, March 3, 2013).

In 2003, a new business entity emerged to challenge the market share of ambulance service in the region. Paramount Ambulance Service formed and was authorized by the state of Iowa EMS bureau to operate as a paramedic service. It changed its level of service to critical care paramedic level in April 2005 (M. Meese, personal communication, February 6, 2013). The community again was faced with two competing private ambulance services in the region. Heartland Ambulance Service had suffered significant setbacks and was losing market share between the private for-profit companies. In April 2009, Heartland ceased operations and worked out a transition to Advanced Medical Transport (AMT) out of Peoria, Illinois.

AMT tried to compete with Paramount Ambulance Service; however, without being locally owned or having an established service record in the community, AMT was challenged with enough market share to be able to maintain service. On January 27, 2012, with less than an eight hour notice, AMT indefinitely suspended operations in the community. With only one for-profit private ambulance service remaining in operation to provide interfacility transports, the concern is that if Paramount Ambulance would close, there would be a great impact on the Dubuque Fire Department and the community due to the lack of assets that are arranged to continue this service.

As mentioned earlier, the Dubuque Fire Department had seen decreases in local interfacility transports which created less revenue for the service. The ambulance service operated at a net loss in 2012 with an operating budget for 13 positions and supplies at \$1.4 million dollars (Appendix A). DFD provided over \$2,012,263 dollars in billed services throughout the year with a net reimbursement received of \$1,017,963 dollars (Appendix B). While one would contend that this leaves an operating loss of just over \$400,000, the personnel are cross trained and provide a dual role in fire suppression, inspection and code enforcement, hazardous material and rescue services.

The research of this paper meets the goals established by the United States Fire Administration (USFA) in its strategic plan for fiscal years 2010-2014. The first goal is to improve local planning and preparedness. The Department is a stakeholder in providing quality ambulance service in its community. Another goal of the USFA is to improve the fire and emergency services' professional status (United States Fire Administration [USFA], 2011, p. 13). This can be accomplished by demonstrating to City administration good financial stewardship of the Department while maintaining a high caliber of service delivery to the

community. As the fire service has witnessed with the evolution in the skills and services that fire-based EMS provide, there is continued pursuit of new opportunities to meet the changing needs of the community. With the decline in structure fires, the fire service has needed to adapt its role and it appears that ambulance service is one consistent service that can be maintained.

This research paper is also relevant to the discussions and materials on leadership and adaptive change presented during the Executive Development course in the Executive Fire Officer program at the National Fire Academy. When individuals enter the fire service, there is a strong desire to perform firefighting tasks during their careers. Most people do not enter the fire service to perform EMS functions even though it has become a major component of our response role. Interfacility transfers would be an area where the fire service could expand, and the leader can convey to the membership the importance of this service. To be successful at adaptive challenges the leader must “be able to get people to see realities and tackle them because they want to, not because they are ordered to do so” (*Student Manual, 2012, p. 3-3*).

The Department will benefit from this research as it could assess the financial costs and benefits of operating interfacility transfers. The fire service, and especially those departments that operate fire-based EMS, impose a significant expense upon the community’s tax base. The fire service is not normally a revenue generating entity, but more of an insurance policy. While it is always the desire that the fire department will not be needed, history has shown that inevitably, the fire department will be called upon to respond to an emergency of some form. The administrators are tasked with the challenge of sharing with the public how they can best provide the quality and expedient service at the most cost efficient capability.

Literature Review

The role of the fire service has been shifting from responding to fires in the direction for more calls for medical services. A study by the International Association of Fire Chiefs conducted in 2009 showed that “60% of EMS delivered in the U.S. is provided by the fire service” (Aman, 2012, para. 5). Another study by the United States Fire Administration demonstrated that there has been a significant reduction in fire calls nationwide “from 1.8 million in 1999 to 1.4 million in 2008” (Roberts, 2010, para. 1). While history shows that a Fire Department traditionally exist to suppress fire, this role will not be as frequent as fire prevention and technologies becomes more effective in reducing the actual fire incidents. In the article, *The 70-20-10 Rule*, Ludwig (2011) noted that the fire service will need to recognize their changing service mission:

Perhaps it is time the fire service examines itself and comes to the realization that we follow the 70-20-10 rule. Seventy percent of what we do is EMS, 20% in non-emergency activities such as inspections, hydrant flushing, training, community education and outreach activities and the remaining 10% is firefighting. Performing fire suppression and EMS are equal and fundamental missions of any fire department. But at the same time, EMS should not be a secondary mission of any fire department (p. 34).

In his article, *Fire service EMS: Past and future*, Ludwig (1998) asserts that EMS will become more of an anchor within the fire service because those who are rising through the ranks to become the chiefs of departments were once paramedics and recognize the value of the system to their community. He argues that the fire service operation will be more successful than private ambulance service, because the Fire Department will be able to:

Provide the highest quality level of service to our citizens and community; no shareholders and their accountants crunching numbers and analyzing their return on investment. When you have two missions-to provide service and answer to investors-somewhere there will be conflict (p. 26).

The financial resources to provide quality medical care continues to rise unimpeded. “The cost of healthcare in the U.S. has risen, now, exceeding 17% of the gross national domestic. It is expected to exceed 20% by 2017 (National Coalition of Health Care)” (International Association of Firefighters [IAFF], 2002, p. 107). In the article, *Private Equity Sinking Big Bucks into EMS*, Erich (2011) acknowledged that private equity firms have been investing heavily in private for-profit ambulance services. He cited how “Clayton, Dubilier & Rice obtained AMR’s parent company, EmergencyMedical Services Corp., in a deal totaling approximately \$3.2 billion” (para. 1). Profit and the future trends in the healthcare industry can make it more enticing for organizations to pay attention to the potential revenue of the ambulance service.

The first trend that will affect ambulance service providers is the impact of the Patient Protection and Affordable Care Act (PPACA). This healthcare reform legislation has provided two important components. One is that it required for all Americans to have healthcare insurance or face penalties. Secondly, the reform protected individuals with pre-existing medical conditions and gave them the opportunity to acquire health insurance coverage with no maximum coverage. Both sections can increase a person’s ability and frequency to acquire healthcare services without the fear of out of pocket expense.

The second trend is the increase in the baby boomer generation reaching retirement age. Erich (2011) said there will be an additional 80 million individuals retiring over the next 15 years

(para.4). Typically, those in this age range have a tendency to require more medical services, which can also correlate to an increase in ambulance transports.

With the nationwide economic downturn in recent years, municipalities have analyzed their bottom line and in some communities cut staff and/or services. To maintain their function, it is important for fire departments to evaluate all viable service options at their disposal. “Fire departments need to be creative within the constraints of local, state, provincial and federal law. They may be able to increase their operating revenues by providing nonemergency transport” (Carter & Rausch, 2008, p. 248). This position is also supported by the International Association of Firefighters (IAFF), what has encouraged fire departments to utilize interfacility transports as a way to generate revenue and maintain staff time accountability. However, they caution that it must not affect the ability to deliver emergency medical services (*IAFF Monograph 5*, 1997).

Economic revenue from providing interfacility transport can benefit a department. As Page (2002) discussed,

Generally speaking, non-emergency medical transportation is more profitable than emergency service. The level of service (typically BLS) requires less training and less expensive equipment. There is no legal obligation to transport people requiring non-emergency medical transportation unless they have a source of payment. There is less wear and tear on vehicles and less exposure to potential liability from collisions with other vehicles (p. 32).

Interfacility transports operated by the fire service historically have not been a common service practice throughout the United States. In some territories, private or hospital based ambulance service stopped providing this service, resulting in the Fire Department stepping up to take on this role due to their staff and equipment resources already in position. This was the case

for the Muscatine Fire Department which took over the interfacility transfers from a private service in 2000. Assistant Chief Michael Hartman stated that the department had been able to realize net revenue over \$400,000 from operating interfacility transfers in 2012. (M. Hartman, personal communication, March 23, 2013).

One of the largest reimbursement sources for most ambulance services is Medicare. This social service system provides health insurance for those that are 65 years of age and over, people under age 65 with certain disabilities, and people of all ages with end-stage renal failure (<http://www.cms.gov/Medicare/Medicare-General-Information/MedicareGenInfo/index.html>). In order to qualify for ambulance reimbursement, the patient must present with a medical condition where the use of any other means of transportation other than ambulance is contraindicated; the transport is medically necessary and is provided to the closest facility.

LifeQuest, the third party billing service for the Dubuque Fire Department documented a 50.59% total return, reflecting a little more than \$1million dollars on total billed ambulance services for the 2012 fiscal year (Appendix B). Medicare provided about 53% of the value on the collected resources for the Dubuque Fire Department. In the article, *Now what do we do?*, one issue Ludwig (2008) considers is that “In 2019, without the intervention of Congress, the Medicare fund will go broke” (p.38). An organization cannot solely rely on federal reimbursement, so diversification in billable services is necessary for maximum reimbursement.

While the collection process doesn’t always assure full reimbursement, one resource that the department could use to collect unpaid bills would be the Iowa Offset Program. Offered by the State of Iowa, the Iowa Offset program allows municipalities to submit names of clients that have not paid their bills. The state then garnishes state tax refunds and gambling winnings to return back to the municipality. The City of Muscatine reported that they have collected over

10% of outstanding debt in the last four years by using this service (J. Collins, personal communication, March 25, 2013).

In the article, *Money Doesn't Grow on Trees Anymore*, O'Brien (2005) noted it is important for fire managers to know what it costs to operate a transport system and how much revenue can be anticipated to run the service. He said,

Firefighters who understand the finances of our business-and yes, it is a business-will go a long way toward securing the fire service's future. Professionals think like business people and must be creative. The public safety professions are quickly becoming the last jobs in the country with longevity, security, and reliable pensions, but that may change too, if we are not financially responsible and fulfilling our mission (p. 29).

The fire service can also use metrics to help identify their efficiencies. Ludwig (2013) noted that private services like to evaluate their efficiency based on the Unit Hour Utilization (UHU) coefficient. To calculate this, you would take the number of calls in a 24 hour period and divide it by a 24 hour period. This will help define how busy a unit would be, assuming that a transfer would take one hour. Most private companies would like to see coefficient around .6-.8 which demonstrates that the units are staying busy and generating revenue. (G. Ludwig, personal communication, March 15, 2013). It is important to remember that while the fire service UHU values may be lower, they serve a dual role purpose. Assigned tasks as firefighters, these medics benefit the department to expand fire service roles in the community.

It is important for the fire service to be able to adapt to the changing needs of their customers- the community and healthcare facilities. In *A Strategic Survival Guide*, Richards (2012) shared:

Fire service leaders must look at the historical aspect of EMS and combine it with anticipated changes to develop flexibility and continuity in the plan with input from key stakeholders. Failure to anticipate future growth and the changing needs of the community can cause a fire-based EMS system to come irrelevant for a third-party ambulance takeover of service (p. 22).

One of those emerging fields in the ambulance sector is critical care transportation that can provide ambulance services with great profit margins.

Critical care transport is necessary to move a patient who has needs that exceed the current medical facility resources to a location that has more specialized care (Celia, Paluck, & Smith, 1995). The problem with providing this service is that a nurse may not be familiar with the position of equipment in an ambulance while a standard paramedic has limited experience with intensive medical care. With the development of the critical care paramedic scope of practice, the training was able to provide the paramedic the skill sets necessary for specialized care on transports. The CCP model enables a hospital care system to have a wage savings by using paramedics rather than nursing staff resources.

The literature review of interfacility transports relates back to the Executive Development course at the National Fire Academy. In order to be successful at executing change within the organization, the leader works with the stakeholders to identify all parameters to the issue, to develop a plan and to implement the solution. Entering the interfacility business would be an adaptive challenge for the leadership of the Fire Department. Page (2002) recognized that “before a department makes a commitment to nonemergency medical transportation, it should carefully evaluate the adaptability of a fire and rescue organization’s culture” (p.32).

Procedures

This applied research project commenced while the author was attending the Executive Development course at the National Fire Academy. Prior to committing to the research topic, the scope of the research was discussed with the Fire Chief and Emergency Medical Service Supervisor of the Fire Department, to ensure that it would benefit the Department and that no concurrent analysis was being made. The Learning Resource Center (LRC) at the National Fire Academy, Emmitsburg, MD, was visited to begin the review of published material related to the topic. Upon return home, the researcher continued to narrow the scope of the research questions and used the online search feature through the LRC. The Carnegie Stout Library was helpful in providing assistance with the interlibrary loan (ILL) requests for additional research materials. An internet search based on key words from the topic was used under the Google platform to identify additional resources. The project employed the descriptive research methodology.

To research the projected call volume anticipated for DFD by providing interfacility transports, a questionnaire was generated. A sample of the introduction letter and questionnaire can be found in Appendix C & D, respectfully. This tool was distributed in person on February 19, 2013, to the administrators of the 14 extended care facilities located in the corporate city limits of Dubuque. On March 5th, a reminder phone call was placed for the remaining questionnaires that were not returned. There was a 100 % return rate of the questionnaires which was summarized by the researcher.

The next step in the research project was meeting with key administrators to gather a historical perspective on ambulance service in the community, their assessment on the current ambulance service model, and their explanation about how policy making decisions are made for their organizations. The interviews were restricted to between 30 minutes and one hour so that it

did not create a burden to their busy schedules. The individuals included Russell Knight, CEO of Mercy Medical Center; David Brandon, CEO of Finley Hospital, Dubuque Fire Chief E.D. Brown; DFD Medical Director Doug Butzier, M.D., Deputy Chief Gary Ludwig, Memphis Fire Department and former DFD EMS supervisor and current Dubuque City Councilman Ric Jones.

To determine the additional training required for members to provide critical care paramedic (CCP) interfacility transports, the researcher contacted the University of Iowa EMS Learning Resource Center-Iowa City, IA. They are the leading training facility in this region that could provide the cognitive and didactic training curriculum for the CCP program. The State of Iowa EMS Bureau was contacted to ensure the Department could meet the administrative guidelines for the training and equipment required for an interfacility transport ambulance.

It was important for the researcher to learn how other fire departments in the state of Iowa delivered interfacility transports, and any lessons they derived from the implementation for the department. Fire Chief Jerry Ewers and Assistant Chief Michael Hartman of the Muscatine Fire Department, and Chief Matt Trexel of the Burlington Fire Department, graciously provided phone interviews and explained how interfacility transports work in their community. The Fire Department incident tracking software, Firehouse, was utilized to run reports to assist the researcher on the frequency of calls, unit call volume, nature of calls, etc. This would provide data that would be able to determine the impact of any added call volume on the current ambulance service model and how an expanded out-of-town interfacility transport model would work.

To determine the financial implications of the expanded scope of ambulance service, the researcher obtained the billing and reimbursement data from LifeQuest Services. This organization has been the third party billing agency for the City of Dubuque since 1999. They

ensure accuracy for appropriate reimbursements allowable by law and follow up on delinquent accounts. The data collected will show how much revenue was billed out utilizing the Fire Department ambulance service, and what return was realized on those billings. The data points from the nursing home and hospital administrators will also provide the basis for projected potential income should the department expand interfacility transports.

As with any operation, there are expenses to ensure delivery of services. The City of Dubuque budget was reviewed for line item expenses for wages and benefits for the employees that deliver the ambulance service. In order to determine operating expenses of the apparatus, maintenance and fuel records were acquired from the maintenance division at the city garage. City of Dubuque Finance Director Ken Tekippe was also conferred with to ensure accuracy to projected expenses and revenue from interfacility transports.

When researching this topic, the researcher realized several limitations that had implications on the data collected. The most obvious factor was that nursing home facilities and hospitals do not keep statistics of transport frequency or destination. This led the researcher to request their best estimate to these data point requests. Another issue that developed was providing correct terminology for those filling out the questionnaire so that respondents could differentiate between a nonemergency transfer and a wheelchair transfer. While the Fire Department does not provide the wheelchair transfer service, there were some answers in the questionnaire that demonstrated confusion between the two.

Results

One of the first questions that the research needed to quantify was the projected call volume that could be realized by providing interfacility transports to nursing home facilities and hospitals. Through the use of a questionnaire, nursing home administrators were asked to provide

an average monthly estimate of how many calls of service they made per month either to the private service or through the 911 system operated by the Fire Department (Table 1).

Table 1:

Estimated calls for service to local nursing homes

	Mileage to hospital	Emergency transfers to hospital	Non-emergency transfers to hospital
Ennoble Manor	2.5	4	10
Dubuque Nursing and Rehab Center	2.1	5	5
Dubuque Retirement Community	3.3	2	2
Heritage Manor	3.6	3	4
Luther Manor	2.1	6	2
ManorCare Health Services	1	2	4
Mt Carmel	2.5	2	4
Mt Saint Francis	3.7	1	3
Oak Park Place	2.9	4	4
Stonehill Franciscan Services	3.7	4	15
Sunnycrest	4.7	7	2
Sunset Park Place	2.9	1	1
Sisters of the Presentation	2	1	4
Bethany Home	3.8	5	5
	Total monthly calls	47	65

The cumulative response shows that nursing home facilities would anticipate a monthly average of 65 non-emergency transfers a month, which would equate to about 780 additional

calls for service in a year. The questionnaire shows that close to 80% of the emergency calls are already being summoned by these facilities through the 911 system, with a Dubuque Fire Department response. Therefore, of the 47 calls for emergency service, DFD likely is already responding to 37 of them, so this would create a net gain of 10 additional emergency calls a month or 120 calls annually. Expected annual increase in interfacility nursing home transports to the hospitals would be about 900 calls. This would give the Department an average daily increase of 2.4 calls per day in interfacility transports to the hospital.

To determine the number of out-of-town interfacility reports, the research posed the question to the hospital administrators. Russell Knight, CEO of Mercy Medical Center reported the hospital discharged 434 patients to general acute hospitals which he felt would be primarily to University of Iowa Hospitals-Iowa City, IA or University of Wisconsin Hospitals, Madison, WI (R. Knight, personal communication, March 13, 2013). David Brandon, CEO of Finley Hospital stated during an interview that he could not provide specific statistical measurement to the question on the number of interfacility transports but he estimated about 400 long distance transfers annually (D. Brandon, personal communication, March 26, 2013). The cumulative average of out-of-town interfacility transports for the Dubuque community would add about 820 calls annually which would average to 2.2 daily rate transfers.

Based on current apparatus levels with three units, the ability to provide out-of-town transports would not be feasible. Should the Department take a vehicle out of service for a long distance transfer, it would reduce the number of ambulances that could respond to local calls. It would be practical for the Department to examine the purchase of light duty ambulances that would provide better fuel mileage. With the frequency of out-of-town interfacility transports, there would be stability for the Department to invest in the program.

In considering an expanded scope of service and offering interfacility out-of-town transports, the DFD needs to recognize that many of these patients could require critical care paramedic skills. Research would need to determine what training and equipment would be required for these transports. According to Field Coordinator, Merrill Meese, the Iowa Bureau of EMS doesn't require the ambulance service to obtain critical care paramedic level but allows them to provide the service in two ways:

- 1) The service would get a letter of agreement from a hospital that states the service will use hospital resources (both human and equipment) for critical care transports.
- 2) The service would develop critical care transport protocols and have properly trained paramedic specialists and paramedics at the critical care paramedic level to staff the ambulance.

He stated further that the hospital is responsible for determining the level of care needed to transport patients to other locations (M. Meese, personal communication, February 6, 2013). Knight mentioned during the interview that there is no hospital policy on the level of service provided during transport, but it would be coordinated based on the physician direction (R. Knight, personal communication, March 13, 2013).

Critical care paramedic training has been offered through the University of Iowa EMSLRC since 1996. Rosemary Adams reported that the training curriculum requires 70 hours classroom training and 24 hours of clinical time at an expense of \$1,100 per student (R. Adam, personal communication, February 6, 2013). Based on current staffing of DFD paramedics, it would cost the department approximately \$72,600. This does not take into consideration books or volume discounts. Another consideration that could affect the expense would be for the

members to take the training during assigned duty shifts or have it assigned as overtime for off duty personnel.

Assistance Chief Michael Hartman of the Muscatine Fire Department (MFD) noted that with the change of EMS scope of practice, the only equipment that their service utilized on a critical care paramedic transfer was the vent. At MFD, if there was a request for specific equipment that wasn't on the ambulance, the Fire Department has an agreement that it would be provided by the hospital (M. Hartman, personal communication, March 23, 2013).

Being able to deliver interfacility transports not only requires reliable equipment, but also adequate staff levels. In order to determine the staffing requirements for the Fire Department to provide interfacility transports, it was necessary first to know how many calls for service they could experience. The DFD manages three ambulances; two are front line units (medic 551 & 552) with the third unit (medic 553) used as the reserve unit. In order to staff medic 553, the department would have to fill these positions with extra firefighters on duty at headquarters or take the members assigned from ladder 511. This would cause the aerial ladder to be out of service for fire and hazardous material calls.

DFD members work the "California Swing" schedule: 24 hours shifts every other day with four days off after the third day. The minimum staffing requirement for the on duty shift is 22 members. It was important to determine the average daily call rate of the three medic units to determine their ability to respond to additional calls. In table 2, an analysis of the last three years of call volume shows that front line ambulance respond to about five medical calls per day. Staff members assigned to these units are engaged with other tasks such as inspections, code enforcement, training, etc.; but the department could utilize the resources more efficiently by increasing the calls for service which would generate revenue.

Figuring the Unit Hour Utilization (UHU) model for the Dubuque Fire Department, we can derive that Medic 551 in a one year time period would average a UHU of .23, and Medic 552 a .19 UHU.

Table 2:

Call volume for DFD ambulances

	2012 Calls	Avg. Daily	2011 Calls	Avg. Daily	2010 Calls	Avg. Daily
		Call Rate		Call Rate		Call Rate
551	2088	5.72	2072	5.67	2010	5.5
552	1701	4.66	1678	4.59	1700	4.65
553	91	.24	83	.22	73	.20

Most fire departments interviewed shared that they operate interfacility transports with on duty staff and then back fill the vacant positions as necessary to meet minimum staffing requirements. MFD staff their interfacility transports with two operating models. For an emergency transfer, the department will send on duty staff to the hospital with a five minute guaranteed response time. If the hospital has a routine transfer, the department will create a list each day as firefighters may volunteer to have their name placed on that list. The member, if called in to either back fill positions or to provide the transfer service, is paid overtime wages (J. Ewers, personal communication, February 27, 2013).

Burlington Fire Department (BFD) Chief Matt Trexel stated that their operation also uses staff personnel for interfacility transports and is willing to go below the 10 person minimum manning requirement to deliver the requested service. With 10-15 staff members trained to the

critical care paramedic level, he stated that they only had one case in 2012 that required the services of the critical care paramedic (M. Trexel, personal communication, March 25, 2013).

In *Money Doesn't Grow on Trees Anymore*, O'Brien (2005) suggested that all fire service leaders must understand the business expenses to be able to operate the ambulance transfer service. With respect to DFD providing local interfacility transports, there would not be a considerable expense if the service could be provided with on duty staff. As noted in table 2, there would be opportunity for the front line medical units to be dispatched on additional calls. All 14 nursing homes have a very close proximity to the medical hospital ranging from less than one mile to a maximum of five mile radius (table 1).

The larger expense for the department would be to provide interfacility transports to out-of-town destinations. Both hospitals agreed that the majority of their patients were transferred to Iowa City or Madison, which would be about equal in mileage. For simplistic calculation of the expenses, the researcher will use Iowa City as the destination, which is about 87 miles away from Dubuque.

Table 3:

DFD out-of-town interfacility transport wage assessment

Standard Wage	Overtime Wage	2 Person Transport	Iowa City-Round -6 hour trip	Estimated Annual Calls	Total Projected
\$21.97	\$32.95/hour	\$65.90/hour	\$395.4	834	\$329,763.60

In order to calculate salary expenditures for the out-of-town transfers, the researcher utilized the prevailing rate for a captain with a paramedic certification, at an overtime rate of

\$32.95/hour. A conservative estimate to drive to and return from University Hospitals is about six hours; however, it likely could be done in less time than this. For a transfer to Iowa City the department would spend about \$395 in wages which would equate to an annual projection of \$329,763.

Table 4:

DFD out-of-town interfacility transport fuel expenses

Average Price/gallon	Miles Per Gallon-Ambulance	Gallons for round trip to I.C.	Total fuel Expense to I.C.	Total Fuel Projected-834 Calls
\$3.35	5	34.8	\$116.58	\$97,227.72

The next major expense associated to out-of-town transfers would be the fuel expense. Based on fuel calculations provided by the City of Dubuque maintenance division, the current type 1 medium duty ambulances travel about 5 miles per gallon. For a round trip transfer, there would be 34.8 gallons used with an average 2012 rate of \$3.35 per gallon. This will cost the Department about \$116 per trip or an annual rate of \$97, 227. The vehicles are serviced for fluid and filters approximately every 2,000 miles, with each service costing the Department \$226.54. Based on the potential for 834 calls, the total service expense would be \$8,223.42. One could predict that annual expenses for operating out-of-town transports to be an estimated \$435, 214 (Table 5).

Table 5:

Estimated expense for out-of-town interfacility transports

	Total Expense	Percentage of Overall Expense
Annual Salary	\$329,763.60	75.7%
Annual Fuel	\$97,227.72	22.4%
Annual Service	<u>\$8,223.42</u>	1.9%
Total Estimated Expense	\$435,214.74	

Next the research will show the revenue that could be expected from delivering interfacility transports. In table 6, the first column reflects the department billing for a basic life support transport. The average mileage from all the nursing homes to the hospital was calculated from table 1 to be 2.8 miles. A normal base rate of \$500 with \$36.40 in mileage rates provided an estimated bill of \$536.40. The department recognizes that a large majority of these interfacility local transports would be from nursing homes to hospitals; therefore, most cases if medically necessary would fall under the Medicare reimbursement. In column 2, we would expect to find reimbursement from Medicare on a BLS rate of 203.07 per call and \$19.85 based on our derived average of 2.8 miles giving a total of \$222.92. The 2013 Medicare reimbursed rates are located in Appendix E and the Medicaid reimbursed rates are found in Appendix F.

Table 6:

Potential revenue from local interfacility transports

	Estimated Billed Revenue Per Call	Medicare Estimated Reimbursement	Total Projected Revenue- 900 transfers
BLS Base Rate	\$500	\$203.07	\$ 182,763.00
Mileage- \$13.00/mile	<u>\$36.4</u>	<u>\$19.85</u>	<u>\$17,865.00</u>
Total	\$536.40	\$222.92	\$200,628

The net revenue for local interfacility transports by the department would be approximately \$200,628. Medicare allows cities that partially support EMS with property tax dollars to elect to waive the co-pay normally required of patients on medically necessary ambulance calls. The Dubuque City Council has elected to waive these co-pays so that Medicare and Medicaid patients with medically necessary ambulance services have NO out-of-pocket responsibility.

With the hospitals reporting that most of the transfers are sent to locations within 90 miles, the research can project what the normal billing rate for a transfer would be and the annual projected revenue. Table 7 shows that based on a basic life support transfer to another hospital, the base rate would be \$500 and the mileage would be billed at \$13.00/ mile equating to \$1,632.30. The City could realize annual revenue on the estimated 834 calls of about \$1.3 million dollars. Again, the numbers used for calculations are based on the BLS rate; additional revenue could be achieved if the transfer was advanced life support in nature. It is important to

recognize that the greatest revenue potential for the long distance call is actually generated by the mileage fee. For out-of-town transfers to Iowa City, this can be well over \$1,100.

Table 7:

Potential revenue from out-of-town interfacility transports

Iowa City Transfer- 87.1 Miles	Total Revenue For IC Trip	Total Projected Revenue- 834 transfers
BLS Base Rate	\$500	\$ 417,000
Mileage-\$13.00/mile	<u>\$1,132.30</u>	<u>\$944,338.20</u>
	\$1,632.30	\$1,361.338.20

Just as the department would not fully realize billed reimbursement, there would be some Medicare and Medicaid income from the out-of-town transports. Table 8 shows the estimated reimbursement for these patients. The calculations again were kept conservative to reflect a basic life support rate which would produce a reimbursement of \$820.60 from Medicare or \$258.11 from Medicaid. In discussing the patient transfer opportunities with Dr. Doug Butzier, Medical Director for the DFD and emergency room physician, he noted that most patients that are on public assistance for liability reasons are not automatically transferred out to the University Hospitals. He said many of them are kept locally, with the hospital utilizing charity funds to pay for the care of the patient. (D. Butzier, personal communication, March 26, 2013).

Table 8:

Medicare and Medicaid reimbursed rates for out-of-town interfacility transports

2013 Reimbursed Medicare Allowances	Anticipated Reimbursement-Medicare-Iowa City	2013 Reimbursed Medicaid	Anticipated Reimbursement Medicaid for Iowa City Transfer
\$203.07	\$203.07	\$69.98	\$69.98
\$7.09/mile	<u>\$617.53</u>	\$2.16/mile	<u>\$188.13</u>
Total Medicare:	\$820.60	Total Medicaid:	\$258.11

In Table 9, the calculations are adjusted for a representation of long distance interfacility transfers to show a reflection of 50% standard billing rate payable by standard insurance, 25% would be Medicare reimbursement and 25% Medicaid. This was a more accurate estimation of reimbursed rates based on demographics, according to Dr. Butzier.

Table 9:

Adjusted income representation for out-of-town interfacility transports

Type of Reimbursement	Anticipated Revenue Per Trip	Anticipated Call Volume Per Group	Projected Revenue For Interfacility Transfers
Standard Insurance	\$1,632.30	417	\$680,669.10
Medicare	\$820.60	208	\$170,684.80
Medicaid	\$258.11	209	<u>\$53,944.99</u>
		Grand Total:	\$905,298.89

With the income and expense calculated, Table 10 will represent the net revenue that could be realized for out-of-town transports if the department provided the service. Again, these figures represent very conservative calculations that are higher on expense and lower on revenue.

Table 10:

Net revenue anticipated for out-of-town interfacility transports:

Annual Estimated Income	\$905,298.89
Annual Estimated Expense	<u>\$435,214.74</u>
Total Net Revenue	\$470,084.15

The net revenue would expect to be impacted in the first year as the service expands the fleet and equipment. Ken Tekippe, Finance Director for the City of Dubuque, stated that the generally accepted accounting practice followed by the city would be to appreciate the full expense value initially in the projections (K. Tekippe, personal communication, March 22, 2013). Kevin Klocke, of Klocke Emergency Vehicles suggested a fair valuation of a light duty ambulance would be about \$90,000 (K. Klocke, personal communication, March 21, 2013). If the unit was detailed, radios installed and stocked with equipment, the researcher estimated (Appendix H) that it would cost about \$150,000.

Based on the current call volume estimate of 834 calls, one could speculate it would take about three additional vehicles for a total of about \$450,000 to support this expansion for out-of-town interfacility transports. Interfacility transports based on the 834 calls to Iowa City or Madison would generate about 150,000 miles annually. If shared among the three vehicles, it

would be expected that they could see about 50,000 miles or more a year. The department could get multiple years out of the vehicles before trade in would be necessary. It would be valuable to have a more accurate measurement from the hospitals to represent the frequency and destination of the calls to assist in depreciation estimates. Overall, using the most conservative of numbers, DFD would be able to generate a significant amount of revenue with an expanded ambulance service.

Discussion

In the book *Leadership on the Line*, Heifetz and Linsky (2002) explore the difference between a technical and adaptive problem that a leader must understand. They alleged, “What makes a problem technical is not that it is trivial; but simply that its solution already lies within the organization’s repertoire. In contrast, adaptive pressures force the organization to change, lest it decline” (p. 18).

The fire service has transformed, sometimes by necessity, how it will deliver ambulance service within their community. As Ludwig stated during an interview, acceptance within the fire service can be the main issue with interfacility transports, “there is pushback from firefighters and fire chiefs with many of them saying ‘I didn’t sign on to do grandma transports, I signed on to go on 911 responses’ ” (G. Ludwig, personal communication, March 15, 2013). Yet, he noted that the reason why private ambulance services are in the interfacility transport business is that they make money at it.

With the City of Dubuque tax base supporting the ambulance operation with approximately \$400,000, (“City of Dubuque FY 12 Citizens Guide Part 2,” 2012) city leaders could look at the expense of the ambulance service and eliminate the program. The subsidized amount, however, does staff additional apparatus and provides manpower that serve the Fire

Department's remaining mission of all hazard response, inspection and code prevention. If the ambulance service was turned over to a private service, Chief Brown warned that there could likely be a loss of 13 personnel who are valuable to the remaining operations of the department. (E. D. Brown, personal communication, February 14, 2013). The research shows that opportunities exist for the DFD to expand the ambulance services to offer interfacility transports.

As Carter and Rausch (2008) recognized providing interfacility transports can be used as a funding source for fire departments. Local interfacility transports could conservatively generate nearly \$200,000 additional revenue dollars for the Dubuque Fire Department. The figure represents transfers only from the nursing home to the hospital because the hospitals were not able to provide data of their discharged patients. It might be safe to suggest that additional revenue of equal value could be generated for patient returns from hospital to nursing homes with the presumption that most of these patients would prove medical necessity requiring an ambulance for transport.

This additional revenue significantly closes that gap in the shortfall that is currently experienced by operating the ambulance service. As Chief Brown explained, "this is the citizen's ambulance service, with revenue from the service going back into the city to help offset the tax base" (E. D. Brown, personal communication, February 14, 2013). The citizens are just as much of stakeholders in this service as the Fire Department. By using the city ambulance service, a citizen via their user fee will infuse money back into the city government to keep taxes low and expand services. This is different from the model for private ambulance service operations where the owner(s) keep the profits.

It was apparent from the results in the questionnaire (Appendix G), that 78% of the nursing homes had not considered using the Fire Department for interfacility transports. Most

commented that they thought the Fire Department's ambulance was only there for emergency transfers. It is evident that the Department will need to get the message out to the community about the additional services that it can provide. Following the initial meeting with the directors of nursing and long term healthcare facility administrators, 92% said they would consider using the Dubuque Fire Department to provide their non-emergency service.

As the International Association of Firefighters recommended, the Department should not engage in the practice of interfacility transfers at the risk of not being able to provide emergency response (*IAFF Monograph 5*, 1997). The research shows that DFD ambulances respond to an average of five daily ambulance calls within their 24 hour shift. With an anticipated increase of about 2.5 calls per day to deliver interfacility transfers from nursing home to hospital, this would be within the service's ability to handle local interfacility transports.

However, would it be in the mission of the Fire Department to provide long distance interfacility transports? David Brandon, CEO of Finley Hospital has been part of hospital organizations that provided ambulance service but said the hospital does not have an interest in implementing transport service, "We have been very happy with the public and private ambulance service and feel it is better to utilize those services" (D. Brandon, personal communication, March 26, 2013). Chief Brown stated that out-of-town interfacility transport service would not be off the table for department consideration. He stated that City nor department policy would preclude the Fire Department from providing this service; however, the income would need to exceed the expense (E. D. Brown, personal communication, February 14, 2013). The research shows that DFD could generate revenue by provide long distance interfacility service to the hospitals. The very conservative approach to the financial analysis shows about \$470,000 net revenue. This would signify a safe investment in expanding into

interfacility ambulance transfers. In addition to the revenue the City would achieve as a positive attribute to expanding into interfacility transports but care management for the patient would see a benefit.

Patients requiring transfer to a tertiary center following an emergency event would be better served by having the paramedic, who was on-scene providing care at the initial emergency response, continue to care for them during transfer and report directly to the receiving staff. This assures a first-hand report of the events and status of the patient from the beginning of EMS involvement to admission in the tertiary destination hospital. Any other system could provide at best a third person report to the receiving facility.

Based on the results, it would be inefficient for the DFD to expand to the service level into the critical care paramedic role. With an estimated training expense of nearly \$73,000, there would be tremendous expense for a small volume of calls for the department to upgrade their level of service. The peer service Fire Departments, Muscatine and Burlington, both noted that they only had one call of service for the critical care paramedic level in 2012. When asked whether the hospital would avoid using the DFD as an ambulance provider for their interfacility transfers of critical care patients if they did not attend the critical care paramedic training, Knight quickly responded “no”(R. Knight, personal communication, March 13, 2013). He also stated that as long as the frequency was low, it would make sense to have hospital staff support paramedics during the transport to specialty care facilities.

The data shows that DFD can benefit by providing interfacility transfers. As administrators and fire department members brand this new opportunity, it will demonstrate to the community a continued awareness of fiscal responsibility and the desire of the department to improve on the services that can be delivered. In his article, *Outlook for the Fire Service EMS*:

2013 and Beyond, Ludwig (2013) recognized that departments without progressive vision could suffer,

Unfortunately, when EMS came about, there was no blueprint. There was no strategic plan to follow. Right now, EMS is barely mentioned in the ACA and it provides no dedicated funding source for EMS systems. But somehow, fire service EMS will evolve through the process and will look different in 10 years. Fire chiefs and those who run fire service EMS programs must engage themselves in that change process; otherwise, their fire departments will be wondering what happened when they find themselves behind the curve (p. 49).

Just as DFD was an early leader in the state of Iowa providing paramedic service, the department has the ability to be a model for other fire service agencies by expanding ambulance service to include interfacility transports. This will help protect the department from critique by city administrators on staffing level or budgets.

Recommendations

In order for the Dubuque Fire Department to achieve success in providing interfacility transfers, it would be imperative that a successful education campaign be initiated. As noted from the expanded questions in the nursing home survey found in Appendix G, 57% of the administrators indicated that they did not provide information and a choice to their clients for ambulance service. It would be beneficial that materials be produced to provide information that can be handed to patients and families to help them make an informed decision. The materials will help our community and healthcare facilities understand the true potential of the ambulance service that is supported with the tax base.

The Department should engage healthcare administrators to help fully assess the accurate needs of ambulance service in the community. This would include data collection on frequency,

transfer destination, medical necessity and care level required, among other valuable tracking points that both parties would like to analyze. This better prepares both the healthcare administrators and the ambulance service in being transparent in the interfacility needs of the community rather than estimating the possible call volume. While the figures were held to conservative standards, if call volume was predicted too low, it could actually hamper operations by not having enough personnel and vehicle fleet prepared to respond.

DFD members should attend the quarterly long term healthcare consortium gathering, which is composed of nursing homes and social workers. Attendance at this meeting would keep the Department members engaged with decision makers in long term healthcare facilities and provide an opportunity for the Department to share any new equipment they have or service they provide. The captains and lieutenants assigned to the medic units could also make visits to the facilities to orient them to the staff that work there and answer any questions they may have.

The research supports the DFD developing a plan for providing interfacility transport services to better serve our community and generate revenue. In incorporating the plan, it will be important to include the DFD members as stakeholders to delivering this new service. Many operating models could be examined to operate long distance transfers. This could include an opportunity to hire part time employees that would supplement the ambulance service for interfacility transports. This practice would provide the department a chance to have additional staff members in a resource pool but also a good opportunity for recruitment of potential employees.

References

- Aman, C. (2012). Company officer leadership: Advancing fire-based EMS. Retrieved from www.iafc.org/membercenter/onscenearticle.cfm?itemnumber=5932&utm_source=informz&utm_medium=email&utm_campaign=IAFC+Homepage
- Budget Overview. (2012). In (Ed.), (2, p. 138). Dubuque, IA: City of Dubuque.
- Carter, H. R., & Rausch, E. (2008). *Management in the fire service* (4th ed.). Newark, NJ: Jones and Bartlett .
- Celia, M., Paluck, J. N., & Smith, R. L. (1995, August). Critical care transport-an evolving role in EMS. *JEMS*, 90-94.
- City may purchase public ambulance. (1913, October 31). [Clipping from The Telegraph-Herald]. Copy in possession of William Hammel.
- City of Dubuque (2012): *FY 12 Citizens Guide Part 2*. Dubuque, IA: City of Dubuque.
- City of Dubuque (2012). *FY 12 Policy Book Volume II*. Dubuque, IA: City of Dubuque.
- City of Dubuque Website. (2013). Retrieved from <http://www.cityofdubuque.org/index.aspx?nid=844>
- City-run ambulance service supported. (1979, December 2). [Clipping from The Telegraph-Herald]. Copy in possession of William Hammel.
- City's own ambulance service will continue; rates going up. (1969, November 18). [Clipping from The Telegraph-Herald]. Copy in possession of William Hammel.
- Compton, D., & Granito, J. (Eds.). (2002). Modern fire protection, emergency medical and rescue services. *Managing fire and rescue services* (pp. 3-37). Washington, D.C.: International City/County Management Association(ICMA).

- Emergency Medical Services: EMS And Managed Care* [Policy brief]. (1997). Retrieved from International Association of Firefighters: <http://www.iaff.org/tech/PDF/Monograph5.pdf>
- Erich, J. (2011, November 29). Private equity sinking big bucks into EMS. *EMSWORLD*. Retrieved from <http://www.emsworld.com/article/10448731/private-equity-sinking-big-bucks-into-ems>
- Executive Development. (4th ed.). (2012).
- Firehouse Software (Version 7.14.19) [Computer software]. (2010). Dubuque, IA: Dubuque Fire Department.
- Heifetz, R. A., & Linsky, M. (2002). *Leadership on the line*. Boston, MA: Harvard Business School Publishing.
- International Association of Firefighters. (2002). *Emergency medical services: A guidebook for fire-based systems*. Retrieved from <http://www.iaff.org/tech/PDF/EMSGuideBk.pdf>
- Ludwig, G. (1998, January). Fire service EMS: past and future. *Firehouse*, 26-28.
- Ludwig, G. (2008, January). Now what do we do? *Firehouse*, 38.
- Ludwig, G. (2011, October). The 70-20-10 rule. *Firehouse*, 34.
- Ludwig, G. (2012, September). What the affordable care act means for fire service EMS. *Firehouse*, 36.
- Ludwig, G. (2013, February). Outlook for fire service EMS: 2013 and beyond. *Firehouse*, 46-49.
- O'Brien, R. J. (2005, February). Money doesn't grow on trees anymore. *fireEMS*, 21-29.
- Page, J. O. (2002). Modern fire protection, emergency medical, and rescue services. In D. Compton, & J. Granito (Eds.), *Managing Fire and Rescue Services* (pp. 3-37). Washington, D.C.: International City/County Management Association (ICMA).
- Richards, A. J. (2012, December). A strategic survival guide. *Fire Engineering*, 24.

Roberts, M. (2010, April 1). Fire and EMS: a perfect marriage. *Fire Chief*.

Scott Neyens, Theodore A. Pfiffner, and Charles S Uskavitch, Appellants, V. City of Dubuque,

No. 67083 Iowa Supreme Court 326 N.W.2d 294 (Nov. 24, 1982).

United States Fire Administration [USFA]. (2011). *America's Fire and Emergency Services*

Leader Strategic Plan Fiscal Years 2010-2014. Retrieved from

http://www.usfa.fema.gov/downloads/pdf/strategic_plan.pdf

Appendix A: Fire Department Operating Budget-Ambulance

Recommended Expenditure Budget Report by Activity & Funding Source					
FIRE DEPARTMENT					
Fund	Account Title	FY09 Actual Expense	FY10 Actual Expense	FY11 Adopted Budget	FY12 Recomm'd Budget
AMBULANCE - 13300					
FUNDING SOURCE: GENERAL					
	WAGES AND BENEFITS	1,052,940	1,098,725	1,166,996	1,221,699
	SUPPLIES AND SERVICES	164,595	171,211	183,504	182,163
	CAPITAL OUTLAY AND EQUIPMENT	109,712	1,180	21,680	1,180
AMBULANCE TOTALS:		1,327,246	1,271,115	1,372,180	1,405,042

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Appendix B: Collection Rates-LifeQuest

DUBUQUE FIRE EMS
Executive Summary - Collection Rates Only
 January 1, 2012 to December 31, 2012

Collection Rates							
2012							
Group/Payor Type	Charges	Cash Credits	Rate 1	Adjustments Mandatory	Rate 2	Adjustments	Rate 3
Commercial							
Insurance	\$416,626.60	\$341,592.87	81.99%	\$14,743.09	85.00%	\$89,900.61	103.57%
Workers Compensation	\$16,513.00	\$15,026.24	91.00%	\$727.94	95.19%	\$1,856.94	102.24%
Commercial Total	\$433,139.60	\$356,619.11	82.33%	\$15,471.03	85.38%	\$91,757.55	103.52%
Medicaid							
Medicaid	\$396,734.80	\$42,579.54	10.73%	\$174,978.62	19.20%	\$254,246.52	74.82%
Medicaid Total	\$396,734.80	\$42,579.54	10.73%	\$174,978.62	19.20%	\$254,246.52	74.82%
Medicare							
Medicare	\$954,492.00	\$543,199.97	56.91%	\$372,041.60	93.26%	\$406,951.82	99.55%
Medicare Total	\$954,492.00	\$543,199.97	56.91%	\$372,041.60	93.26%	\$406,951.82	99.55%
Other							
Other	\$1,350.00	\$411.15	30.46%	\$423.85	44.39%	\$938.85	100.00%
Other Total	\$1,350.00	\$411.15	30.46%	\$423.85	44.39%	\$938.85	100.00%
Private							
Attorneys	\$0.00	\$0.00	0.00%	\$0.00	0.00%	\$1,449.00	0.00%
Collections	\$55,219.38	\$29,784.31	53.94%	\$3,244.50	57.31%	\$3,244.50	59.81%
Contract - Hospital, Intercept	\$16,827.00	\$15,306.18	90.96%	\$979.06	96.58%	\$2,282.16	104.52%
Private	\$154,500.60	\$30,063.70	19.46%	\$2,688.78	19.80%	\$117,484.46	95.50%
Private Total	\$226,546.98	\$75,154.19	33.17%	\$6,912.34	34.22%	\$124,460.12	88.11%
2012 Total	\$2,012,263.38	\$1,017,963.96	50.59%	\$569,827.44	70.57%	\$878,354.86	94.24%
Grand Totals	\$2,012,263.38	\$1,017,963.96	50.59%	\$569,827.44	70.57%	\$878,354.86	94.24%
Rate 1 = (Cash Credits/Charges) x 100							
Rate 2 = ((Cash Credits)/(Charges - Adjustments Mandatory)) x 100							
Rate 3 = ((Cash Credits + Adjustments)/(Charges)) x 100							

Appendix C: Sample Questionnaire Letter



February 15, 2013

I was recently accepted to the National Fire Academy Executive Fire Officer program. This competitive program annually accepts 200 national and international fire service leaders to be proactive in their community needs, understand the emerging trends that affect their community, and conduct research that can help improve the safety and services of the department and community it serves. As part of my acceptance, I will be responsible for submitting a research paper each of the four years, which will analyze an issue within our community and fire department.

This year, my research paper will examine the non-emergency transport service provided within the City of Dubuque. In this research paper, I will be looking at the non-emergency transfer volume in our community and what criteria that facilities use to select their ambulance service for transport.

I would appreciate a short amount of your time to complete the attached survey and return in the self-addressed. If you have any questions or would like to follow up, please don't hesitate to contact me at: 589-4160. Thank you again for your time today to help this research paper.

Sincerely,

Captain Phil Arensdorf

Appendix D- Nursing Home Questionnaire

Facility Name: _____ Director of Nursing: _____

I. Describe your organization:

a. How many beds do you house? _____ c. Do you operate a wheelchair van? _____

b. How many residents? _____

II. Transfer Demand: What would be an average monthly transfer demand at your facility?

1. Emergency Transfers to Hospital: _____

2. Non-Emergency Transfers to Hospital: _____

3. Non-Emergency/Scheduled Transfers to physician office: Ambulance: _____ Wheelchair Van: _____

III. Emergency Ambulance Service1. Who is your emergency ambulance provider? Dubuque Fire ☐ Private ☐

2. How do you determine which service provides your emergency transport? _____

IV. Non-Emergency Ambulance Service1. Who is your non-emergency ambulance provider? Dubuque Fire ☐ Private ☐

2. How do you determine which service provides your non-emergency transport? _____

V. Agreements for transportation service:1. Do you have a partnership or contract for ambulance transport? Yes ☐ No ☐

a. If so, with whom? _____ When is it set to expire? _____

2. Do you provide information and a choice to patients or family members for ambulance transportation? Yes ☐ No ☐**VI. Dubuque Fire Department Non-Emergency Service**1. Are you aware that the Dubuque Fire Department currently provides non-emergency ambulance transportation to hospitals and physician offices? Yes ☐ No ☐Questionnaire Finishes on Back Side

2. Have you considered Dubuque Fire Department for your non-emergency transport needs?

Yes ☐ No ☐

a. If not, what considerations impact this decision? _____

3. What are your perceived Dubuque Fire Department rates for the following transports:

Basic Life Support Transfer: \$ _____

Advanced Life Support Transfer: \$ _____

4. Does cost become a factor in your decision for ambulance transport service? Yes ☐ No ☐

5. Would you consider utilizing DFD for non-emergency transports? Yes ☐ No ☐

6. Would you like to arrange a meeting to learn more about the services provided by the Dubuque Fire Department? Yes ☐ No ☐

a. If so, please provide contact name and phone number: _____

7. What comments would you have on the service provided by the Dubuque Fire Department when you have called for ambulance transport? _____

8. Do you have any additional comments you would like to share? _____

Thank you for taking the time to help the Dubuque Fire Department better understand your operational needs and concerns.

Please return in the self-addressed envelope to:
Dubuque Fire Department
Captain Phil Arensdorf
11 West 9th Street
Dubuque, IA 52001

Appendix E: Medicare Reimbursement Rates 2013

2013 IA Medicare Relief Allowable Amounts

2013 MIPPA Medicare Allowable Amounts		3% Rural Increase	2% Urban Increase
BLS NonEmergency		205.06	203.07
BLS NonEmergency Super Rural	301.69	N/A	N/A
BLS Emergency		328.1	324.91
BLS Emergency Super Rural	402.25	N/A	N/A
ALS1 NonEmergency		246.07	243.69
ALS1 NonEmergency Super Rural	301.69	N/A	N/A
ALS1 Emergency		389.62	385.84
ALS1 Emergency Super Rural	477.67	N/A	N/A
ALS 2		563.92	558.45
ALS 2 Super Rural	691.37	N/A	N/A
SCT		666.45	659.98
SCT Super Rural	817.07	N/A	N/A
Mileage		7.16	7.09
Mileage 1-17 Rural		10.74	N/A
Mileage +50		7.16	N/A

Source: Nikki Phillips, LifeQuest

Appendix F: Medicaid Reimbursement Rates 2013

2013 IA Medicare Relief Allowable Amounts

2013 MIPPA Medicare Allowable Amounts		3% Rural Increase	2% Urban Increase
BLS NonEmergency		205.06	203.07
BLS NonEmergency Super Rural	301.69	N/A	N/A
BLS Emergency		328.1	324.91
BLS Emergency Super Rural	402.25	N/A	N/A
ALS1 NonEmergency		246.07	243.69
ALS1 NonEmergency Super Rural	301.69	N/A	N/A
ALS1 Emergency		389.62	385.84
ALS1 Emergency Super Rural	477.67	N/A	N/A
ALS 2		563.92	558.45
ALS 2 Super Rural	691.37	N/A	N/A
SCT		666.45	659.98
SCT Super Rural	817.07	N/A	N/A
Mileage		7.16	7.09
Mileage 1-17 Rural		10.74	N/A
Mileage +50		7.16	N/A

Source: Nikki Phillips, LifeQuest

Appendix G: Nursing Home Survey Results

	Emergency Ambulance Provider		Non-Emergency Ambulance Provider		Do you have a contract for service	
	DFD	Private	DFD	Private	Yes	No
Ennoble Manor		1		1		1
Dubuque Nursing and Rehab Center	1			1		1
Dubuque Retirement Community	1		1			1
Heritage Manor	1			1		1
Luther Manor		1		1	1	
ManorCare Health Services	1			1	1	
Mt Carmel	1			1		1
Mt Saint Francis	1			1		1
Oak Park Place	1			1		1
Stonehill Franciscan Services		1		1	1	
Sunnycrest	1		1			1
Sunset Park Place	1			1		1
Sisters of the Presentation	1			1		1
Bethany Home	1			1		1
	11	3	2	12	3	11
	78.5%	21.5%	14.3%	85.7%	21.5%	78.5%

Nursing Home Survey Results Continued (2/3)

	Do you provide information and a choice for patients or family members?		Are you aware that DFD provides non-emergency transport?		Have you considered DFD for non-emergency transport needs?	
	Yes	No	Yes	No	Yes	No
Ennoble Manor		1		1		1
Dubuque Nursing and Rehab Center	1		1			1
Dubuque Retirement Community	1		1		1	
Heritage Manor		1		1		1
Luther Manor		1		1		1
ManorCare Health Services	1		1		1	
Mt Carmel		1		1		1
Mt Saint Francis		1		1		1
Oak Park Place	1		1			1
Stonehill Franciscan Services		1		1		1
Sunnycrest	1		1		1	
Sunset Park Place	1			1		1
Sisters of the Presentation		1		1		1
Bethany Home		1		1		1
	6	8	5	9	3	11
	42.8%	57.2%	35.7%	64.3%	21.5%	78.5%

Nursing Home Survey Results Continued (3/3)

	Does cost become a factor in your decision for ambulance transport?		Would you consider using DFD for non-emergency transports?	
	Yes	No	Yes	No
Ennoble Manor	1		1	
Dubuque Nursing and Rehab Center	1		1	
Dubuque Retirement Community		1	1	
Heritage Manor	1		1	
Luther Manor	1		1	
ManorCare Health Services	1		1	
Mt Carmel	1		1	
Mt Saint Francis	1		1	
Oak Park Place		1	1	
Stonehill Franciscan Services	1		1	
Sunnycrest	1		1	
Sunset Park Place		1	1	
Sisters of the Presentation	1			1
Bethany Home	1		1	
	11	3	13	1
	78.5%	21.5%	92.8%	7.2%

Appendix H: New Ambulance Pricing

Type III-Van	\$90,000.00
Exterior Signs	\$2,450.00
Radio System	\$2,250.00
Cot	\$13,940.85
Cardiac Monitor	\$28,000.00
Stair Chair	\$2,992.00
Backboard	\$238.99
Suction	\$959.99
Magill Forcep	\$7.89
CPAP Starter Kit	\$1,339.99
Pediatric ALS Kit	\$899.99
Scoop Stretcher	\$765.00
Vacuum Splint Kit	\$539.99
Sager Splints	\$839.99
Jump Bag	\$207.99
Intubation Kit	\$58.99
C-Collar Bag	\$23.49
Bloodpressure Cuff (Adult, Child, Infant)	\$211.74
Stethoscope	\$135.98
Thermoscan	\$239.99
Pulse Ox/CO2	\$1,279.99
Ring Cutter	\$15.29
Drug Box (supplied by hospital)	\$0.00
Oxygen Supplies)	Hospital
IV Supplies	Hospital
Glucometer	Hospital

Disposables	
Gloves-3 Sizes	\$51.00
N95 Respirators	\$95.37
C-Collar	\$9.39
CID	\$6.69
LaryngoscopeKit-Blades and Handles	\$106.99
Cavicide	\$13.79
P.A.W.S	\$7.39
Oral Airway Set	\$30.90
Nasal Airway Set	\$50.99
Combitube Airway	\$62.99
Endotracheal Tubes	\$87.77
Endotracheal Tube Check	\$9.29
Easy Cap ETCO2 Detector	\$26.58
ET Tube Holder	\$8.18
Quicktrack	\$386.00
Ambubags	\$66.57
Gauze/Dressings	\$45.00
SAM Splint	\$13.99
Stickit Sharps Container	\$14.58
Sharps Container	\$14.48
Diabetic testing supplies	\$139.77
Estimated Total	\$148,645.85