

Help or Hinder? Effects of Interfacility Transfers on the Fond du Lac Fire Department

Todd Janquart

Fond du Lac Fire Department, Fond du Lac, Wisconsin

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.

Signed: _____

Abstract

The Fond du Lac Fire Department added interfacility medical transfers to its list of services in order to generate additional revenue to the budget. The problem is that these transfers have a questionable budgetary impact, may interfere with scheduled training, and have unknown effects on personnel. The purpose of this research is to describe and evaluate the effects that interfacility transfers have on the Fond du Lac Fire Department in budget, operations, and personnel. There is a need to describe whether or not interfacility transfers generate a significant amount of revenue to justify the additional service. The frequency of these transfers may or may not have a direct effect on the ability of personnel to participate in critical training sessions. It is also important to understand what effect interfacility transfers have on Fond du Lac Fire Department personnel. In going forward with this research, the author asked the following questions: What has been the financial impact of interfacility transfers? What effects do interfacility transfers have on the training program? How are personnel affected by interfacility transfers? Using evaluative research methodology, the author determined that interfacility transfers generate enough revenue to exceed the costs and provide financial benefit to the Fond du Lac Fire Department. It was also determined that the volume of interfacility transfers did not significantly affect the training program for the department. Lastly, using descriptive research methodology, the author determined that personnel support the interfacility transfer program and it contributes to the overall morale of the department. It was recommended that the department continue to evaluate interfacility transfers for cost and benefit. If the cost of this program exceeds the benefit, collaborative measures should be taken by administration and union leaders to decisively alter or condemn the program and focus on core services.

Table of Contents

Certification Statement.....	page 2
Abstract.....	page 3
Table of Contents.....	page 4
Introduction.....	page 6
Background and Significance.....	page 7
Literature Review.....	page 11
Procedures.....	page 19
Results.....	page 25
Discussion.....	page 27
Recommendations.....	page 30
Reference List.....	page 33
Appendices	
Appendix A: Questionnaire.....	page 37
List of Tables	
Table 1: Call Volume.....	page 40
Table 2: Personnel Pay.....	page 40
Table 3: Fuel Costs.....	page 40
Table 4: Straight Line Depreciation.....	page 41
Table 5: Yearly Depreciation.....	page 41
Table 6: Depreciation by Call.....	page 41
Table 7: Interfacility Transfer Revenue.....	page 42
Table 8: Peak Training Hours Call Volume.....	page 43

Table 9: Baus (2009) Transfer Analysis.....page 44

Table 10: Baus (2009) Depreciation.....page 45

Help or Hinder? Effects of Interfacility Transfers on the Fond du Lac Fire Department

The City of Fond du Lac Fire Department (FDLFD) serves a population of approximately 45,000 people in a suburban setting. The career department consists of 67 members. Seven of these are administrative personnel working a standard five day work week. These seven consist of the Fire Chief, three Assistant Fire Chiefs, one Division Chief, one Administrative Secretary, and one Records Clerk. The remaining 60 members are assigned to work one of three 24 hour rotating shifts from three stations. All shift personnel are cross-trained in firefighting and emergency medical service (EMS). All shift personnel are certified Emergency Medical Technicians (EMT) with eleven EMT-Paramedics and nine EMT-Basics. EMS is provided by three ambulances staffed with two EMT-Paramedics. Firefighting apparatus consist of three engine companies, one truck company, one technical rescue vehicle, and one hazardous materials response trailer. Engine companies also serve as EMS first responder units and are frequently dispatched simultaneously to medicals calls categorized as high risk for advanced life support (ALS). The total call volume is near 6000 runs annually with a predominance of those being EMS related.

The current challenge for FDLFD is interfacility transfers. The department has performed interfacility transfers on a strictly emergent basis. It was only recently that transfers were looked at as a possible revenue source. Since then, there have been questions if this program has an overall positive or negative effect on FDLFD. In researching these effects, the author intends to address the following questions.

- What has been the overall financial impact of interfacility transfers on the department?
- What effects do interfacility transfers have on the department training program?

- What affect do interfacility transfers have on department personnel?

Using evaluative and descriptive research methodologies, the author intends to address these questions and provide better insight to the overall effects of this program.

Background and Significance

FDLFD has performed pre-hospital treatment and transport for the citizens of the community. Beginning in 1984, the service was upgraded by training 20 of its personnel to the level of EMT-Paramedic and providing advanced life support with two ambulances staffed in strategic locations within the city. St. Agnes Hospital, the only hospital in Fond du Lac, has supported the improvement in pre-hospital care with both education and on-line medical direction.

Two facets of this new system were the provision of periodic emergency and non-emergency transport from the emergency department at St. Agnes Hospital. The emergent transports consisted of transporting critically ill or injured patients from St. Agnes to metropolitan hospitals in the Milwaukee, Madison or Appleton areas, for increased levels of medical care. Many of these transports required nursing staff from the emergency department to ride with the patient to continue treatments beyond the paramedic scope of practice. This also began the practice of calling back an equivalent number of personnel while the transporting crew was out of town. The unit designation for these transfers was a simple system that maintained one ambulance taking transports to hospitals north and the other to hospitals south of Fond du Lac.

The non-emergency transports consisted of returning nursing home patients that department personnel had transported originally. Non-emergency nursing home returns were

designated by the ambulance territory containing the destination. These transports continued for many years and were seen as usual and customary business for the department.

In 1997, the department added a third ambulance with additional paramedic personnel added to each shift. The call volume continued to increase and, consequently, there were more requests coming from the hospital for both types of transports. There had also been frequent requests for non-emergency transports from other hospital departments and skilled nursing facilities.

In the early 2000's, fire department administration began planning to expand this service in order to generate additional revenue to offset expenditures. The intention was to provide additional skills and equipment training to personnel so a greater variety of transports could be accepted. This additional training combined with policy and procedural changes set the stage for the department to officially designate themselves as an interfacility transport service in addition to being a 911 service provider.

In 2004, the firefighters union negotiated with city administration (*Union contract, 2004*) to incorporate additional pay for the paramedic personnel who received the additional training to expand this program. This negotiation culminated in a contractual obligation for a \$60 stipend (transfer pay) for both paramedics taking the interfacility transfer. In 2006, this was increased to \$75 per transfer (*Union contract, 2006*). This stipend has generally been for long distance transfers which are defined as over 25 miles (O'Leary, 2010). A majority of these requests are to transport patients to hospitals in metropolitan centers of Milwaukee, Madison or the Fox Valley. There had been no contractual changes that addressed the short distance transfers. Because of this negotiation, there were subsequent policy changes made to allow equal distribution of the transfer pay to paramedic personnel. This ended the general policy of a designated ambulance

for north or south transfers and initiated one that was more complex and rotated interfacility transfers regularly among three ambulances. Since this time, there have been two administration changes. Due to restructuring, the plans for an expanded program including both scheduled and unscheduled interfacility transfers never materialized.

Currently, the department has maintained stability regarding the management of interfacility transfers, yet there are still some challenges facing the department. In light of the long standing nature of this service, there continues to be grinding issues that affect the situation and stakeholders. The most predominant issue is the nationwide financial crisis. As a whole, the United States population has seen a significant downturn in the economy with financial collapse noted in a wide variety of areas that includes banking, housing, retail and industry. The ripple effect from this economic breakdown is extending into the community budgets and individual pocketbooks.

In Wisconsin, communities are facing significant reductions in shared revenues from the state government and finding themselves in dire circumstances when it comes to operational budgets. Citizens and community leaders are taking a detailed look at departmental budgets and looking for wasteful spending or new ideas for increasing revenues. This has been no different for FDLFD and the topic of interfacility transfers is once again receiving attention.

In 2005, by virtue of joint negotiations, all stakeholders agreed that interfacility transfers would be beneficial to all involved. Currently, it seems that some stakeholders are questioning the benefit of the program while others are still convinced it is a worthwhile program. While there is no plan to dissolve the program, from community or department leaders, it would be beneficial to all stakeholders to see a detailed evaluation of the program as it is currently operating.

As the future presents, the community of Fond du Lac is looking at significant budgetary cuts and restrictions to effectively balance against this economic downturn. It is unknown the extent of these limitations but the potential exists for reduced personnel numbers, daily staffing and overtime. It is important to recognize that the interfacility transfer program could have positive or negative effects on any combination of these three topics. The financial perspective must be reviewed in a manner that allows us to break down individual factors of the program so that future cost or revenue changes may be recognized. It is equally important to look beyond the simple financial numbers and realize the human factor retrieved from the program. These include the effects on personnel with regard to operational effectiveness and psychological well being. While the future cannot be predicted, planning must move forward and worst case scenario must be considered. The analysis of this program will be beneficial in helping to determine the action needed to preserve the integrity of the department as a whole.

The concepts of adaptive leadership and organizational culture will be important factors in the application of these research findings (*Student manual*, 2010). The current financial situation demands that department leadership review all programs for efficiency and benefit. There may be difficult changes affecting the interfacility transfer program in order to maintain critical operations. Recognizing the necessary action will be paramount to the success of leadership in guiding the department in the proper direction. This program is obviously deeply embedded in the organizational culture of the Fond du Lac Fire Department and depending on the significance recognized by its personnel; change may be resisted or embraced.

Regardless of any resistance, FDLFD's goals should remain in line with the United States Fire Administration operational objectives (*Applied research guideline*, 2010). Specifically, goals must be set to improve the capability to respond and recover from hazards that face the

community. It is essential that core services are maintained with priority focus on both community and responder safety. It is equally important that the professional status of fire and emergency services is improved. There must be adaptation to the changing needs of the community. Remaining status quo and ignoring the wants and needs of those being served will only contribute to the degradation of community support.

In this case, interfacility transfers are an established program that has operated for a number of years without significant scrutiny from the public. Leaders must take into consideration that any significant changes may have positive or negative affect on public opinion. Just as specialty services like hazardous materials and technical rescue responses have become segments of the fire service, it is possible that interfacility transfers may fall into the same category and be supported by the needs of the community. It is also possible that they may be regarded as an unnecessary or even wasteful use of fire department resources.

Literature Review

Literature was reviewed in order to better understand and evaluate the questions posed, along with recognizing any previous work that is relevant to this project. Sources for this research were the Fond du Lac Public Library, internet searches, and the Learning Resource Center at the National Fire Academy. The first research question addresses the financial review of interfacility transfers. This particular question is of key importance in Wisconsin due to the significance of reduced shared revenue from the state for municipalities (Morrell, 2011, p. 1). This reduction in revenue for FDLFD forces leaders to review all programs outside for cost efficiency.

There was very little information found directly on the management of interfacility transfers with regard to the research questions. The most significant information immediately

found was an internal study by the City of Fond du Lac Comptrollers Office (Baus, 2009). This analyzed the total number of long distance interfacility transfers the fire department performed in the 2008 calendar year. The document was an internal unpublished analysis so there was little detail regarding citation of resources or theory on application of data. The information appears to be sufficiently comprehensive in data, but requires comparative literature review to determine if methodology is sound in the estimation of financial detail.

Since the key focus on this topic was the transportation of patients from one facility to another, the second best method of researching the financial feasibility of this service was found to be the transportation industry. The first area of research was to determine which costs were applicable. Transportation costs can be broken down into fixed and variable costs ("Transportation Cost/Benefit Analysis," n.d., p. 5.1-1). Fixed costs are those that involve finances of ownership. Regardless of the amount of use a vehicle gets, these are costs that remain unchanged. These include the purchase cost of the vehicle, title, registration and taxes.

In this particular situation, an ambulance is already owned by the municipality for emergency medical services. The use of that vehicle for interfacility transfer services is not the sole reason for ownership so those particular expenses are eliminated from the calculations. Should the purchase of the ambulance be solely for interfacility transports, then these fixed costs may be calculated against revenues.

Variable costs are those directly affected by the operation of that vehicle. These expenses may increase or decrease with the frequency of operation. The applicable costs to this analysis were found to be personnel (wages and benefits), fuel, depreciation, maintenance, and supplies.

The analysis of fuel costs required research to determine the economy of the medium duty chassis ambulances FDLFD operates. Fuel record reports generated by the city municipal garage only identified fuel economy in gallons per hour format. The Baus (2009) analysis used these records to estimate the cost of fuel usage. Since these vehicles spend a significant amount of time idling and city driving, it is apparent this record may be inaccurate in estimating fuel costs for trips that are predominantly highway miles. In using fuel economy estimates based on miles per gallon format, we will be able to calculate estimated costs for individual transport destinations. The first source (National Research Council-Transportation Research Board, 2010, p. 18) noted that these vehicles fall under the class 5 rating and estimate fuel economy between 6 and 12 miles per gallon. These numbers were corroborated and narrowed with an estimated 9 miles per gallon highway and 7 miles per gallon city (Barnes & Langworthy, 2003, p. 19). Diesel fuel cost averages for 2009 and 2010 were retrieved by fuel price history reports (United States Energy Information Administration [EIA], 2011).

The next calculated cost is depreciation. The Baus (2009) analysis identifies these costs but there is no description as to how they were calculated. In a personal meeting, (E. Baus, personal communication, June 30, 2011), it was identified that the author used straight line depreciation calculations to identify those particular costs. In a review of basic accounting terms, (Walther, 2010, Chapter 10) indicates that this is an appropriate method of calculation for this equipment. One aspect that is not present pertains to salvage value. Straight line depreciation may be calculated differently when taking into consideration the residual or salvage value of equipment. In this case, a majority of the equipment calculated into the depreciation estimate, has some form of residual value. The Fond du Lac Fire Department routinely sells or

trades equipment that has outlived its purpose, so it is appropriate to include that value into the calculations.

The last area to consider in the financial research is revenue. The Baus (2009) analysis looked at revenue from an individual call perspective. Each call from 2008 was analyzed to determine the total expenses and revenue. In comparison, a request was made to the EMS Medical Billing Associates, the department's ambulance service billing company, to generate a report to evaluate interfacility data. This report (Perkins, 2011) studied the number of interfacility transfers in 2009-2010. These transfers originated from either Aurora Clinic or St. Agnes Hospital in Fond du Lac. The interfacility transfers are classified as long distance or short distance. Long distance is defined as having a loaded distance that exceeds 25 miles. Short distance is defined as having a loaded distance that is 25 miles or less. In comparison to the City's ambulance transfer analysis (Baus, 2009), the EMS Medical Billing Associates report (Perkins, 2011) provides the revenue detail in total numbers for a two year period beginning January 1st, 2009 and ending December 31st, 2010. It also provides data that is non existent in the City analysis such as differentiation between long and short distance interfacility transfers, transfers that occur during peak training periods, patient demographics, and overall revenue numbers. It is believed that the information from both of these reports will provide an accurate picture of the financial benefit or drawback from interfacility transfers.

The second question is regarding the impact of interfacility transfers on the training program of FDLFD. Research regarding this question is directed toward understanding the positive effects of training. There seems to be little that adequately described the effects of removing or partially removing individuals from a successful training program. Alternatively,

by reviewing the benefits of a successful training program, one can infer that missing this training is likely to contribute to reduced success in those areas of proficiency or knowledge.

The first area of study pertained to the topic of teamwork. It takes little research to find the importance of teamwork in both the public and private sector. A look at the objectives of ground ladder operations (Goodson & Murnane, 2008, p. 470) demonstrates the importance of this teamwork when relating to a fire department's ability to be effective in its operation.

Because of their success, team-based work systems are becoming more predominant as larger organizations employ common goal and function strategies for groups of employees identified as action teams (Ellis, Bell, Ployhart, Hollenbeck, & Ilgen, 2005). This study (Ellis et al., 2005) goes further into determining the impact of generic teamwork based training on the effectiveness of these teams. The team members receiving generic teamwork training did demonstrate higher levels of knowledge, competency and proficiency in their tasks than their untrained counterparts. They (Ellis et al., 2005) go on to note finding significance that team members with weaker skills and proficiency benefit from generic teamwork training to a greater degree than those who already possess stronger skills and proficiency. Although not a direct example of the importance of emergency services training, it does adequately describe the significance of training programs that contribute to a team based work environment.

Research was also conducted to find the effects of training on skills proficiency. In a study on intubations, (Reich, Berger, & Tomes, 2011) relationship was found between training time and intubation success rates. The results indicated that successful intubation rates among South Carolina EMS providers were related to the number of hours spent training for intubations. Agencies in the study that had the highest success also had documented the most training hours for endotracheal intubation. This provides support for two factors critical to training: the volume

of time dedicated, and repetition of critical skills such as endotracheal intubation. It is likely that a reduction of time and practice in this area will contribute to a lesser degree of success.

Another area of importance for review is safety and wellness. Proactive training to prevent injury and illness is integral to fire department operation. It is reported (Cohen, Colligan, Sinclair, Newman, & Schuler, 1998) that occupational safety and health training is critical in preventing personnel and corporate costs associated with job related injuries and illnesses. The article (Cohen et al., 1998) supports the need for organizations to regularly assess and provide training using critical elements to effectively educate their personnel and control all hazards. The primary focus of this training and hazard recognition is to maintain the safety and well being of personnel in all industries. To a lesser degree, it also contributes to reduced costs thus maximizing the financial well being of the organization itself. This is no different when it comes to fire department operations and the inherent hazards faced in the profession routinely.

The last question for review is related to how interfacility transfers affect personnel on FDLFD. It seems appropriate that the first topic to research is paramedic burnout. Since interfacility transfer numbers are over and above 911 emergency calls, it seems prudent to evaluate whether or not these additional calls are a burden on the personnel who manage them. The syndrome of burnout has been around since the early 70's (Freudenberger, 1974). The term was originally coined to address the symptoms of exhaustion and self neglect found in social health workers during that period. The first form of burnout measurement was created in the early 1980's (Maslach & Jackson, 1981). This measurement addressed the primary symptoms of emotional exhaustion, depersonalization, and loss of personal accomplishment. They (Maslach & Jackson, 1981) were able to validate these effects on professionals in the human services field and subsequently identify a mechanism for their measurement. This study (Maslach & Jackson,

1981) is significant in the fact that burnout no longer was a term but actually has recognizable and measurable symptoms.

While the Maslach & Jackson study (1981) qualified and quantified the condition of burnout, it was recognized only in human services professionals. Burnout is also recognized in other career fields, specifically, the health care field (Felton, 1998). The study identifies that personnel working in the emergency service fields, are vulnerable to burnout also.

A related factor to burnout is job stress. Job stress is defined as “the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker” (National Institute for Occupational Safety and Health [NIOSH], 1999, p. 6). The NIOSH (1999) article goes on to address job stress and identifies that certain job related factors will cause significant mental and physical issues in workers unless there is some way to address work related causes and find personal balance.

Since it is obvious that stress and burnout are factors to consider for firefighters and paramedics, it is important to pursue additional research to define what the causes of those are. In researching these, it was noted (Nirel, Goldwag, Feigenberg, Abadi, & Halpern, 2008) that burnout and stress in paramedic personnel were caused more by the effects of administration. Paramedic personnel indicated that issues relating to long hours, lack of supervisory support, and low pay contributed to work stress and burnout. On the contrary, it was identified (Lloyd, 2004) that causes of burnout for Memphis Fire Department paramedics consisted of EMS system misuse, lack of appreciation, sleep deprivation, high work burden and decreased independence. Lloyd (2004) recommends that more paramedics are necessary to manage the burden of high call volume to help reduce the level of burnout in personnel. Unlike the study from Nirel et al. (2008), it appears that Lloyd (2004) contributes some degree of fault to call volume in the

burnout of paramedics. It is noted that these two studies are situated in different countries so it is prudent to recognize that cultural diversity is likely to have some degree of effect on the results.

Lastly, it is necessary to research the effects that interfacility transfers have on the morale of personnel. Morale is generally defined as “The state of spirits of a person or group as exhibited by confidence, cheerfulness, discipline, and willingness to perform assigned tasks” (“Definition of morale,” 2011, para. 1). It is important to understand the effects that interfacility transfers have on the morale of personnel. Increasing the workload on individuals also increases work stress and subsequently decreases morale (Sullivan & Buske, 1998). While understanding what causes a decrease in morale, how do we understand what would cause an increase in morale in this situation? In researching this, it will be beneficial to understand some of the current circumstances surrounding the problem in question.

The most pointed topic that seems to resurface frequently is the current economic climate facing the state and nation as indicated earlier by Morrell (2011). This economic crisis has not only taken its toll on local fire department budgets, but it has also caused private ambulance service providers (Levine & Graybow, 2011) to look for new revenue sources. Because of dwindling budgets, city leaders are looking into many different avenues to save money and private equity firms are buying private ambulance services and making proposals to city leaders to offer emergency medical services for little or no cost to taxpayers compared to what is currently being spent (Levine & Graybow, 2011). There are arguments for the support of privatization which indicate that private ambulance services can provide a better quality and less expensive service (Chiang, David, & Housman, 2006). There are also arguments that indicate privatization only creates more problems and solutions should originate from better labor-management relations (Ballard & Warner, 2000). The International Association of Fire Fighters

(IAFF) maintains its stance against privatization of emergency services (International Association of Fire Fighters [IAFF], 1997). Since a majority of Fond du Lac uniformed fire fighters are members of IAFF, it is likely that they are intimately aware of this topic and support any strategies that will help to reduce the likelihood of privatization interest.

One can gather from the research presented that that there is no defined solution that works for all municipalities and privatization may be an option considered by government leaders. Because of this, privatization is likely perceived as a threat by uniformed firefighters. Research shows that individuals reacting to threats fight feelings of helplessness by “engaging in their own protection” (Jones, Woolven, Durodie, & Wessely, 2006, p. 69). This research shows that during the Second World War, civilians in Britain were participated in their own protection by assisting with the defense during air-raids. This gave people a sense of control and helped to increase morale. Since non-emergency interfacility transfers are services routinely provided by private ambulance service rather than fire departments (Dean & Messoline, 2011), uniformed personnel may be inclined to see this as their participation in the defense against a threat.

In order to determine what the feelings of personnel are, we must use a formal polling method to study a cross-sectional sample of department personnel (Questionnaire design and surveys sampling, 1994). The best method used to gather the information in this case will be a Likert scale (Trochim, 2006). This scale will assist in the evaluation of opinion through a multiple choice, five item scale.

Procedures

In order to answer the questions posed, the author employed procedures using elements of evaluative and descriptive research. The first question addresses the financial feasibility of

interfacility transfers. In evaluating the financial aspect, a cost/benefit analysis will be the most appropriate method used.

The first step was to retrieve all appropriate data to analyze. The key location for obtaining general call numbers was the Wisconsin Ambulance Run Data System (WARDS) (Wisconsin Ambulance Run Data System website, 2011). This is the online depository of all electronic patient care reports completed by FDLFD.

The remainder of the data was retrieved from both the Baus (2009) and Perkins (2011) reports and was determined to be the number of interfacility transfers, revenue generated, and costs during a specified timeframe. Since the only pre-existing information available was the analysis of long distance interfacility transfers that occurred in 2008 (Baus, 2009), it was determined to mine data from the period of January 1st, 2009 through December 31st, 2010. This timeframe would provide sufficient numbers along with the most recent data for accuracy in results.

The call volume data also needed to be broken down by type of transfer. Since each type of transfer incurred different costs, it was important to group these calls separately. These were differentiated as long distance and short distance transfers. Based on an agreement between administration and the firefighters union (Gerritson, 2010), local hospitals were considered to be within 25 miles of the center of the city. Hence, transfers over 25 miles would be considered long distance and the remainder would be short distance. These numbers were obtained through a special report (Perkins, 2011) provided by the agent for the contracted billing service for the Fond du Lac Fire Department and confirmed by the author through the department's electronic run database (Table 1).

Revenue numbers were next in line to be obtained. This data was also contained in the Perkins (2011) report. Again, the information was reported in two separate categories consisting of long versus short distance interfacility transfers. These were provided in both gross and net actual revenue numbers (Table 7).

The final data to be gathered in this analysis were the costs incurred. There were two types of costs associated with both types of transfers: revenue based expenses and variable costs. The revenue based expenses were again provided by both Baus (2009) and Perkins (2011). These included costs directly associated with the amount of revenue generated. These expenses are subtracted from the gross revenue numbers and represent billing fees, insurance write-offs and uncollected fees.

Variable costs are considered to be those incurred during the provision of the interfacility transfer services. In this study, variable costs consist of personnel costs, fuel, depreciation, maintenance, and supplies. Personnel costs consisted of overtime pay, transfer pay and total pay with benefits. While both overtime pay and benefit pay were actual numbers, benefit pay needed calculation. The Baus (2009) analysis demonstrated that a multiplier of 1.2459 could be used to extrapolate accurate pay with benefits (Table 2). While overtime costs are unique to long distance interfacility transfers only, transfer pay was issued on a small number of short distance interfacility transfers. This was calculated by finding the number of short distance transfers eligible (Gerritson, 2010) for transfer pay in each year, calculating the percentage based on all eligible transfers in the same year and extrapolating the same percentage from the total cost of transfer pay in that year (Table 7).

Total fuel cost would need to be estimated for 2009 and 2010. These costs were estimated individually for both long and short distance interfacility transfers. The first part of

this process was to determine the fuel costs for each type of transfer. Long distance transfers were broken down into three main regions of transport. These were identified as the Milwaukee, Madison and Fox Valley regions. The average trip distance was calculated for each region based on the number of hospitals and their distance calculated using Google maps (Google Maps website, n.d.). This number was multiplied by a factor of two in accounting for the fuel cost of the return trip. The trip distance was divided by the highway fuel consumption to estimate the number of gallons used for a trip to and from each region. The gallons used on each trip were multiplied by the diesel fuel costs to determine the total cost of fuel per trip. The cost for each trip was then multiplied by the number of trips to that region (Table 3).

Short distance interfacility transfers were calculated similarly. The exceptions being the average trip distance and fuel economy. The average trip distance was estimated shorter because none had exceeded 25 miles. The return trip costs were also not calculated due to proximity to the general service territory. Fuel costs were also calculated using the city fuel economy instead of highway (Table 3).

In calculating depreciation, the straight line method was used with consideration to salvage value. The 2009-2010 values of equipment used in calculating these figures. The purchase values from the Baus (2009) study were used while the salvage values were estimated. The total purchase value was calculated and the total salvage value subtracted. This number was divided by a 10 year service life to obtain the cost of depreciation per year (Table 4). This annual cost of depreciation was divided over the annual overall call volume to determine the cost of depreciation per call in the years of 2009 and 2010 (Table 5). These numbers were averaged to provide the per call depreciation between 2009 and 2010. The individual depreciation cost

caused by long and short distance transfers was then calculated by multiplying the total number of each by the average per call depreciation (Table 6).

There was no identifiable means to estimate fees for maintenance and supplies other than using numbers obtained from the Baus (2009) study of 2008 (Table 9 and 10). Attempting to track the supplies used would require an extraordinary amount of research to determine a number small enough to have little significance on the overall numbers. It is the author's experience that few supplies are used during either form of interfacility transfers due to previous treatment and existing adjuncts of care.

Lastly, the overall numbers for revenue were calculated by subtracting the total variable costs by the net revenue. These numbers were then divided into each year to estimate the annual revenue generated by both long and short distance transfers. These numbers were then divided by the number of long and short distance transfers, respectively, to determine the revenue generated per call by each (Table 7). Since the Baus (2009) study detailed cost and revenue in terms of each call, the author felt it necessary to break down the information to this level for ease of comparison.

The second research question involved evaluative methods to determine what effects interfacility transfers have on FDLFD's training program. Again, using the Perkins (2011) study, data was analyzed to determine how often interfacility transfers interfere with training hours between January 1st, 2009 through December 31st, 2010. Training hours were defined as 8:00 a.m. to 4:00 p.m. Training days were identified as weekdays, or specifically Monday through Friday. The call volume for this timeframe was extracted in the categories of long distance, short distance and 911. These numbers were added together to determine the total call volume during this period. Each category was then divided by the total number to determine the

percentage during peak training hours. Long and short distance numbers were then divided by the total number of interfacility transfers from 2009 to 2010 to determine the percentage of calls that occurred during this specified timeframe. All categories were divided by the total number of calls from 2009 to 2010 to determine the percentage of total call volume. The revenue generated by the long and short distance interfacility transfers during the specified timeframe was included to assist with the cost/benefit analysis (Table 8).

The last research question involved descriptive methodology in helping to determine the extent that interfacility transfers affect FDLFD personnel. A survey was used to gather opinions regarding interfacility transfers from all fire department personnel. After reviewing department staffing calendars, it was determined that a two week polling period would allow 64 of 65 personnel to participate. The 65 members consisted of shift personnel and chief officers. The one individual unable to participate was on extended medical leave and would not have been able to participate during any portion of this research project. The method used was an electronic survey to poll a cross sectional sample of FDLFD personnel. This opinion based questionnaire uses a five point Likert Scaling (Trochim, 2006) method combined with one multiple choice and one open ended question. The multiple choice questions were to assess years of service and general feedback regarding the overall topic of the questionnaire. The survey method used was Zoomerang online survey tool (Zoomerang website, 2011). Personnel were invited directly to participate in the poll through fire department email addresses and only those listed by the author were allowed by the online program to take the survey. The Zoomerang tool (Zoomerang website, 2011) also restricted each participant to complete this survey once. The survey statements were based on the author's observations and experiences regarding various opinion regarding interfacility transfers. These statements were phrased in a

manner that addressed both positive and negative opinions regarding interfacility transfers. Personnel taking the survey had the opportunity to answer in degrees of agreement or disagreement with the statements as posed.

There were some limitations noted during the procedures of this research. In calculating the fuel costs for short distance transfers, there was no simple way to break down the mileage into focused categories. Although a large number of reports were available through the WARDS system (Wisconsin Ambulance Run Data System website, 2011), there was nothing that would generate specific mileage of short distance transfers. The author was relegated to obtain a pure average based on the potentially shortest or longest distance. This did provide an estimate but accuracy is limited.

No current data was available regarding the variable cost of supplies for interfacility transfers since billing methods do not itemize. In researching individual interfacility transfers in WARDS (Wisconsin Ambulance Run Data System website, 2011), there was frequently no record of used supplies. It is the author's experience that this is often the case but not the norm. Without specific available data, the numbers from the Baus (2009) report could not be contradicted nor confirmed.

Lastly, the questionnaire send out to personnel did not receive full response from all fire department personnel. It was still noted that there was a good variety of ages and responses represented.

Results

Research into the question regarding the financial impact of interfacility transfers shows that FDLFD does see a financial benefit from interfacility transfers (Table 7). Both long and short distance transfers have generated approximately \$89,633 in annual net revenue. When

looked at individually, short distance interfacility transfers generated net revenue of \$54,008 annually, while long distance generated \$35,625. When looking at these numbers from an individual call basis, long distance generated more revenue at \$210 per call compared to \$196 for short distance. This demonstrates that there is specific financial gain from both long and short distance interfacility transfers.

The effects of interfacility transfers on the training program of FDLFD were researched. The peak hours were defined as Monday through Friday from 8:00 a.m. until 4:00 p.m. It was found that the both 911 and interfacility calls during peak training hours amount to 31.0% of the total call volume for 2009 and 2010 (Table 8). It was demonstrated that long distance transfers account for 2.0%, while short distance were 6.1% of calls during this same time period. In comparison, it was found that 28.4% of all 911 calls happen during peak training hours. When compared with the total call volume in 2009 and 2010, peak training hour interfacility calls represent 0.6% for long distance and 1.9% for short distance. When looking at the financial aspect of interfacility transfers during peak training hours, revenue generated by long distance transfers during this period was \$10,909 while short distance was \$30,676. These numbers show that there is impact on the peak training hours by interfacility transfers. It does appear that this impact is minimal when compared with regular 911 calls.

Research into the effects of interfacility transfers on FDLFD personnel was conducted through a questionnaire. This questionnaire asked participants to share some basic information and thoughts based on their level of agreement or disagreement to a series of statements.

The survey results (Appendix A) show that although there was limited response to the questionnaire with 35 respondents out of 64 polled, the respondents are not unique to a certain seniority group. This indicates that the respondents are a relatively diverse group. This also

points out that Fond du Lac Fire Department personnel are generally supportive of interfacility transfers with 91% of those responding generally agree that interfacility transfers have a positive effect on the department. It is also shown that 3% of respondents generally agree that interfacility transfers have an overall negative effect on the department. FDLFD personnel appear to be concerned about privatization with 80% of those responding generally agree that interfacility transfers help to reduce the likelihood of privatization. In contrast, only 9% of those responding generally disagree with the same premise. An important result to note regarding this questionnaire is statement seven regarding paramedic burnout. Of those responding, 80% indicate that they generally disagree that transfers contribute to paramedic burnout. This would seem to indicate that these transfers are contributing to morale rather than degrading it. It was noted that 94% of those responding generally agree that interfacility transfers are a service to the community. In a quick review of the Perkins (2011) report, it was noted that 94.1% of short distance and 59.4% of long distance transfers were for residents of Fond du Lac.

Discussion

The author's results were compared with the reviewed literature regarding the financial benefit of interfacility transfers. It was noted that the Baus (2009) study determined that interfacility transfers did generate net revenue of approximately \$152 per call (Table 9). The author's study of long distance interfacility determined that net revenue was approximately \$210 per call (Table 7). This accounts for a 28% difference in revenue per call. The differences in each study require review for understanding. The Baus (2009) study reviewed each call for the 2008 year to determine the average net revenue generated. The author's study reviewed the two year period and analyzed the same criteria for equal comparison. The differences between the studies are accounted for by the calculation of personnel costs, fuel costs and depreciation. In

the Baus (2009) study, personnel costs were calculated based on estimated overtime pay, benefits, and transfer pay. While the author used the same criteria to calculate personnel cost, the overtime pay and benefits were calculated by using the actual cost gathered from department budget records. The difference between estimated and actual is attributed to any interfacility transfers where overtime callbacks are not filled. In these circumstances, overtime requests go unfilled and duty personnel are not replaced for the duration of the transfer. When estimating overtime expenses, these situations were not accounted for.

In reviewing the difference in fuel costs, the author researched fuel costs for 2009 and 2010 and it was determined that recalculation was necessary to accurately represent fuel costs for that period as compared with 2008. The author also noted that the Baus (2009) study calculated fuel costs based on gallons per hour figures from general fuel records. It was the author's experience that calculating the gallons per hour consumption would be artificially high due to the significant amount of time that ambulances idle. The most appropriate method of calculating fuel costs was to utilize the miles per gallon format (Barnes & Langworthy, 2003). In reviewing this data, the Baus (2009) study determined that the average transport and return mileage for a long distance transfer was 118 miles and fuel costs were estimated at \$62.46 (Table 9). The author's study determined that using the miles per gallon formula yielded an average of 107 miles and an average fuel cost of \$32.56.

Depreciation was another area in which the author found difference of calculation. In studying depreciation (Walther, 2010), it was noted that salvage value could be considered in calculating total depreciation along with amortizing the net cost of equipment annually over the lifetime of usage. The author's study calculated this depreciation by call volume for each year and extrapolated the cost for each call (Table 5). The Baus (2009) study determined that

depreciation cost for each long distance interfacility transfer was \$37.19 (Table 10). The author's study determined that cost to be an average of \$5.35 for 2009 and 2010.

It should be noted that the data from the Baus (2009) study, only reviewed long distance interfacility transfers. Short distance transfers were reviewed only against the author's study of long distance. The same criteria were used but there were obvious differences that require explanation. The differences were focused on personnel costs, fuel costs and supply costs. Personnel costs were very limited for short distance transfers because a majority of these calls were managed from within the department's service territory so very few required overtime callback and transfer pay. Similarly, as most calls were completed within the primary service territory, fuel costs were lower because only the loaded trip distance was calculated. The supply costs remained the same in light of concern from the author. While believed that these numbers were artificially high, there was no applicable research or data found to refute these costs.

The effect of interfacility transfers on the training program were noted. Research had shown that an increased frequency of transfers would likely degrade any teamwork (Ellis et al., 2005), skills proficiency (Reich et al., 2011), and the well being of personnel (Cohen et al., 1998). After review of the data, long and short distance interfacility transfers have minimal impact when compared to the frequency of 911 calls during the peak training hours. Long distance transfers are responsible for 2% of the call volume during peak training hours while short distance transfers are responsible for 6.1%. In comparison, 911 calls are responsible for 28.4% of the call volume during this period.

Lastly, the results regarding the effects of interfacility transfers on personnel were compared with research. The questionnaire sent out to all available shift personnel and chief officers indicated that there is general support and enthusiasm for interfacility transfers. Data

from the questionnaire show that 91% of respondents generally agree that interfacility transfers have a positive effect on FDLFD, while only 3% generally agree that interfacility transfers have a negative effect. While Fenton (1998) identifies that burnout is a significant concern for emergency service workers, data from the questionnaire indicates otherwise with 80% of respondents disagreeing with the supposition that interfacility transfers cause burnout. As identified by the article on private ambulance interest in municipal contracts (Levine & Graybow, 2011), respondents do feel threatened by the potential of privatization with 80% of respondents indicating that interfacility transfers reduce the likelihood of privatization. The study of British citizens during the Second World War (Jones et al., 2006) demonstrates similar attitude in the maintenance of morale by actively taking part in the defense against a perceived threat.

In agreement with questionnaire data, the Perkins (2011) study also does indicate that interfacility transfers are a benefit to citizens of the community. As discussed in the results section, 94.1% of all short distance and 59.4% of long distance transfers are residents of Fond du Lac. Although it may be seen by fire department personnel in this fashion, the public may see it differently depending on circumstances.

Recommendations

Based on all research results, it is recommended that FDLFD continue to maintain the interfacility transfer program for both long and short distance transfers. From a short term financial perspective, it is clear that the program does generate revenue and with the current economic situation, any significant budgetary changes may impact the ability to provide core services. From a long term perspective, costs need to be routinely evaluated. Significant changes in any of the associated revenue or costs will affect net revenue. Should costs increase

and revenues decrease, it is likely that the program will no longer be beneficial in generating additional revenue. It is recommended that these variables be monitored annually to ensure that the program balance does not tilt negatively. It is also advised that the program be monitored for any new or unrecognized expense not taken into account by this study. One potential cost to review is disagreements between labor and management. Grievance processes may be costly in legal fees and resolution directives. In hind sight, this dispute information should be considered in the future. If the balance of revenues and cost change to the point that interfacility transfers become a liability rather than a benefit, they should be discontinued in order to keep focus on core services.

When looking at the effects on training, it was recognized that interfacility transfers have little impact on the ability of personnel to complete training. What had not been recognized is the effects that call volumes have on the ability of personnel to complete training. It is the author's experience that administration has previously recognized these but as call volumes continue to increase while budgets decrease, it is imperative to continue to provide guidance and policy on how best to complete uninterrupted training in light of core service provision.

Data suggests that interfacility transfers are well supported by personnel. It is important to note that there may be a degree of financial motivation since transfer pay is issued on some of these calls. Future research would benefit from knowing the opinion of personnel if there was no additional compensation for these calls. Interfacility transfers are likely seen as a tool in providing job security while still a benefit to the citizens they serve. Any changes to reduce or eliminate interfacility transfers will be perceived as a threat and will likely produce negative effects on morale along with general discord. At this time, there appears to be no financial impetus for change. However, in reviewing the calculations for personnel pay costs, it was noted

that the difference was due to unfilled overtime requests. These cost differences essentially indicate there are transient personnel shortages caused by interfacility transfers. This is a significant concern because it appears to accept a reduction in personnel for the generation of revenue. It is recommended that changes be made to seal these gaps in personnel coverage. Administration and union leaders should work together in focusing on any necessary changes for the health of the department. This will help to smoothly adopt any of these necessary changes.

This research has provided some insight into feasibility of interfacility transfers for FDLFD. The author has noted some limitations that may require further review. This research could not provide any detailed numbers on supply costs. In realizing the difficulty in this area, attempts should be made to currently track these expenses. Another limitation of this research is the focus of the descriptive research. While important to gauge the opinion of department personnel, interfacility transfers are a specialty and not a core service. It would benefit future research to evaluate public or civic leader opinion. While research does show that this service is utilized by a greater percentage of residents, it does not necessarily equate to public support. Evaluating public opinion may be helpful in determining whether a community is receptive to adding or maintaining the service.

Lastly, the mission of FDLFD is to protect and serve its citizens while being responsible in operations. Currently, the program of interfacility transfers helps to support this mission through financial means while still maintaining positive morale in personnel. Readers should understand that these results will be dependent on the variables applied and circumstances surrounding each situation.

References

- Ballard, M. J., & Warner, M. E. (2000). *Taking the high road: local government restructuring and the quest for quality*. Retrieved from Cornell University:
<http://government.cce.cornell.edu/doc/pdf/TakingTheHighRoad.pdf>
- Barnes, G., & Langworthy, P. (2003). *The per-mile costs of operating automobiles and trucks* (MN/RC 2003-19). Retrieved from University of Minnesota Center for Transportation Studies website: <http://www.lrrb.org/pdf/200319.pdf>
- Baus, E. (2009). [Ambulance transfer analysis]. Unpublished raw data.
- Chiang, A., David, G., & Housman, M. G. (2006). The determinants of urban emergency medical services privatization [Entire issue]. *Critical Planning, 13* Retrieved from <http://assets.wharton.upenn.edu/~housman/files/CriticalPlanning.pdf>
- Cohen, A., Colligan, M. J., Sinclair, R., Newman, J., & Schuler, R. (1998). *Assessing occupational safety and health training* (NIOSH Publication No. 98-145). Retrieved from Center for Disease Control and Prevention: <http://www.cdc.gov/niosh/98-145-b.html>
- Dean, A., & Messoline, M. (2011). Fire based ems: the solution for an ailing system? Retrieved from http://www.fireengineering.com/index/articles/display.articles.fire-engineering.volume-164.issue-2.departments.fire-service_ems.fire-based-ems-the-solution-for-an-ailing-system.html
- Definition of morale. (2011). Retrieved from <http://www.answers.com/topic/morale>
- Ellis, A. P., Bell, B. S., Ployhart, R. E., Hollenbeck, J. R., & Ilgen, D. R. (2005). *An evaluation of generic teamwork skills training with action teams*. Retrieved from Cornell University ILR School: <http://digitalcommons.ilr.cornell.edu/articles/46/>
- Executive Development*. (4th ed.). (2010). Emmitsburg, MD: Department of Homeland Security.

Executive fire officer program operational policies and procedures. (2010). Emmitsburg, MD:

Department of Homeland Security.

Felton, J. S. (1998). Burnout as a clinical entity-its importance in health care workers.

Occupational Medicine, 48(4), 237-250.

Freudenberger, H. J. (1974). Staff burn-out. *Journal of Social Issues*, 30, 159-165.

Gerritson, E. (2010, March 27). [Letter to Peter O'Leary]. Copy in possession of Todd Janquart.

Goodson, C., & Murnane, L. (Eds.). (2008). Ground Ladders. *Essentials of fire fighting* (5th ed., pp. 470-536). : Fire Protection Publications, Oklahoma State University.

Google Maps website. (n.d). <http://maps.google.com/>

International Association of Fire Fighters. (1997). *Privatization and prehospital emergency medical services*. Retrieved from International Association of Fire Fighters:

<http://www.iaff.org/tech/PDF/Monograph1.pdf>

Jones, E., Woolven, R., Durodie, B., & Wessely, S. (2006, January). Public panic and morale: second world war civilian responses re-examined in the light of the current anti-terrorist campaign. *Journal of Risk Research*, 9(1), 57-73.

Levine, D., & Graybow, M. (2011, April 15). Dial 911 for profit - just don't tell a firehouse.

Reuters. Retrieved from <http://www.reuters.com/article/2011/04/15/us-ambulance-idUSTRE73E3D720110415>

Lloyd, B. H. (2004). *Addressing burnout in paramedics*. Retrieved from United States Fire

Administration: <http://www.usfa.dhs.gov/pdf/efop/efo37163.pdf>

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of*

Occupational Behaviour, 2, 99-113.

- Morrell, A. (2011, March 1). With state budget details murky, local governments prepare for shared revenue cuts. *Green Bay Press Gazette*. Retrieved from <http://www.greenbaypressgazette.com/article/20110301/GPG0101/110228218/With-state-budget-details-murky-local-governments-prepare-shared-revenue-cuts>
- National Institute for Occupational Safety and Health. (1999). *Stress...at work* (99-101). Retrieved from Centers for Disease Control and Prevention: <http://www.cdc.gov/niosh/docs/99-101/>
- National Research Council-Transportation Research Board. (2010). *Technologies and approaches to reducing the fuel consumption of medium- and heavy-duty vehicles*. Retrieved from The National Academies Press website: http://www.nap.edu/openbook.php?record_id=12845&page=R1
- Nirel, N., Goldwag, R., Feigenberg, Z., Abadi, D., & Halpern, P. (2008). Stress, work overload, burnout, and satisfaction among paramedics in Israel. *Prehospital and Disaster Medicine*, 23(6), 537-546. Retrieved from http://pdm.medicine.wisc.edu/Volume_23/issue_6/nirel.pdf
- O'Leary, P. (2010, January 29). [Letter to Erick Gerritson]. Copy in possession of Todd Janquart.
- Perkins, G. (2011). *Fond du Lac Fire Department interfacility analysis 2009-2010*. Milwaukee: EMS Medical Billing.
- Questionnaire design and surveys sampling. (1994). <http://home.ubalt.edu/ntsbarsh/stat-data/surveys.htm>

Reich, A. J., Berger, A., & Tomes, W. (2011, January 12). Good intubators do it more often.

EMS World. Retrieved from [http://www.emsworld.com/print/EMS-World/Good-Intubators-Do-It-More-Often/1\\$10464](http://www.emsworld.com/print/EMS-World/Good-Intubators-Do-It-More-Often/1$10464)

Sullivan, P., & Buske, L. (1998, September 8). Results from CMA's huge 1998 physician survey point to a dispirited profession. *Canadian Medical Association Journal*, 159, 525-528.

Retrieved from <http://www.canadianmedicaljournal.ca/content/159/5/525.full.pdf>

Transportation cost and benefit analysis II - vehicle costs. (n.d.). Retrieved from

www.vtpi.org/tca/tca0501.pdf

Trochim, W. (2006). Likert Scaling. Retrieved from

<http://www.socialresearchmethods.net/kb/scallik.php>

United States Energy Information Administration. (2011). Petroleum and other liquids. Retrieved from

http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMD_EPD2DXL0_PTE_NUS_DPG&f=A

Walther, L. (2010). Property, plant, and equipment. Retrieved from

<http://www.principlesofaccounting.com/chapter%2010.htm>

Wisconsin Ambulance Run Data System website. (2011). <http://www.emswards.org/>

Working conditions agreement. Unpublished manuscript. (2004).

Working conditions agreement. Unpublished manuscript. (2006).

Zoomerang website. (2011). <http://www.zoomerang.com/>

Appendix A: Questionnaire

1. How many years have you been on the Fond du Lac Fire Department?

0-5 years	6	18%
5-10 years	7	21%
10-15 years	6	18%
15-20 years	6	18%
20+ years	9	26%
Total	34	100

2. Interfacility transfers are important in creating revenue to offset the fire department budget.

Strongly agree	17	49%
Agree	11	31%
Neutral	3	9%
Disagree	3	9%
Strongly disagree	1	3%
Total	35	100%

3. Interfacility transfers help to reduce the likelihood of privatization.

Strongly agree	16	46%
Agree	12	34%
Neutral	4	11%
Disagree	2	6%
Strongly disagree	1	3%
Total	35	100%

4. Citizens benefit from the fire department's quick response for interfacility transfers.

Strongly agree	23	68%
Agree	9	26%
Neutral	1	3%
Disagree	1	3%
Strongly disagree	0	0%
Total	35	100%

5. I feel that interfacility transfers have an overall positive impact on the Fond du Lac Fire Department.

Strongly agree	22	65%
Agree	9	26%
Neutral	1	3%
Disagree	2	6%
Strongly disagree	0	0%
Total	34	100%

6. Interfacility transfers often cause transient personnel shortages.

Strongly agree	4	12%
Agree	7	21%
Neutral	10	29%
Disagree	11	32%
Strongly disagree	2	6%
Total	34	100%

7. Interfacility transfers are a contributing factor to paramedic burnout.

Strongly agree	1	3%
Agree	2	6%
Neutral	4	11%
Disagree	12	34%
Strongly disagree	16	46%
Total	35	100%

8. There are more problems created by interfacility transfers than benefits

Strongly agree	2	6%
Agree	1	3%
Neutral	8	23%
Disagree	8	23%
Strongly disagree	16	46%
Total	35	100%

9. I feel that interfacility transfers have an overall negative impact in the Fond du

Lac Fire Department.

Strongly agree	0	0%
Agree	1	3%
Neutral	5	14%
Disagree	7	20%
Strongly disagree	22	63%
Total	35	100%

Table 1

Call Volume

Year	Total Interfacility Calls	Short Distance (SD)	Long Distance (LD)	Total Call Volume 911 and Interfacility	Percent of interfacility in total call volume
2009	400	248	152	3988	10.0%
2010	491	304	187	4345	11.3%
Totals	891	552	339	8333	10.7%

Table 2

Personnel Pay Calculation (2009-2010)

Year	Overtime Pay	Transfer Pay	Total Pay	Total Pay with Benefits *(Total Pay x 1.2459)
2009	\$21,430	\$23,251	\$44,681	\$55,668
2010	\$23,373	\$28,351	\$51,724	\$64,443

Totals	\$44,803	\$51,602	\$96,405	\$120,111
--------	----------	----------	----------	-----------

* Multiplier of 1.2459 was extrapolated from 2008 figures and applied to 2009 and 2010 figures for accuracy in reporting additional cost of benefits associated with pay.

Table 3

Fuel Cost Calculations

City	Average Trip Distance	Gallons Used Per Trip	Fuel Cost Per Trip	Number of Trips	Total Fuel Cost
Milwaukee (LD)	114	12.67	\$34.59	231	\$7,990.08
Madison (LD)	144	16	\$43.68	61	\$2,664.48
Fox Valley (LD)	64	7.11	\$19.41	47	\$912.28
Local (SD)	13	1.86	\$5.08	552	\$2,802.95

Total (LD)	\$11,566.85
------------	-------------

Total (SD)	\$2,802.95
------------	------------

Table 4

Straight Line Depreciation Calculation (with Salvage)

Equipment	Purchase Value	Salvage Value
Ambulance	\$179,000	\$5,000
Mobile Data Computer	\$10,000	\$1,000
Communications	\$10,000	\$1,000
Laptop	\$3,400	\$100
Software	\$1,250	\$0
Cot	\$3,600	\$1,000
Ventilator	\$1,600	\$400
EKG Monitor	\$25,000	\$3,000
Totals	\$233,850	\$11,500
Salvage Value subtracted from Purchase Value		\$222,350
Straight Line Depreciation Value (per year) over ten year life span of vehicle and equipment.		\$22,235

Table 5

Yearly Depreciation (\$22,235) amortized over call volume

Year	Call Volume	Per Call Depreciation
2009	3988	\$5.58
2010	4345	\$5.12
Average Per Call Depreciation		\$5.35

Table 6

Depreciation Calculated by Transfer Distance

Call Volume	Average Per Call Depreciation	Total Depreciation
Long Distance		
339	\$5.35	\$1,814
Short Distance		
552	\$5.35	\$2,953

Table 7

Interfacility Transfer Revenue Calculations

Revenue and Associated Expenses	Long Distance Interfacility (62%)	Short Distance Interfacility (38%)	Total
Charges	\$341,295	\$209,181	\$550,475
Write Offs	\$80,380	\$49,265	\$129,645
Allowable Charges	\$260,915	\$159,915	\$420,830
Uncollected/Refunds	\$35,303	\$21,637	\$56,940
Payments	\$225,612	\$138,278	\$363,890
Billing Fees	\$16,921	\$10,371	\$27,292
Average Collection Rate	86%	86%	86%
Net Revenue	\$208,691	\$127,907	\$336,598

Variable Costs	Long Distance Interfacility	Short Distance Interfacility	Total
Personnel	\$117,201	\$2,910	\$120,111
Fuel	\$11,567	\$2,802	\$14,369
Depreciation	\$1,814	\$2,953	\$4,767
Maintenance	\$1,051	\$1,771	\$2,822
Supplies	\$5,807	\$9,456	\$15,263
Total Variable Costs	\$137,440	\$19,892	\$157,332

	Long Distance Interfacility Generated Revenue	Short Distance Interfacility Generated Revenue	Total
Overall	\$71,251	\$108,015	\$179,266
Average Annual Revenue	\$35,625	\$54,008	\$89,633
Average Per Transfer Revenue	\$210	\$196	\$406

Table 8

Analysis of Call Volume During Peak Training Hours (0800-1600, Monday-Friday)

Parameters	All Calls (911 and IFT)	Long Distance (LD)	Short Distance (SD)	911 Only
Call Volume During Peak Training hours	2577	52	157	2368
Percentage of Calls during Peak Training Hours	100.0%	2.0%	6.1%	91.9%
Percentage of Total Interfacility Transfers (891)	-	5.8%	17.6%	-
Percentage of Total Call Volume in 2009-2010 (8333)	31.0%	0.6%	1.9%	28.4%
Revenue Generated by Calls during Peak Training Hours	-	\$10,909	\$30,676	-

Table 9

**City of Fond du Lac
Ambulance Transfer Analysis
Using Existing Ambulances**

Average Billed per transfer	1,203.79
Less Average Write-off per transfer	(465.09)
Less Average EMS Med Billing Fee per transfer	<u>(60.94)</u>
Average Net Revenue per transfer	<u>677.76</u>
Less Supply, Oxygen, Medications, and Linen Costs per transfer	(17.13)
Less Direct Costs:	
Payroll Cost Per Call*	(406.63)
Fuel charge per average of 59 loaded miles	(31.23)
Fuel charge for return trip (not billed out)	(31.23)
Vehicle Insurance & Maintenance Costs per transfer	(3.10)
Depreciation charge per transfer**	<u>(37.19)</u>
Total Average Net Revenue/(Cost) per transfer	<u><u>151.26</u></u>

*Does not include longevity

***Using an average of 72 calls from 2008.

Table 10

**City of Fond du Lac
Cost of New Ambulance**

	Transfers	All Calls
Ambulance	179,000	77,819
MDC (Mobile Data Communications)	10,000	10,000
Radio Equipment	10,000	5,000
Laptop	3,400	3,400
Software for Laptop	1,250	1,250
Annual Software Maintenance	400	2,000
Cot	3,600	3,600
Vent	1,600	
Heart Monitor	25,000	25,000
Total Cost*	<u>234,250</u>	<u>128,069</u>
Depreciation per year**	23,425	128,069
Depreciation charge per transfer***	325	37

*Miscellaneous Tools are not included in cost

**Estimated Life is 10 Years

***72 Transfers were billed in 2008.

****3,444 total calls were billed in 2008.