2013

# Central Massachusetts EMS/ALS Shared Services Report

Charlton, Leicester, and Spencer

Central Massachusetts Regional Planning Commission
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# CENTRAL MASSACHUSETTS REGIONAL EMS/ALS SHARED SERVICES REPORT

(CHARLTON, LEICESTER, AND SPENCER)

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### Study Area


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Source: Data provided by the Central Massachusetts Regional Planning Commission (CMRPC), massDOT/Office Of Transportation Planning Geospatial Resources Section and the Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division.

Information depicted on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. Use caution intrepreting positional accuracy.

CMRPC
Central Massachusetts Regional Planning Commission

# A. EXECUTIVE SUMMARY

## I. PURPOSE:

In 2013, the Central Massachusetts Regional Planning Commission (CMRPC) awarded District Local Technical Assistance (DLTA) funding to its Regional Services Department for the purpose of evaluating shared Emergency Medical Service (EMS) and Advanced Life Support (ALS) in 3 towns (Charlton, Spencer, and Leicester). The following report summarizes the Department's findings and poses various means of addressing issues. We find that pre-hospital and para-medicine have been affected by structural changes at the local, state and federal levels. Of these, increased labor-costs resulting from declining volunteerism pose the greatest threat to EMS systems. In conjunction with other structural shifts, this change has made it increasingly difficult for rural, standalone EMS organizations to remain viable. Locally, changes in EMS partnership agreements have further upset already fragile provider organizations. Without strategic redress, these challenges will likely result in the closure of one or more EMS providers in the three-town sub-region. To ensure the organizations' continued viability, CMRPC recommends the Charlton, Leicester, and Spencer pursue a sub-regional approach to EMS/ALS service and dispatch. Additionally, we present strategies that will strengthen existing services in the short-term.

## II. METHODOLOGY

The evaluation comprised four phases:

- Phase 1 consisted of an examination of existing conditions in each community.
- Phase 2 entailed a thorough review of structural challenges affecting rural EMS/ALS.
- Phase 3 involved analysis of existing EMS and ALS services, and
- Phase 4 consisted of an evaluation of potential options and provision of recommendations on such basis.

**Phase 1:** Existing conditions were established through discussion with EMS/ALS stakeholders and through independent data collection and analysis. CMRPC hosted inter-municipal and one-to-one dialogue sessions with stakeholders. These included municipal administrators and officials, EMS/ALS service providers, regional coordinators, and state agencies. Working with these groups, CMRPC identified and reviewed factors known to affect performance, staffing, and operating economies. Included within this review were:

- Existing relationships between departments
- Budgetary information
- Community demographics
- EMS/ ALS demographics
- Equipment needs
- Service response times and call distributions
- Available manpower

**Phase 2:** CMRPC conducted a comprehensive literature review of emergency medical systems. This included government publications, unpublished white papers, academic journals, and a variety of other media. The Agency spoke with stakeholders, veteran emergency medical practitioners, and policymakers from the region and beyond to identify the greatest challenges facing rural EMS/ALS organizations. Synthesizing these materials, CMRPC identified the following challenges:

- Call volumes/ road miles
- Changes in the volunteer base
- Turnover
- Training costs
- National Standards
- The Patient Protection and Affordable Care Act
- Frequent Flyers
- Collection rates
- Health insurance payment/reimbursement policies

**Phase 3:** The regional EMS analysis examined the economics of EMS/ ALS and performance measurements. This included:

- Payer insurance profiles
- Gross billables
- Clinical excellence
- Response time reliability.

**Phase 4:** Options and recommendations were determined following examination of: existing conditions; regional, state, and national EMS/ALS policy and practices; information collected from stakeholder meetings and discussions; and collected data. CMRPC evaluated the benefits and deficits of each option, and made recommendations based on feasibility, economics, and performance measurements.

## III. FINDINGS:

Budget shortfalls and a scarcity of trained personnel are threatening EMS organizations throughout Massachusetts. A lack of funding, high fixed expenses, and changes in the field are making it increasingly difficult for EMS providers- municipal or nonprofit- to remain afloat. As a result of Massachusetts' adoption of the National Standards for EMS certification (effective July 1, 2013), training and equipment costs are increasing. Changes in Massachusetts General Law (111C, Sect 25) eliminated dual paramedic transport requirements, but have increased regulations and provider expenses. Changes in insurance billing have reduced provider organizations' net incomes. Passage of the Patient Protection and Affordable Care Act is expected to further decrease EMS revenue, increase training costs, and entail new quality controls that will require enhanced performance and new administrative duties. Equipment costs continue to run high. Together, these changes have and will continue to reduce EMS providers' net operating incomes. Yet, if not for declining rates of volunteerism, these changes might have been manageable.

Historically, EMS has relied on on-call, volunteer labor. This reduced-cost labor - provided by volunteers in the name of public service- subsidized EMS provision. This is rapidly changing. American civic and social engagement has decreased since peaking in the 1960s. Changing attitudes about societal oblige, as well as shifting familial demographics, have reduced the aggregate volunteer base. There are more single-parent households. Wages are stagnant. The dollar buys less than it did in the 1970s. Consequently, Americans are less able or willing to volunteer. Given these structural changes, public service organizations that have historically relied on volunteers- from the NAACP to local food banks- are struggling to make ends meet. EMS is no exception. Yet, in EMS, these changes are compounded by changing conceptions of the field. Since the 1960s, EMS has undergone steady progress towards professionalization. The amount of training and certification required for practice has increased. In terms of prestige and professional legitimacy, EMS has made substantial gains. Cost of attainment has

increased accordingly. Consequently, potential practitioners are likely to view EMS as a career path, rather than a social responsibility. The loss of volunteer subsidy as a result of these changes is the key challenge facing EMS organizations. For pre-hospital and para-medical service to persist long-term, municipalities and providers need to tackle this structural change.

Unfortunately, these challenges further compound in rural communities. Low call volumes and long distances from training further reduce net incomes and increase costs. Competitive pay rates are rarely (if ever) feasible. Opportunities to maintain and hone EMS skills are meager. In Central Massachusetts- which is characterized by its small, rural towns- many EMS providers are operating at a loss and suffering from a shortage of qualified staff. Organizations operating at a positive net income are barely doing so, and only through the use of subsidized labor. These constraints impede training beyond minimum standards, resulting in reduced patient care. Having exhausted funding sources, many EMS providers are seeking line-item increases or a municipal subsidy. In this era of fiscal constraint such concessions are rare. Although constituents view EMS as a core service, like fire, police, and infrastructure, municipalities are not accustomed to fully covering the cost of EMS. Consequently, the Region is experiencing a scale-back of EMS/ALS service and an increased dependence on mutual aid. In a region where multiple providers are in precarious financial condition, heavy dependence on mutual aid could yield systemic failure; closure or scale-back of any one EMS/ALS organization affects multiple communities, each of whom are dependent upon that provider. The sub-region's three communities are no exception.

A piece-meal, per-community solution will not solve the Region or sub-region's impending EMS crisis. Compensating for lost volunteer subsidy requires structural overhaul. Barring changes of such magnitude, CMRPC expects service scale-back or closure by multiple local EMS providers. This will likely include one of the sub-region's three providers. The Spencer Rescue Squad- a 501(c) 3- is actively seeking ways to improve financial solvency. The Squad's FY12 billing receipts totaled approximately $523,000; its expenses totaled just over $807,000. In spring of 2013, the Squad requested (and received) $150,000 from the Town of Spencer to help close the gap. However, in fall of 2013, it lost a long-standing contract with the Town of Paxton. It has yet to secure a compensatory revenue stream. In Leicester, EMS services are municipally operated and afloat as a result of municipal subsidy. In 2012, the Town of Leicester's ambulance generated $260,408 in billing revenue. It expended a reported $341,990. This deficit will continue to grow with increased training requirements, new standards of care, and insurance changes. In Charlton- which also runs a municipal EMS- income and expense figures were unavailable. If Charlton's income and expenses are in keeping with the norm, the Town is using general funds to address a shortfall in ambulance billing revenue. This can be presumed because the standard EMS operating model do not address for the aforementioned changes affecting EMS operating economies. It has not been reworked to address the loss of volunteer subsidy, increased standards of care, or new training costs. Even at high call volumes, the model is not self-sustaining. The state of nearby EMS organizations highlights the fragility of the system as a whole.

Nearby, the Hardwick Rescue Squad (a certified 501c3) is operating without municipal subsidy and experiencing significant staffing challenges. The organization, whose 2013 request for municipal subsidy was denied, is finding it increasingly difficult to fill rosters and cover shifts at its current rate of pay. The North Brookfield Rescue Squad (also a certified 501c3) eliminated ALS service in 2009. Without town contracts or subsidy, its many revenue streams proved insufficient to cover ALS operating costs. Luckily, the Town of North Brookfield agreed to subsidize the Squad's BLS service at $45,000 for each of the next three years. However, the sum is insufficient to cover increased expenses and the loss of low-cost labor long-term. Most nearby EMS providers are able to offer only Basic Life Support (BLS). For ALS, they rely on mutual aid from Barre, Brookfield, Ware, East Brookfield, Spencer and Rutland (see Exhibit A).

However, many of these organizations are also in fragile economic condition. Closure of any nearby EMS organizations will further strain local providers, who will need to stretch staff and equipment to cover additional calls at greater distances. Additional billing reimbursements will not necessarily compensate for increased output. Large EMS providers elsewhere in United States are operating at a deficit. CMRPC staff is intimately familiar with a well-run provider conducting 16,000 transports annually, yet still operating at a deficit. Hence, it is not simply a matter of increased call volume, but of structural realignment.

**Exhibit A: Service levels**

| Participant | Level of Service | Federal Census 2010 Population | Area Square Miles |
|---|---|---|---|
| | | | |
| Barre | ALS | 5,398 | 44.61 |
| Brookfield | ALS | 3,390 | 16.57 |
| **Charlton** | **ALS** | 12,981 | 43.95 |
| East Brookfield | ALS | 2,183 | 10.37 |
| Hardwick | BLS | 2,990 | 40.84 |
| Hubbardston | ALS | 4,382 | 42 |
| **Leicester** | **ALS** | 10,970 | 24.68 |
| New Braintree | BLS | 999 | 20.85 |
| North Brookfield | BLS | 4,680 | 21.72 |
| Oakham | BLS | 1,902 | 21.53 |
| **Paxton** | **BLS** | 4,386 | 34.05 |
| Rutland | ALS | 7,976 | 36.41 |
| **Spencer** | **ALS** | **11,688** | **34.05** |
| West Brookfield | BLS | 3,701 | 21.12 |
| | | | |
| **Total:** | | **77,626** | **412.75** |

**IV. OPTIONS**

CMRPC evaluated the feasibility and potential impacts of four courses of action. The communities can: (1) continue addressing EMS/ALS provision on a per-community, per-year basis; (2) jointly hire a for-profit EMS/ALS organization; (3) establish a shared ALS intercept system through the use of an ALS "chase car"; or (4) establish a sub-regional BLS/ALS system, meeting the three communities complete EMS needs. Analysis of data and discussion with EMS/ALS stakeholders, municipal personnel, elected officials, and state agencies indicated that the towns would be best served by a sub-regional EMS system that provides both BLS and ALS to all three towns.

| Option | Description | Endorsement |
|---|---|---|
| 1 | Jointly hire an outside service provider | Not recommended |
| 2 | Address issues on an individual community basis | Not recommended |
| 3 | Establish a shared ALS intercept system /chase car | Not recommended |
| 4 | Establish a sub-regional EMS system (BLS and ALS) | **Recommended** |

Implementing the recommended strategy entails:

- Disbandment of existing EMS services
- Establishment of a new, sub-regional emergency dispatch system
- Establishment of a new, sub-regional BLS/ALS system
- Engagement of potential partners to improve payer-mix/ call volume
- Creation of a joint committee to oversee the system, manage agreements, and address EMS issues collectively
- Implementation of supportive measures (outlined in Option 2)

Barring a sub-regional approach, the communities can continue addressing EMS on a per-community per-year basis. Under that scenario, there are actions that can potentially improve patient care, reduce expenses, and increase revenue. These general strategies will improve efficiency and operations, whether the communities restructure EMS operations or continue individually. Foremost, the organizations should address staffing-related performance issues that impact patient care. The first necessary step entails establishing the capability to support a program like an Emergency Communications Nurse System (ECNS) at a local or regional Emergency Dispatch Center. Not every emergency call needs a lights-and-siren response. In fact, not every call even needs a COLD (non-emergency) ambulance response. The ECNS system is comprehensive and simple.

First, a call comes into the emergency dispatch center and answered by the Emergency Medical Dispatcher™ (EMD). If, after EMD questioning, the patient is assigned a pre-determined and locally-defined "non-emergency status ", the call is transferred to the Emergency Communication Nurse (ECN). This specially-trained ECNS-certified Registered Nurse assesses the patient. It is imperative that the ECN be co-located within the communication center. After verifying there are no priority symptoms, additional information is gathered such as past medical conditions, medications, and allergies etc.

Based on the caller's answers, a Recommended Care Level is determined, which includes tiered response levels from Send an Ambulance Now to Self-Care Instructions. The ECNS has an integrated Directory of local services to help determine a Point of Care or a community local resource/ provider and possibly a transportation alternative, if necessary. This process can also schedule appointments in real time as well.

The ECNS has been designed to specifically meet the following goals:

1. Appropriately manage and support caller access to an increasingly burdened healthcare system by better allocating resources to meet their non-emergent, non-life-threatening health situations

2. Help EMS communication centers, ambulance services, hospitals and all EMS providers optimize their resources and outcomes by sending, when necessary, the

•right personnel, to the

•right place, at the

•right time, with the

•right equipment, using the

•right resources, to get the

•right care, in the most clinically appropriate way; thereby facilitating the

•right cost, to patients, providers, and payers

The problem is the ECNS system can be expensive to implement and maintain. The "Nurse Dispatch" type systems can greatly reduce non-emergency ambulance calls and unneeded emergency room visits. In the future Accountable Care Organizations (ACO) and Patient Home providers will help defer cost of nurse dispatching systems, but record keeping and "Evidence Based" performance indicators will be imperative. Much smaller dispatch centers, because of call volume or personnel, will not be able to implement or sustain these advanced types of dispatch services.

Regional or sub-regional dispatch centers should be considered to not only take advantages of operating economies of scale but also to position communities for the implementation of future advanced dispatch programs and systems.

Secondly, the communities can reduce fixed expenses through newly available programs. In 2013, CMRPC, in conjunction with 15 EMS providers, applied for a Community Innovation Challenge (CIC) grant trying to establish a Regional Emergency Medical Services Training initiative. Although the initiative was not funded, a similarly-modeled joint-training initiative could reduce training expenses and increase EMT capacity. CMRPC is also implementing a joint procurement consortium for EMS supplies. The consortium will allow the Region's 40 communities and various non-profit agencies to leverage their collective purchasing power, thereby reducing the cost of medical supplies and equipment by 20% to 50%. These opportunities will provide economies of scale otherwise unavailable to individual towns.

Lastly, the organizations should support and position themselves to capitalize on forthcoming legislation. Changes in pre-hospital medicine to include community para-medicine are imminent, and present a potential revenue stream. Judicious use of billing per call, regardless of transport ("no-transport billing"), would also increase revenue. The sub-region's providers should address changes in insurance reimbursement policies, either through joining networks as necessary or supporting legislation that would bar direct patient reimbursement. Providers utilizing subscription drives should reevaluate the benefit of doing so; such revenue varies from year to year, and its inclusion in financial statements obscures financial realities. Finally, the organizations should continue to pursue municipal subsidy. Given the increased structural expenses and loss of volunteer subsidy, free municipal EMS is no longer feasible. Policymakers, elected officials, municipal employees, and voters must be educated about the challenges facing rural EMS organizations. This will require a concerted, sustained effort on the part of EMS actors.

Barring implementation of a broader sub-regional EMS system, establishment of a sub-regional ALS intercept system through the use of a "chase car" may offer some financial relief to the provider organizations. Together, the three providers conducted 1,628 ALS transports in FY 13. If the providers eliminated independent ALS services, instead opting for a sub-regional intercept approach, the collective call volume might approach a level yielding self-sufficiency (or at least smaller deficits). The cost of maintaining and operating an ALS chase car- which would not conduct transports, but meet BLS ambulance crews en-route- is approximately $25,300 per year. The total cost (direct and indirect) of maintaining one-paramedic on staff at all times (at $23/ hour) is $333,000. The total cost of operating a 24/7 ALS intercept vehicle is therefore approximately $358,300. The total revenue generated as a result of ALS intercept fees ($250 per call) is approximately $407,000. However, this does not account for non-payments and negotiated rates, which are certain to reduce the total net income.

Hiring a private organization is an alternative to the aforementioned strategies. Alone, the sub-region's ALS call volume is insufficient to support privatization. In aggregate, BLS and ALS calls may be sufficient to support a for-profit operation (Rose, 2013). American Medical Response (AMR) is interested in expanding its coverage area to include the sub-region. The company believes it can provide equitable service for less than the communities currently pay. However, the land area (102.68 sq. miles) is not easily served by a single ambulance. Prior to issuing a firm commitment, AMR would need to conduct a gap analysis and meet with stakeholders to discuss communities' economic and service goals. A viable contract will likely entail provision of ALS and BLS services. This approach may solve the sub-region's immediate EMS/ALS concerns; however, it entails some risk. Many private ambulance companies have failed to make good on their municipal service agreements, or requested large post-agreement subsidies. In such cases, Towns must acquiesce to provider demands or reestablish municipal EMS/ALS, often with little to no notice.

## B. KEY CONCEPTS

**Funding**

*Ambulance services can be operated through a variety of means, including municipal emergency medical departments, Fire and Police Departments, 501c3 nonprofit ambulance companies, or for-profit ambulance contractors. Funding can come from municipal taxes, pre-payment of co-pays ("subscription drives"), grant funds, insurance reimbursements, and fee-for-service charges. Most ambulance organizations use some combination of the above funding streams. Organizations using ambulance transport are required to affiliate with a hospital-based physician, who serves as Medical Control Physician. The Medical Controller authorizes and implicitly certifies all pre-hospital care conducted by the organization.*

**Basic Life Support**

*Basic life support (BLS) is defined as a variety of noninvasive emergency procedures performed to assist in the immediate survival of a patient, including cardiopulmonary resuscitation, hemorrhage control, stabilization of fractures, spinal immobilization, and basic first aid. Some of these procedures can be lifesaving and are often important to implement early. Specifically in the case of cardiopulmonary resuscitation (CPR) and defibrillation with automatic external defibrillators (AEDs), BLS procedures can have a significant impact on survival, and are typically delivered by initial responders until more advanced and definitive medical care can be implemented. –Encyclopedia of Intensive Medical Care*

**Emergency Medical Technicians**

*BLS is typically provided by either first responders or emergency medical technician (EMT)-basics. EMTS provide basic emergency medical services to patients during transport to primary care facilities, and determine whether treatment requires intervention by EMTs certified to provide Advanced Life Support (paramedics or AEMTS). –Encyclopedia of Intensive Medical Care*

**Advanced Life Support, Paramedics, and Advanced Emergency Medical Technicians**

*Advanced life support (ALS) refers to the medical procedures for sustaining life including the advanced diagnosis and protocol-driven treatment of a patient in the field such as defibrillation, airway*

*management, and administration of medications. Generally, ALS is performed by emergency medical technicians-paramedics and other qualified health professionals. ALS is performed by designated ALS ambulances or through intercept with BLS ambulances.* –US Legal

**ALS Intercept**

*An ALS intercept is an authorized and staffed ALS unit, dispatched by request or protocol, meeting a BLS unit while it is en route to the nearest appropriate hospital. A BLS unit assesses the patient, determines the need for and requests ALS, packages and begins patient transport. The BLS unit does not wait on the scene for the ALS unit's arrival. -NY State Department of Health*

**Staffing Requirements**

*Massachusetts requires that ambulances have two staff available 24 hours per day, 7 days per year. BLS ambulances must have 2 EMT-basics available at all times, including during transport. ALS ambulances are required to have one paramedic and one EMT-basic available and on-board during transport. The ALS requirement reflects a 2010 change to Massachusetts General Law (111C, Sect 25), which formerly required two paramedics or a waiver.*

**Payer Mix**

*Payer-mix refers to the percentage of transported patients with Medicare, Medicaid, private, or no insurance. Because insurance companies reimburse service organizations at varying and often pre-determined rates, the payer-mix affects the operating economies of EMS organizations. Of the various insurance agencies, Medicare and Medicaid provide the lowest reimbursement rates- often 50 percent or less than actual billings.*

# C. EXISTING CONDITIONS

## COMMUNITY DEMOGRAPHICS

Located in western/ southwestern Central Massachusetts, the towns of Charlton, Leicester, and Spencer are largely rural. Together, the municipalities comprise 102.68 square miles, 73.23 of which are categorized as open space. The remaining area is home to 35,639 residents, residing in 4,154 housing units (see Exhibit B). Residents 62 years and above comprise 16.46 percent of the population, slightly below the state average of 17.1. The region has an increased seasonal population, with many second homes/camps on the nearby lakes. Tourism is popular in the area due to recreational opportunities, historical sites, and agro-tourism. The increased seasonal population requires additional infrastructure, but does not significantly expand the labor pool or tax base. Local EMS/ALS organizations serve these residents, as well as: employees working in the communities; seasonal residents; tourists; and commuters.

The area's combined median household income is $74,515, well in excess of the state average ($65,981). Similarly, the area's mean poverty level is 5.7 percent, significantly less the state mean of 10.7

percent. Despite this portrait of affluence, income indicators differ dramatically between the towns. In Charlton, the median household income is $91,653- 21 percent higher than that of Leicester ($72,471), and 35 percent greater than that of Spencer ($54,930). Income demographics are of particular importance to EMS organizations. Lower-income communities have higher percentages of Medicare and Medicaid recipients. Such insurers reimburse healthcare providers at lower rates than their private counterparts. As such, the sub-regional median income bodes well for EMS organizations. The median household income of Spencer does not.

Of the three communities, only Charlton is served by the Interstate Highway System. Route 20 bisects the municipality, providing easy access to Worcester, which is 17 miles away. Charlton, along with Leicester and Spencer, also benefits from access to Route 9. Spencer, which is 11 miles from Worcester, also benefits from the presence of Route 31. While Leicester borders Worcester, Spencer is 11 miles further away. Southbridge, MA- the area's second largest metro area (population 17,214) is located seven to fourteen miles from each of the three towns. With limited Interstate access, and no hospitals within the three townships, residents suffer from a lack of first-class medical facilities. Instead, they rely on EMS services for transport into Worcester or Southbridge. For Leicester residents, Saint Vincent's Hospital in Worcester is the nearest such facility, at 7.2 miles or 18 minutes (by car). In Charlton, Harrington Memorial Hospital in Southbridge is the nearest hospital, at 14 minutes or 7.8 miles. Harrington Memorial is also the hospital closest to Spencer, at 13.6 miles or 23 minutes.

**Exhibit B: Community Demographics**

| Community | Population | Unemployment Rate | Med. Household Income | Housing Units | Geo Size |
|---|---|---|---|---|---|
| Charlton | 12,981 | 7.1 | 91,653 | 4,154 | 43.95 sq. mi |
| Leicester | 10,970 | 7.1 | 72,471 | 4,720 | 24.68 sq. mi |
| Spencer | 11,688 | 8.0 | 59,420 | 2,798 | 34.05 sq. mi |
| **Totals** | **35,639** | **7.4 (avg)** | **74,515 (avg)** | **11,672** | **102.68 sq. mi** |
| Data Source: Population, Housing Units, and Med. Household Income are from the 2007-2011 US Census Bureau American Community Survey. Unemployment Rate is from the Massachusetts Labor and Workforce Development (March 2013). Geo size is from CMRPC database. | | | | | |

**Exhibit C: Median Household Incomes**

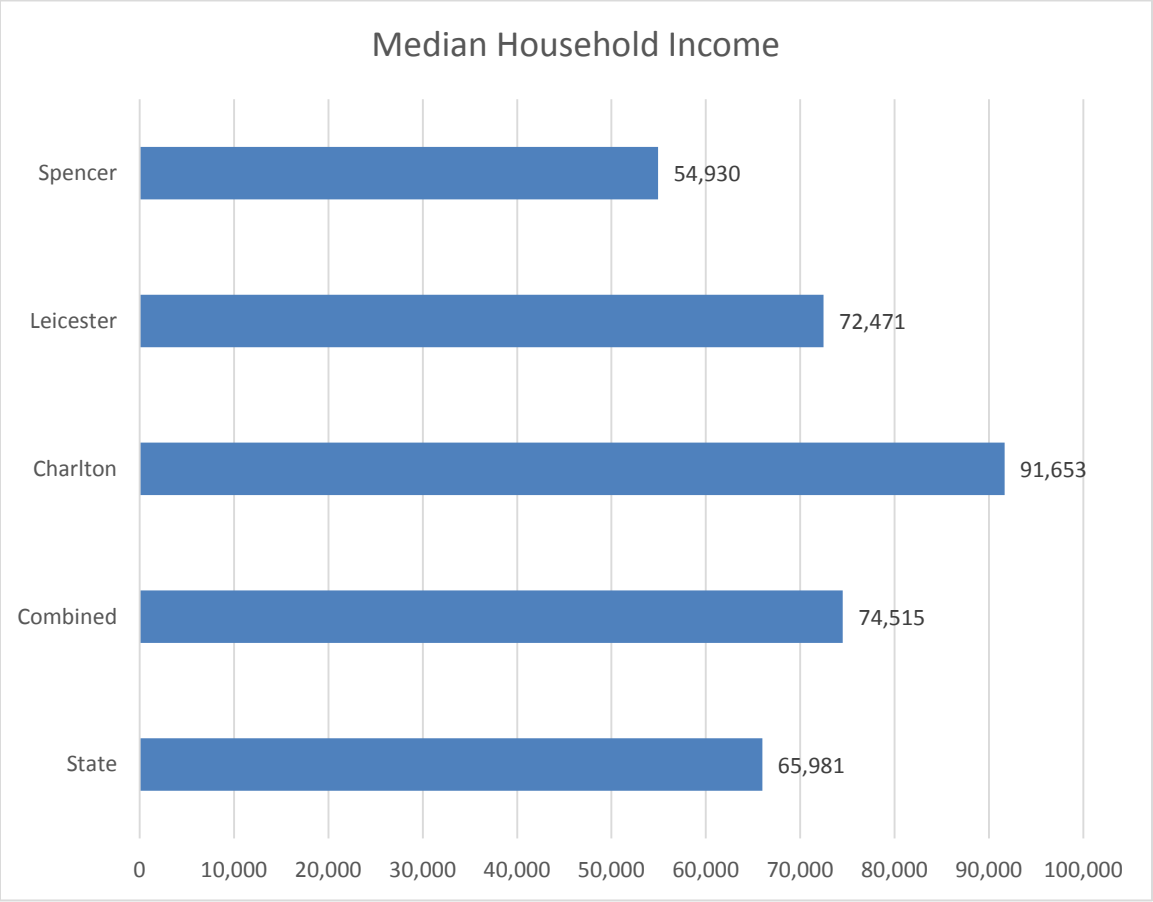
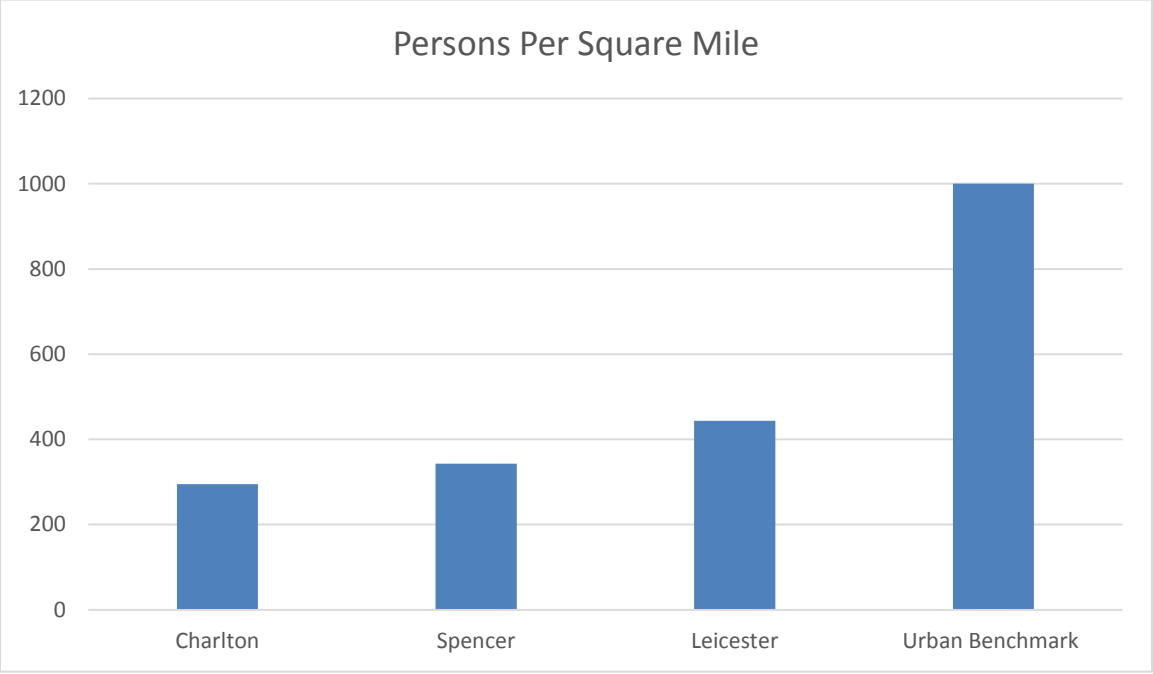


**Exhibit D: Population Density**




## EMS DEMOGRAPHICS:

Each of the three communities is home to an EMS organization that provides both BLS and ALS service. In Charlton and Leicester, the services are municipally operated via the local Fire Departments. Spencer's EMS needs are met by the Spencer Rescue Squad, a private non-profit ambulance service. The Spencer Rescue Squad has provided service to the Town and mutual aid to nearby communities since 1959. The Squad provided ALS service to the Town of Paxton until 2013, when the Paxton ended a seven-year agreement.

In FY13 the organizations conducted approximately 3,066 transports, equating to 8.4 transports per day. Of these, 2,842 (7.7 per day) were emergent; the remainder were scheduled. 1,628 (57%) of the emergent calls required ALS (see Exhibit D); the remainder required only basic life support. In Spencer, Medicare and Medicaid recipients represent 67% of all transports. Leicester is a relatively affluent community, with patients on public insurance representing 25% of all callers. Data on Charlton's payer-mix was not unavailable but interpolated from revenue data. Given that the Town's median household income is well in excess of Leicester's, Charlton's, and the State as a whole, it can be presumed that Charlton's payer-mix includes low percentages of Medicare and Medicaid recipients and a greater number of privately insured individuals. The Town of Leicester reported $400 average reimbursement per transport, 722 transports, and a total billing revenue of $260,408.45. The Spencer Rescue Squad reported $568 average reimbursement per transport, 1,124 transports, and a total billing revenue of $523,453. Charlton reported 996 transports in FY13.

**Exhibit E: Call Volume**

| Town | Emergent Transports | Scheduled Calls | BLS | ALS |
|---|---|---|---|---|
| Charlton | 996 | 13 | 416 | 580 |
| Leicester | 722 | 211 | 382 | 340 |
| Spencer | 1,124 | - | 416 | 708 |
| | **2,842** | **224** | **1,214** | **1,628** |
| | | | | **Total Transports: 3,066** |

**Exhibit F: Payer Mix**

| | Medicare | Medicaid | Private | Self-Pay |
|---|---|---|---|---|
| Charlton | 13.0% (Est) | 3.0% (Est) | 56.0% (Est) | 28.0% (Est) |
| Leicester | 19.0% | 6.0% | 51.0% | 24.0% |
| Spencer | 49.75% | 17.99% | 28.04% | 4.22% |

Collectively, the organizations own eight ambulances- six Class Ones, one Class Two, and one Class Three. The additional ambulances serve as ready reserve vehicles in the event of repairs or overlapping calls. However, four of the ambulances (including three Class Ones) are fully depreciated and in need of replacement (see Exhibit G). The remaining four ambulances are new or fairly new. Class One ambulance replacement costs average $210,000 (Baxter and Associates, 2007). Replacing the three Class One vehicles would therefore cost $630,000. Replacing a Class Two or Three would entail $450,000. Typical supply fit-out costs average $100,000 (Baxter and Associates, 2007). The providers can therefore anticipate between $550,000 to $730,000 in near-future ambulance replacement/ equipment expenses.

**Exhibit G: Ambulances**

| Town | # Ambulances | Year | Class |
|---|---|---|---|
| Spencer | 3 | 2006/ 2010 | I |
| Leicester | 3 | 2006 | I |
| Charlton | 2 | 2007/2012 | III/II |
| **Totals** | 8 | - | - |

The three organizations comprise 92 EMTs/Paramedics, a great majority of whom are part-time or on call. In Spencer, EMT-basics are compensated at an average of $13.50 per hour. Paramedics receive an average of $21.50 per hour. In Leicester, EMT-basics receive $15.81 per hour, while paramedics receive an average hourly rate of $18.43. Staffing rates were not available for Charlton; however, it can be presumed that pay is consistent with that of the Fire Fighter-EMTs conducting ambulance transports. Organizations offering pay consistent with the for-profit sector have fewer staffing challenges than their lower-paying counterparts. This bodes well for the sub-region's providers, whose pay rates are competitive or above average. In the nearby Town of North Brookfield, EMTs receive a base rate of $12 per hour. The organization is fully staffed, and able to provide "set" schedules- a difference that it attributes to its relatively high rate of pay. By contrast, the Hardwick Rescue Squad compensates EMTs at a base rate of $20 per 12 hour shift-the equivalent of $1.66 per hour. Hardwick's call volume is 61%

of North Brookfield's, yet it is staffed at 36 percent of its counterpart in North Brookfield. According to the organization, its staffing levels are inadequate and a result of low EMT compensation. Such issues negatively impact patient care.

Well-paid EMTs are often willing to work out of a station, rather than from home. With relatively generous pay rates, the sub-region's rosters likely include many out-of-town EMTs. Typically, such EMTs will routinely choose to work from the station even when on call. The effect on response time is dramatic. In Charlton, the average "out of chute" time is two minutes. The Spencer Rescue Squad's out of chute time is three minutes, its average dispatch to arrival time is seven minutes, and it arrives on scene within 13 minutes 90% of the time. In Leicester, EMTs are on scene within 5.7 minutes 90% of the time. By contrast, the Hardwick Rescue Squad- which has major staffing issues as a result of low pay- is out of chute within 7 minutes 99 percent of the time, and has an average chute to scene time of 25 minutes. However, EMS response time analysis is fraught with challenge. Variations in measurement technique, which are typical to the field, complicate comparative analysis.

**Exhibit H: Staffing Levels**

| Town | EMT-basic | Paramedics | Hourly BLS | Hourly ALS | Total Salary Expenses |
|---|---|---|---|---|---|
| Charlton | 13 | 9 | Unknown | Unknown | Unknown |
| Leicester | 19 (1 full-time) | 15 (1 full-time) | $15.81 | $18.43 | $301,805 |
| Spencer | 13 (1 full-time) | 23 (3 full-time) | $13.50 | $21.50 | S480,068 |

Provider expenses, where reported, varied greatly. The Spencer Rescue Squad expended $807,033 in FY 13. Leicester expended $341,990. In all likelihood, the variance results from different accounting methods (see Section D. II); however, both entail municipal subsidy of some sort. The Spencer Rescue Squad requested and received $150,000 from the Town of Spencer in 2013. From 2006-2013, it contracted with the Town of Paxton as well. The Leicester Ambulance took in $260,408 in billing receipts in FY13. Its expenses were $341,990. Given that the ambulance is municipal, it can be presumed that the difference was made up with money from the Town's general fund. These deficits are the result of both structural changes and local issues.

# D. REGIONAL EMS/ALS ANALYSIS

## I. STRUCTURAL CHALLENGES

CMRPC identified multiple factors that are impacting EMS organizations' operating economies. Key among these factors: changes in the labor pool and rural EMS demographics. These factors are compounded by numerous other challenges, such as changes in training requirements, insurance reimbursement policies, standards of care, and systemic abuse. The following section identifies these issues, loosely sorted according to severity of impact.

### A. LABOR POOL

Changes in the labor pool are the most pressing issue facing EMS. Historically, EMS has relied upon a core of committed volunteers. This labor subsidized service provision, allowing provider organizations to

offer free service to communities. However, volunteerism has undergone dramatic changes since peaking in the 1960s. Americans no longer volunteer as frequently or in as great a number as seen in previous decades. De-segregation of the workplace, new employment opportunities for women, declines in organized labor, and socio-political factors negatively impacted volunteerism. Between 1973 and 1993, the number of Americans who attended a town or school meeting declined by 33 percent (Putnam, 1995). Between 1974 and 1989, the number of Americans who volunteered decreased 15 percent (National and Community Service, 2006). During the 1980s and 1990s, volunteerism further declined. For example: between 1980 and 1997, membership in the Organization for Business and Professional Women declined 89 percent. The Parent Teacher Association experienced a 60 percent member reduction. The National Association for the Advancement of Colored People (NAACP) declined 46 percent over the same period (Swanson 1999). Although volunteerism has experienced resurgence in recent years, its form and function have changed. The new volunteer base is not geared towards EMS.

Between 1989 and 2005, volunteerism increased by 32% (National and Community Service, 2006). However, the increase is largely due to baby boomers (ages 45-64), Americans over 65, and teens ages 16-19. The proportion of adults 65 and older who volunteer more than 100 hours per year has doubled. "Older adults are the most likely group to serve 100 or more hours a year. This was not the case in 1974, when all volunteers 20 years old and over had virtually the same percentage of volunteers contributing 100+ hours a year" (National and Community Service, 2006). Consequently, increasing volunteerism does not necessarily translate into increased numbers of volunteer EMTS. Potential volunteer EMTs may not meet the field's age, certification, or physical requirements. Similarly, the socio-economic face of volunteers has changed. Volunteers are increasingly affluent, urban, and highly educated. A 2009 study that sought to identify the cause of declining numbers volunteer firefighters found that firefighters tend to be less affluent, less urban, and less educated (Patterson) than other volunteers. The mismatch between volunteer demographics and firefighter/EMT demographics reduces the likelihood that those willing to volunteer will be drawn to EMS organizations. Adding to these challenges are changing conceptions of EMS as a field.

Over the last few decades, EMS has undergone professionalization. Pre-hospital and para-medicine were once viewed as a public service and as a supplement to work activities. Today, they are regarded as career path. In previous decades, EMS training occurred outside formal educational institutions. Today, community colleges conduct the majority of all EMS trainings and certification. The amount of training, certification, and continuing education has increased. The number of colleges offering Bachelor's degrees in EMS studies grows every year. EMS has experienced increases in all variables used to differentiate professions from occupations, including: professional norms, formal credentialing, and specialized skills and knowledge (Margolis, 2005). The increased prestige and increased requirements have increased the cost of entering and practicing within the field. EMTs necessarily require corresponding increases in compensation. Hence, EMS is affected by not only the general decline in volunteerism, but a decline in industry-specific volunteerism as well. For example: when the Spencer Rescue Squad began operations in 1959, it had an annual budget of $2,000 and was staffed exclusively by volunteers. Today, it expends more than $800,000- more than half of which goes to staffing expenses.

In rural communities, these structural changes are compounded by rural demographics. Whereas previous decades are characterized by flight from cities to suburbs, the opposite is true today. Younger populations in particular are relocating to urban centers. With fewer working-age residents and aging populous, rural communities suffer from greater shortages of potential EMTS and a high need for EMS. As SafeTech Solutions, which examined EMS for the North Dakota Rural EMS Improvement Project in 1011, explains: "this [urban-rural shift] has left a shrinking pool of potential volunteers and shrinking

services rosters in many communities. All indicators suggest this shrinking will continue in coming years' (2011). Fewer volunteers will be available to subsidize EMS provision, and fewer paid EMTs will be available to fill their place. This change has already begun to shock the EMS system. The impact is such that only a paradigm shift will sufficiently address its wake.

SafeTech Solutions places the pre- labor costs of maintaining, equipping, and operating one ambulance at $70,000 per year. As such, the majority of expenses are incurred through labor and training costs. The value of volunteer subsidy can be approximated using the standard IRS formula, which averages "the average hourly earnings of all production and non-supervisory workers on private non-farm payrolls" (Independent Sector, 2012). This formula places Massachusetts' 2012 volunteer labor rates at $27.43 per hour. In Massachusetts, EMS organizations are required to have 2 staff available 24 hours/ day. If, as in decades past, EMS organizations operated without the use of paid personnel, this would mean a volunteer subsidy of $480,573 per ambulance per year. Adding the $70,000 of fixed expenses, we see that the true cost of operating an ambulance in Massachusetts is approximately $550,573 before training and indirect expenses. Where ambulance providers report lower costs, it is because they are utilizing free or reduced-cost labor or using accounting methods that obscure expenses. With volunteer labor drying up, the cost of doing business is and will continue to increase. Municipalities cannot expect EMS organizations to cover operating deficits resulting from the loss of volunteer subsidy. Town subsidies need to reflect this structural shift. Failure to do so will result in the loss of EMS organizations, placing service burdens on municipal departments or nearby agencies.

**B. CALL VOLUMES/ ROAD MILES**

Rural EMS organizations suffer from the dual challenges of low call volume and large service areas relative to urban counterparts. Because transport revenue varies with call volume, such organizations struggle to meet fixed costs and overhead. Throughout Central Massachusetts, EMS organizations are struggling to remain afloat. In recent years, many have requested municipal subsidies for the first time (Spencer and North Brookfield, for example). Others have scaled-back services. Many are operating at a deficit and searching for solutions, short of ceasing to operate. This presents additional challenges to response time and performance.

Severely constrained budgets entail personnel and equipment concessions. In many cases, rural EMS organizations cannot staff stations. Rather, employees are called-in as needed. Similarly, low call volumes often preclude multiple ambulances, which are necessary in the event of simultaneous calls, requests for mutual aid, or vehicle repair. With limited staffing and equipment, rural EMS transports entail longer response times. In such communities, roadway conditions (in terms of maintenance, design, and weather) can further impede transport times.

Rural EMTS also have fewer opportunities to hone and maintain medical skills. In the 3-town sub-region, equitable disbursement of calls would yield 26 emergent transports per EMT per year (2,842 transports, 106 EMTs). This rate is substantially higher than that of a six-town sub-region CMRPC also evaluated, which averaged 18 calls per EMT per year. However, the level of proficiency gained through 26 calls per year is still of concern- particularly given the communities' rural character. Substantial distances from acute care facilities require rural EMS providers to deliver more care to patients than their urban counterparts. When personnel lacking technical ability provide treatment for a sustained duration, patient wellbeing is jeopardized.

## C. TRAINING COSTS

Training is a significant challenge to rural EMS personnel and organizations. Training costs are higher per employee for rural EMS providers than their urban counterparts. This is largely due to distance from training and the limited availability of training opportunities. The high cost of training, which includes personnel time, travel expenses, back-fill, and fees, is depleting the EMT pool and affecting the bottom-line of EMS organizations. Continuing education costs average $1,091 per EMS provider per year (see Exhibit I). Collectively, the sub-region's 92 EMTS/AEMTS expend approximately $100,372 on continuing education per year. Some of this expense is borne by personnel; much of it is passed on to EMS organizations. Training standards and expectations of care continue to increase; without redress, these expenses will put added pressure on EMS organizations.

**EXHIBIT I: Training Expenses**

| Town | # EMTS/AEMTS | Cost |
|---|---|---|
| Charlton | 22 | 24,002 |
| Leicester | 34 | 37,094 |
| Spencer | 36 | 29,276 |
| *Data Source: Widner, 2013* | | |

| Certification Renewal Cost Breakdown | Paramedic Level | EMT Intermediate Level | EMT Basic Level |
|---|---|---|---|
| Hours Required for Certification Renewal Every Two Years | 60 | 50 | 40 |
| Allowed to Completer on-line (33%) | 20 | 17 | 13 |
| Number of Required Classroom Training Hours Every Two Years | 40 | 33 | 27 |
| Required CPR Training Hours (must be renewed every two years) | 4 | 4 | 4 |
| Required ACLS Training Hours (Must be renewed every two years) | 12 | 5 | 0 |
| Total Classroom Training Hours Required (required every two years) | 56 | 42 | 31 |
| Averaged Number of Classes Required to Meet Two Year Certification Requirements (average 3 to 4 hours per class) | 14 | 12 | 10 |
| Travel Time Hours Every Two Years to Classes (est. 1 hour each way to class) | 28 | 24 | 20 |
| Mileage Traveled Over Two Years to Class (est. at 20 miles each way to class) | 1,120 | 960 | 800 |
| Mileage Cost Incurred Every Two Years Traveling to Class (cal. .40 per mile) | $448.00 | $384.00 | $320.00 |
| Total Training Time Every Two Years (includes classroom time and travel time) | 84 | 66 | 51 |
| Dollar Value of Volunteer Training Time Every Two Years (MA. value of $26.84) | $2,254.56 | $1,771.44 | $1,368.84 |
| Dollar Value of Volunteer Training Time Every Year (MA. value of $26.84) | $1,127.28 | $885.72 | $684.42 |
| Total Two Year Training Cost for Volunteers to Maintain Certifications (time and travel expenses) | $2,702.56 | $2,155.44 | $1,688.84 |
| One Year Training Cost for Volunteers to Maintain Certifications (time and travel expenses) | $1,351.28 | $1,077.72 | $844.42 |

**D. TURNOVER**

Rural EMS organizations often serve as stepping stones for new EMS professionals. Many EMTS enter the field by volunteering in rural communities. In order to become career EMTs, personnel invest in training and strive for advanced certification levels. As personnel attain higher certification levels, they seek organizations that can offer greater call volumes and pay. Consequently, newly trained EMTS are routinely hired away. Where this does not happen, EMTs are prone to "rust out"- attrition casualty resulting from boredom and a lack of opportunities to practice skills. The career lifespan of EMTs in rural communities is short. This requires ongoing recruitment and training, which is costly.

**E. MEDICAL CONTROL**

In the near future, Massachusetts is expected to move from hospital-based Medical Control Physicians to service-based Controllers. Currently EMS provider organizations follow State Medical Protocols and utilize Medical Control Physicians affiliated with hospitals receiving their patients. In the future the State Office of Emergency Medical Services (OEMS) would like to transition to a service provider medical control physician. Physicians acting as medical directors are important because they provide medical oversight to EMS personnel. Many medical directors want to be assured that continuing education and quality improvement programs are in-place giving them confidence and trust that EMS personnel are competent and will not compromise patient care. Anticipated changes in pre-hospital care to include community para-medicine will expand current paramedics "Scope of Practice" which will not license paramedics for independent medical practice, but rather become more dependent and interactive on a dedicated medical director "physician" delegated clinical practice level. This means greater dependency on education and certification of competency by exam, licensed and credentialed by a state to perform restricted activities outlined by a medical director to practice in a specific setting under his license.

To make these advanced medical processes, programs and systems work each EMS organization will need to retain the services of its own physician. This will increase the costs of doing business but can also generate an alternate form of income needed to keep EMS services viable in rural communities. The concern is the cost of retaining a medical director for an EMS service can cost between $20K and $60K per year depending on the size of the organization and if qualified medical doctors would be willing to fill this position. Utilizing regional or sub-regional medical directors would reduce the cost to each jurisdiction and increase the pool of physicians that might take on the responsibility and liability of this position.

**F. NATIONAL STANDARDS**

Massachusetts' adoption of the National Standards for EMS certification will have a major impact on EMS in the State. Effective July 1, 2013, the Standards require very specific type of training for credential maintenance. Previously, Massachusetts EMS providers could complete a vast majority of "refresher" courses through Distributive Education (on-line, video, or magazine-based formats). The National Standards limit Distributive Education to 33% of the required hours. This has increased the number of classes EMS providers need to attend. Prior to the State adopting National Standards, local EMS organizations struggled with training expenses. In recent years, budget constraints required that departments conduct split training rotations (half of an organization's personnel attend trainings; the other half wait for the following year). National Standards requirements entail additional training allocations or noncompliance.

**G. PATIENT PROTECTION AND AFFORDABLE CARE ACT**

Signed into law in 2010, the Patient Protection and Affordable Care Act (ACA) will significantly impact EMS organizations. Between 2010 and 2020, numerous healthcare provisions will go into effect. These include a "Pay-for-Performance" model and expansion of Medicaid eligibility guidelines. Pay-for-Performance will entail new metrics and training requirements. Nationally standardized, "evidenced-based" performance indicators will be used to evaluate the effectiveness of training programs. In the near future, EMS providers will need to comply with guidelines that require increased documentation, treatment protocols, research, and quality measurements.

Currently most EMS agencies are not capable of gathering the data needed to do an effective job of benchmarking and improving treatment, training or cost/benefit justifications. EMS providers will need to expend additional resources to meet these requirements, and address any performance shortcomings exposed by the analysis. Smaller jurisdictional EMS agencies may not be able to track and maintain records needed for evidence based compliance which would be easier for a larger regional EMS organization.

The ACA Expansion of Medicaid eligibility to 133% of the poverty level will increase the number of Medicaid reimbursements. Such reimbursements are significantly less than billing rates. The Patient Protection and Affordable Care Act therefore present dual challenges: reduced reimbursements and increased expenses. It is anticipated that in the future a 10% to 25% reduction in ambulance usage will happen due to the pressure of reducing entrance into the medical care system through the EMS system. In the future some ACO's and "Patient Home" type organizations, to reduce cost, may provide their own transportation or contract with private EMS transport services to bring "triaged" or non-emergent patients to their facility bypassing local EMS transports.

**H. INSURANCE REIMBURSEMENT**

Changes in private insurance reimbursements compound these problems. In 2012, Blue Cross Blue Shield (BCBS) announced it would no longer directly reimburse EMS providers outside its network. Instead, the company now reimburses patients. The change sought to incentivize joining the BCBS network (which entails negotiated payments). Because service recipients often fail to forward reimbursements, the change reduces the revenue of unaffiliated EMS organizations. Consequently, the issues surrounding frequent flyers and patient reimbursement further compound the already precarious economic stability of rural EMS organizations. Currently Blue Cross Blue Shield is enforcing this reimbursement policy mainly on private agencies and not municipal EMS services. In the future municipal agencies could be forced to deal with insurance providers and ACO pressures to comply with negotiated payments.

**I. FREQUENT FLYERS**

Misuse and exploitation of EMS systems presents additional challenges. Most EMS organizations have "frequent flyers"- individuals who routinely request unsubstantiated emergency medical assistance. Commonly, these individuals lack a primary care physician. Instead, they use ambulance transport and emergency rooms for general treatment. Frequent flyers have also been known to use ambulances for general transportation or company. Such misuse affects tax payers as well as EMS organizations. Largely, these patients are Medicaid/ Medicare recipients. With public insurers reimbursing EMS providers at rates below the norm, frequent flyers drain EMS organization's operating funds. Moreover, insurance reimbursement is currently dependent upon transport admittance to emergency rooms. The Patient

Protection and Affordable Care Act, which sanctions healthcare facilities that treat conditions multiple times, is expected to yield reductions in the number of admitted frequent flyers.

## II. LOCAL EMS/ALS ECONOMICS:

In addition to the structural issues facing all EMS organizations, the sub-region's providers are being affected by microeconomic issues that impact operating economies. The three providers cannot generate sufficient billing revenue to cover operating expenses. This is partially because each of the area's townships is attempting to cover its own EMS needs- thereby inhibiting sufficient per-provider call volumes. However, this is also a result of utilizing the standard, outdated EMS model. CMRPC's research and first-hand experience with large, out-of-state EMS providers indicates that call volumes can break- but not necessarily make- EMS providers. For example: In Kansas City, KS, 16,000 annual transports proved insufficient for self-sufficiency; the local EMS provider required nearly $1M annually to remain afloat. This is because fixed expenses are relatively small percentage of total expense ($70,000 per year per ambulance, according to Safe Tech). Rather, it is staffing that accounts for the vast majority of expenses. Increasing call volumes will not solve net income problems if greater call volumes simply entail greater numbers of staff. Rather, a two-pronged approach- centering on regionalizing in order to increase volume and eliminating of redundancy- is necessary. An analysis of local EMS/ALS economics highlights the importance of this strategy (which is detailed in Section E. IV).

As previously stated provider expenses, where reported, varied greatly. The Spencer Rescue Squad expended $807,033 in FY 13. Leicester expended $341,990. This difference is noteworthy, given that the organizations operate the same number of ambulances and employ a comparable number of EMTs. However, the variance is not specific to the sub-region. Comparative analysis of EMS organizations is fraught with challenge. According to a 2012 EMS study prepared for the Franklin Regional Council of Governments, variation of cost estimates results from "costs being accounted for in different line items based upon individual communities' approaches to fiscal management" (Baxter and Associates, 2007). In some communities, fire and EMS expenses are not accounted for separately. Banking, legal fees, fuel, and other indirect expenses may or may not be included. As such, the difference between the Spencer and Leicester operations likely results from comparing the financial statements of a 501(c)3 and a municipal department utilizing different accounting standards. Whether Leicester accounted for fuel, insurance, et. al in the figures provided to CMRPC is unknown. What is known is that both organizations require municipal subsidy. The Spencer Rescue Squad requested and received $150,000 from the Town of Spencer in 2013. This financial need was quantified prior to the Squad losing its contract with the Town of Paxton (2007-2013). The Leicester Ambulance took in $260,408 in billing receipts in FY13. Its expenses were $341,990. Given that the ambulance is municipal, it can be presumed that the difference was made up with money from the Town's general fund.

Leicester charges an average of $950 per call. Medicare's 2013 base reimbursement rate is $368. The Town reported a payer-mix that includes 25% Medicare and Medicaid, and a $400 average reimbursement rate (although the Town's transport figures and reported income indicate that reimbursements are actually closer to $360 per call). In Spencer, the median household income is approximately $44,000- 37% lower than the state median and 45% lower than the sub-region as a whole. Medicare and Medicaid comprise 67% of Spencer's payer mix; the Squad's combined, average reimbursement rate for ALS and BLS transports is $575. According to the National EMS Advisory Council (NEMSAC), the average payer mix is: Medicare: 44%, Medicaid: 14%, Private Payer: 14%, Private Insurance: 21%, Other: 7%.

**III. PEFORMANCE MEASUREMENT:**

EMS response time analysis is fraught with challenge. Variations in formula, as well as measurement technique, make it difficult to draw comparisons. Some providers calculate mean response time. Such calculations reveal little about what a patient can expect in terms of response; service was less prompt 50% of the time. Consequently, response time methodology has moved from averages towards fractile reporting. Fractile response times are better indicators of service typicality. Generally, providers measure to the 90$^{th}$ percentile (i.e., 90% of the time we respond within x minutes). Baxter and associates report that nationally, similarly sized communities strive for response times of 15.59 minutes or less 90% of the time (2007).

Reporting is further complicated by variations in measurement of start and end points. Response time can be calculated from the point that a 9-1-1 dispatch receives the call, the local EMS receives the call, or the ambulance departs the scene. Similarly, end points are usually given as time arrived on scene. However, such end points do not always provide an accurate picture of the time it takes crews to reach patients. rural landscapes, with farms, large open spaces, distant spaces between houses, and parks, can contribute to the amount of time it takes EMS staff to reach those in need of care.

Such complications are not reflective of an EMS team's excellence or lack thereof. Real delays should be reported, regardless of the cause. In cases of respiratory failure or cardiac arrest, patients need to receive treatment within 4-6 minutes from onset to experience significant reduction in brain damage and likelihood of morbidity. Studies show that increased accuracy in reporting yields changes that reduce response times. For instance, EMS providers that realize their cardiac and respiratory response times are generally insufficient to prevent morbidity can institute new policies. In Washington DC, such realizations led to police carrying defibrillators and acting as first responders until EMS squads arrived on scene. In many locations, dispatchers with EMS training are being hired to talk callers through the steps of CPR and other time-sensitive procedures, rendering the caller a first responder, and greatly reducing the effective response time.

No national response time standards exist for EMS first responders. However, there is an industry-wide belief that urban/suburban response times should average 8 minutes. In rural communities, response times lag considerably. Examinations of additional communities suggest that 20-minute response times, 90% of the time, are more typical to small townships in rural Massachusetts. The EMS average and fractile response times for the communities in this study can be seen in exhibit IV.

Unfortunately, the clinical and operational practices followed by EMS agencies have basically evolved from hospital clinical practices and public safety operational constraints without a basis of scientific proof validating the effectiveness of these practices in out-of-hospital settings, as outlined in the 2006 Institutes of Medicine report "EMS at the Crossroads." There are further complications of validating the effectiveness of procedures for out-of-hospital settings regarding rural EMS. This is because of long transfer times, the special types of injuries and illness encountered and rural culture may make practices based on urban research less applicable. Also rural based EMS research is more difficult to carry out because of lower call volumes experienced by providers.

**Exhibit J**

| Reported EMS Service Response Times | | | |
|---|---|---|---|
| | Charlton | Leicester | Spencer |
| Avg Response Time | 2 to 5 min. | Not Given | 7 min. |
| Fractile Response Time | Not Given | 5 to 7 min. | 13 min. |
| Average out of Chute time | 2 min. | Not given | Not Given |
| Fractle out of Chute time | Not Given | Not Given | 3 min. |
| Cardiac and Respiratory Response time | Not Given | Not Given | Not Given |
| Measurement Points | Not Given | Not Given | Not Given |

Performance measurements are often not a high priority in rural services struggling to recruit, retain and get volunteers to respond to medical calls. This study found quantitative data was limited with many of the issues involved in rural EMS rooted in local practices, opinions, beliefs and traditions. This study attempted to go beyond statistical measurements and tried to understand the nuances of the issues, culture and challenges facing the EMS providers involved in this study area.

Most pre-hospital providers have their own ideas and circumstantial evidence on how effective their service is to the patients and community they serve, but how many EMS systems can actually prove their worth? With the new Affordable Care Act's healthcare reforms, EMS agencies will need hard objective data that not only measures performance, such as accurate fractal response times, but this data will be used as the basis for monetary reimbursement and the development of consistent quality improvement and strategic planning.

The idea of performance based measuring in the EMS field is not a new idea. In 2006, the Institute of Medicine published a report, "Emergency Medical Services at the Crossroads," which recommended the development of "evidenced-based performance indicators that could be nationally standardized so that statewide and national comparisons can be made". One reason these standards are not already in-place is because of the inability of EMS providers and regulators to agree on specific performance indicators based on the current lack of uniformity in the data currently being collected. This is soon to change with core metrics required to determine EMS system performances likely to be in place within the next year. At this time many EMS agencies are incapable of gathering the data needed to do an effective job of benchmarking and substantiating service justifications or improvements.

Currently EMS organizational reimbursements are based solely on patient transport but governmental subsidies and local funding may supplement or replace patient generated revenues, especially in rural volunteer type services. As monetary incentives, which very likely could be tied to performance

measures, are needed to replace disappearing volunteer subsidies, tracking evidence based performance measurements will become critical for EMS provider organizations.

The reported EMS service response times CMRPC received from services reviewed in this report is a good indicator how performance measurements are not often available or viewed as a low priority in rural services. Many services were not able to supply their response times or were unable to obtain the appropriate information from their record management systems. When the response time was analyzed many reported could not be confirmed nor correlate within reasonable expectations of accompanying service data.

Some agencies indicated the only way to obtain the information was requesting it from their central dispatch facility. Other agencies indicated they did not have the personnel or time to get the information together while some agencies referenced HIPPA regulations that prevented them from sharing the information, since personal patient information was involved.

In the near future, record management will become much more complicated. Not only will basic response times need to be tracked, but detailed and complex evidenced-based performance indicators will need to be recorded and maintained in a useable and verifiable format. In the future, the performance indicators will also be tied to reimbursements making data management critical.

The inability of providers to easily supply basic response call time information indicates the EMS agencies are going to be challenged to gather the data needed to do an effective job of benchmarking and substantiating service justifications or improvements.

**IV: LIMITATIONS**

Comparative analysis of EMS organizations is fraught with challenge. Provider organizations calculate performance measurements and expenses using different metrics. Systems evaluation is challenged by a lack of "uniformity in data collection and the lack of agreement over the validity of the performance indicators or assessment measures used in EMS research" (Sayed, 2011). Call data is often unreliable. Self-reported data often differs from calls records provided by dispatch services. Efforts to establish controls for research purposes are often unsuccessful. Researchers can request specific measurement techniques, but EMS organizations may not record data in ways conducive to those controls or have staff available to furnish data in ways that differ from initial recording methods. Small provider organizations often fail to comply with guidelines or requirements that entail reporting to State oversight offices. Alternatively, access to raw data is constrained by legal controls such as the Health Insurance Portability and Accountability Act (HIPAA). CMRPC encountered each of the aforementioned challenges during the course of this study.

Challenges specific to financial analysis included: organizational unresponsiveness, data that did not correspond to stated call volumes, and organizational inability to itemize cost estimates. These issues are not specific to the sub-region's EMS providers. Rather, financial analysis of EMS organizations often challenged by these factors. According to a 2012 EMS study prepared for the Franklin Regional Council of Governments, variation of cost estimates results from "costs being accounted for in different line items based upon individual communities' approaches to fiscal management" (Baxter and Associates, 2007). In some communities, fire and EMS expenses are not accounted for separately. Banking, legal fees, fuel, and other indirect expenses may or may not be included. In order to analyze the economics of the sub-region's EMS/ALS system, CMRPC applied a per-capita cost estimate derived from outside analysis to each of the communities.

Analysis of performance metrics was also constrained by the availability and reliability of data. EMS providers can calculate response times using a variety of metrics. Often, providers calculate mean response time. Such calculations reveal little about what a patient can expect in terms of response; service was less prompt 50% of the time. Consequently, response time methodology has moved from averages towards fractile reporting. Fractile response times are better indicators of service typicality. CMRPC's data collection emphasized fractile data. Generally, providers measure to the 90th percentile (i.e., 90% of the time we respond within x minutes). Baxter and associates report that nationally, communities similar in size to those of the sub-region strive for response times of 15.59 minutes or less 90% of the time (2007). CMRPC sought to standardize performance metrics and utilize fractile response times where possible. However, some providers were unable to provide data using this methodology.

Performance analysis is also constrained by variations in the measurement of start and end points. Response time can be calculated from the point that a 9-1-1 dispatch receives the call, the local EMS receives the call, or the ambulance departs the scene. Similarly, end points are usually given as time arrived on scene. However, such end points do not always provide an accurate picture of the time it takes crews to reach patients. Self-reported data does not necessarily reflect multiple tones for response or the time it take to reach a mutual aid responder following an organization's failure to locate available personnel. Although no national response time standards exist for EMS first responders, provider organizations must meet or exceed the performance objectives outlined in their State-mandated Service Plans. Consequently, there is an incentive to measure response times using formulas that highlight performance successes. CMRPC had to assume the performance metrics used and reported by the providers were illustrative.

## E. OPTIONS AND RECOMMENDATIONS

CMRPC evaluated the feasibility and potential impacts of 4 courses of action. The communities can: (1) jointly hire a for-profit EMS/ALS organization; (2) continue addressing EMS/ALS provision on a per-community basis; (3) develop a sub-regional ALS intercept system to serve each of the three communities; or (4) establish a sub-regional EMS system entailing both BLS and ALS provision.

**OPTION 1: CONTRACTING OUT** (Not recommended)

The three communities may be able to jointly contract with a private, for-profit ambulance company. Two such companies exist nearby: MedStar and AMR. Both offer standalone ALS as well as comprehensive ALS and BLS service. AMR has expressed significant interest in expanding its Central Massachusetts service area. Formerly, the company had a large footprint throughout the Region. Following the loss of a preferred provider contracts with Fallon insurance, AMR pulled out of Central Massachusetts. However, they recently re-signed with Fallon, and actively seek to re-enter the local market. Similarly, MedStar is "always interested in expanding," to new communities, pending economic feasibility (Gerard).

A placemat feasibility analysis by American Medical Response indicated that the communities' aggregate BLS and ALS call volumes are sufficient to support one private ambulance. At 1,400+ calls per year, the sub-region transport volume approaches a level that could render an ambulance self-sustaining. However, self-sustainment depends on a number of factors, including payer-mix. Several of the towns' median household incomes are below the state average. As previously stated, this increases the percentage of patients insured by Medicare/Medicaid, thereby reducing reimbursements. By jointly

contracting, the sub-region's higher income communities would balance their lower-income counterparts. As such, a sub-regional approach would improve the payer mix and increase the viability of any EMS organization- for-profit or not. Be that as it may, contracting-out solely for ALS is less likely.

On a per-town basis, contracting out for ALS is rarely feasible. Following dismissal of Spencer Rescue, non-profit ALS service, The Town of Paxton engaged AMR as a potential ALS provider. Despite a very high median household income ($107,000) and corresponding payer-mix, the Town's call volume proved insufficient to support an ALS system. AMR suggests that an appropriately positioned ambulance- unrestricted by community borders- could increase responsiveness and reduce response times and costs to the communities. However, MedStar indicated that the sub-region's ALS call volume is unlikely to support a one-ambulance ALS system, while noting that it is not "unheard of." If the aggregate ALS call volume proves sufficient to support an ambulance, the sub-region's land area nevertheless presents a challenge.

MedStar indicated that one ambulance is likely inappropriate for the sub-region's land area- 102 square miles. Typically, AMR aims for 10 minute ALS response times (Rose). MedStar aims for 5-6 minutes response times in towns with substations, and 8-10 minutes elsewhere (Gerard). Because of their reliance on mutual aid and other subjecting conditions, rural communities average 20 minute response times (nationally). An "appropriately-placed" sub-regional paramedic ambulance is likely to generate similar response times when response is possible. Similarly, EMS call times are not regularly dispersed. Approximately 28% of all fire and EMS calls occur simultaneously (Mauro). In these circumstances, mutual aid assistance will be necessary. However, expansion of the sub-region may allow for multiple ambulances.

Strategic engagement of potential partners offers a potential solution. Paxton's population is much smaller than any of the towns in this study, yet its high median income suggests an attractive payer-mix. Currently without an ALS provider, and actively seeking service, Paxton is a likely partner for the 3 communities. Incorporating the Town into the sub-regional ALS system could add 100+ ALS calls per year, at a high reimbursement percentage. Although its inclusion in the system will increase land area served, the additional revenue may outweigh the added service needs and increase the viability of multiple ALS ambulances. If the three communities pursue a sub-regional ALS system (for-profit or otherwise) they should examine opportunities to include such higher-income communities.

Barring ambulance privatization, hybrid strategies are an alternative. Elsewhere in the State, AMR is considering staffing fire department ambulances with private employees. The strategy allows for an equivalent level of service without the added expense of separate vehicles. Currently, MedStar staffs its own ambulances. However, a hybrid strategy is within the realm of possibility. For Towns concerned about ceding control to a for-profit organization, this may be a viable option. Yet, initial implementation presents personnel challenges. Pride, varying protocols, stereotyping, and resistance to change are typical to any merger or systems change. In the EMS community this is also true. Public, 501c3, and for-profit EMS companies would need to overcome biases about their counterparts in order to effectively work together.

It is beyond the scope of this study to vet and compare commercial ambulance services. However, MedStar and AMR are both substantial EMS operations. AMR is country's largest provider of Municipal 9-1-1 and non-emergent transport services. It is also the country's largest purchaser of ambulances. World-wide, it is the largest purchaser of Ford ambulance. Currently, over 100 of its ambulances are stationed in Fitchburg. As such, AMR has the ability to leverage its purchasing power on behalf of clients. MedStar's operation includes 2 primary hubs- one in Leominster and in Worcester- equipped with 12

BLS ambulances each. In Fitchburg, MedStar provides ALS services, responding to BLS calls as needed. The company also operates ALS ambulances in Ayer, Westborough, Leominster, and Athol. Woods Ambulance, which provides ALS and BLS to Gardner, may be another viable option. Engaging the services of any commercial ambulance company will entail detailed analysis and provision of data beyond that which the 3 organizations were able to provide to CMRPC. It would also require the municipalities to issue a Request for Proposals (RFP), which potentially requires State approval. The communities should also evaluate the risks inherent to contracting with private ambulance services.

Private ambulance services do not operate with a public purpose mission. When revenue proves insufficient or service challenges arise, private contractors may eliminate service to a town or region. Private companies who go out of business may provide little or no notice to the municipalities they serve. In December 2013, First Med a private ambulance company that served six states and conducted more than 500,000 patient contacts per-year, closed without notice. 1,500 EMTs lost their jobs and more than 70 municipalities were left without EMS services. In spring of 2013, ETMC, a private EMS provider serving 17 Texas communities, announced its services would no longer be provided free of charge. With several months' notice, the communities scrambled to identify funds from $12,000 to $90,000 to cover the cost of providing ambulance service to their communities. These are not isolated incidents. CMRPC staffs have experienced the ramifications of private ambulance companies' failure to deliver services as promised. In December of 2004, the Metropolitan Ambulance Services Trust (MAST) estimated that it would need $2.7 million in direct public subsidy to cover its cost of serving the city of Kansas City, Kansas (KCK). Within several months KCK had to come up with $2.66 million to establish a city wide ambulance service which included 56 paramedics and emergency medical technicians and 11 ambulances.

Similarly, the City of Independence Missouri relied upon a private ambulance company to service 15,800 EMS calls per year. In 2008 the company issued a $300,000 subsidy request and stated they could no longer continue service in Independence Missouri relying only on transport fees and rate increases. The community had no choice but to pay it; it would have cost over $3.5 million to establish a citywide fire based EMS system. The city of independence has continued to pay AMR a subsidy each year.

**OPTION 2: CONTINUE ADDRESSING EMS ON A PER-COMMUNITY BASIS** (Not recommended)

The financial condition of the sub-region's EMS/ALS organizations, as well as impending changes resulting from National Standards adoption and the Patient Protection and Affordable Care Act, necessitate immediate action, rather than maintaining the status quo. CMPRC identified several strategies that will potentially reduce expenses and increase revenue. The following strategies are applicable to individual EMS/ALS providers as well a sub-regional system.

**a. Centralized dispatch**

Regional or sub-regional dispatch centers should be considered to not only to take advantages of operating economies of scale but also to position jurisdictions for the implementation of future advanced dispatch programs and systems. These include programs like Emergency Communications Nurse System (ECNS) or Telephone Triage (Telenurses). Not every emergency call needs a lights-and-siren response. In fact, not every call even needs a COLD (non-emergency) ambulance response. The ECNS and triage system is comprehensive and simple.

First, a call comes into the emergency dispatch center and answered by the Emergency Medical Dispatcher™ (EMD). If, after EMD questioning, the patient is assigned a pre-determined and locally-defined "non-emergency status ", the call is transferred to the Emergency Communication Nurse (ECN).

This specially-trained ECNS-certified Registered Nurse assesses the patient. It is imperative that the ECN be co-located within the communication center. After verifying there are no priority symptoms, additional information is gathered such as past medical conditions, medications, and allergies etc. Telenurses do not diagnose. Rather they collect data related to the presenting problem and medical histories, recognize and match symptom patterns to those in the protocol, and assign acuity. Telenurses provide for the safe, timely disposition of health-related problems. Telephone triage aids in getting the patient to the right level of care with the right provider in the right place at the right time.

Based on the caller's answers, a Recommended Care Level is determined, which includes tiered response levels from Send an Ambulance to Self-Care Instructions. These systems also have an integrated Directory of local services to help determine a Point of Care or a community local resource/ provider and possibly transportation alternatives, if necessary. This process can also schedule appointments in real time as well.

The problem is these triage system can be expensive to implement and maintain. “Nurse Dispatch” type systems can greatly reduce non-emergency ambulance calls and unneeded emergency room visits. In the future, Accountable Care Organizations (ACO) and Patient Home providers will help defer the cost of nurse dispatching systems, but record keeping and “Evidence Based” performance indicators will be imperative so these programs can prove their cost benefit advantages.

However smaller dispatch centers, because of call volume or personnel will not be able to implement or sustain these advanced dispatch methods. Regional or sub-regional dispatch centers should be considered to not only to take advantages of operating economies of scale but also to position jurisdictions for the implementation of future advanced dispatch programs and systems.

**b. Municipal subsidy**

Historically, EMS services have been volunteer-based and provided to municipalities free of charge. As previously noted, structural changes (such as the professionalization of EMS, increased regulations, and changing standards of care) have increased the cost of EMS provision and eliminated much of the previously enjoyed volunteer subsidy. However, similar to fire and police services, residents consider access to emergency medical services a basic function of government. Municipal administrators need to understand that EMS providers cannot bare the increased expenses alone.

The EMS providers reviewed in this study should increase outreach to elected officials and municipal employees. Policymakers need to be educated about the fragility of the local EMS system and the required structural changes and approaches demanded by future regulatory and economic conditions. As SafeTech Solutions explains, providers need to tell “a simple, unified story about rural EMS… that explains the crisis, real cost of operating ambulance services, and the emerging financial and workforce needs. Again, this should be a unified story that will need to be told repeatedly to EMS providers, tax payers, voters, municipal, township, county, and state government” (2011).

Currently, all three of the sub-region’s EMS organizations are requesting or receiving substantial municipal subsidy. Spence Rescue Squad requested a $150,000 subsidy from the Town of Spencer. Leicester EMS is a municipally operated ambulance service. In 2013 they reported operating revenues of $260,408 with operating expenses of $341,990. The $81,990 deceit is subsidized by the town’s general fund. The Charlton Fire Department in January 2014 notified the town of a $35,000 departmental deficit and is running with reduced staffing due to town wide-budget constraints. (See Exhibit V)

Given future regulatory and structural changes affecting EMS, minimal to no subsidy options are not practical. Currently, the organizations' collective operating deficit is approximately $600,000.00 Offsetting this deficit through municipal subsidy alone would require a $113.00 to $256.00 per call contribution from each municipality. Many times the actual cost of running EMS services is 'Masked" under the marginal cost contribution related to municipal fire department services. First and foremost the municipalities should determine the actual costs of maintaining and operating their ambulance services. If EMS organization are to determine whether future revenue sources such as "Community Paramedicine" or "Primary Care Prevention Programs" are practical for the community, actual expenses must be known. The only way to determine if regional or sub-regional economies of scale exist is to know precise and current cost and revenue figures.

Exhibit L outlines the per-town contribution derived from revenue figures supplied by the three EMS organizations outline in this study. Since some municipalities are unlikely to absorb the entire subsidizes over time, EMS organizations should enhance lobbying efforts for municipal assistance and contracts.

**Exhibit L**

| Department | Total ALS/BLS Calls | Total Revenues | Average Charge Per Call | Total Collected Revenues | Average Collection Per call | Ambulance Associated Expenses | Total Revenue Loss/Gain | Average Loss/Gain Per Call |
|---|---|---|---|---|---|---|---|---|
| Charlton | 1097 | 1,745,582.00 | 1,591.00 | 763,972.00 | 696.00 | 1,000,000.00 | (236,028) | (215.00) |
| Leicester | 933 | 886,350.00 | 950.00 | 236,408.00 | 248.00 | 341,990.00 | (105,582) | (113.00) |
| Spencer Rescue Squad | 1009 | 1,119,450.00 | 1,109.00 | 524,601.00 | 473.00 | 783,000.00 | (258,399) | (256.00) |

**c. Regional Training**

With budget shortfalls, fragmented training programs, and few opportunities for EMTs to hone their expertise, the sub-region's EMS/ALS organizations would benefit from additional, low-cost training programs. Few of sub-region's EMS organizations offer training beyond that which is legally required. When asked whether they had any supplemental, formal quality improvement trainings or educational programs, only the Spencer Rescue Squad responded affirmatively (the Squad holds a monthly staff meeting in which it conducts training to correct problems or implement new policies). EMS agencies examined in another regional EMS study noted that Baystate Mary Lane Hospital offers monthly EMT Continuing Education courses. The courses are provided free of charge, and are worth two continuing education credits. However, new opportunities for continuing education and access to training beyond minimum standards would address some of the structural challenges facing this sub-region.

In 2013, CMRPC, in conjunction with 11 Towns and four 501c3s, applied for a Community Innovation Challenge (CIC) grant to establish a Regional Emergency Medical Services Training initiative. Although the initiative was not funded, a similarly-modeled joint-training initiative could be established to reduce training expenses and increase EMT personnel capacity. This training initiative would allow for development and implementation of mobile EMS training stations, as well as trainer development programs. The initiative is expected to reduce EMS education costs by $608 per employee/volunteer while increasing EMT proficiency.

The proposed program would enable EMS organizations to conduct on-site trainings using their own staff and shared equipment. In doing so it will streamline training processes, remove barriers to non-mandatory training, and increase the proficiency of EMS personnel. Moreover, access to local training

and quality training equipment will allow EMS organizations to increase staff capacity without large expenditures. As such, the initiative would reduce barriers to new and potential EMTs, thereby addressing turnover and changes in the labor pool. These expected benefits are well-founded.

According to the National Conference of State Legislatures, "An integrated [training] approach – where EMS providers receive training and education with other health care providers, and have a network to share best practices – will not only benefit recruitment and retention efforts, but will also expand the skill set among EMS workers." Mobilized, collaborative training is shown to: increase the amount and level of EMS training; improve the qualifications of EMS staff in the region; achieve cost savings by reducing training costs; increase job satisfaction; enhance the level of EMS service to the region; provide uniform training; and promote regional collaboration between the participating agencies. In doing so, it increases the quality of patient care in the participating communities.

Advanced training programs are going to become more expensive and required in the future because the current job skill requirements for EMS workers are changing. Expectations of town residents relative to the timeliness, quality and types of care levels of EMS response are changing. Many EMS providers who now use the Fee-For-Service (FFS) models are going to see revenues reducing and will be forced to expand into a more sophisticated concept of EMS services to take advantage of income streams such as "Community Paramedicine", "Primary Care Services", "Accountable Care Organizations" or "Community-Based Prevention Services". These Pay for Performance (PFP) revenue services will be necessary to help fund the cost of EMS system and will take very specific training programs that will need to be delivered at the local level to be effective. No matter what the future health care delivery systems will morph into, you can be sure it will involve additional and more sophisticated training.

**d. Joint Procurement**

CMRPC has established a joint purchasing consortium for EMS type medical supplies. Fire Departments, Police, Boards of Health, Municipal EMS, Schools, 501C3s, and other organizations that purchase medical supplies are eligible. In January, 2014 District Local Technical Assistance Funds (DLTA) was made available to start the purchasing program. The program is expected to generate substantial savings to all participants, including EMS organization.

From ambulances to stretchers, each of the sub-region's EMS organizations professes a need for new equipment and upgrades to existing stocks. Many of these organizations have similar, imminent equipment needs, including everyday supplies. By leveraging their collective purchasing power, as well as those of the Region's 37 other communities, the sub-region can reduce this formerly fixed expense. In 2012, CMRPC applied this strategy to Homeland Security purchases on behalf of 61 towns. Collectively, it saved $220,000. Similarly, the Commission reduced the home heating oil expenses of eleven communities through joint procurement. Joint procurement of EMS supplies also generates known savings. EMS providers engaging in join procurement commonly save 20-50% off of catalogue prices (Widner, 2013). Contrary to popular assumption, accessing these economies of scale does not entail significant coordination. Elsewhere in the country, EMS purchasing consortiums operate via the internet. EMS providers simply log on and order as needed.

CMRPC strongly advises communities take advantage of CMRPC's Regional Purchasing Cooperative. The process entails no additional out of pocket expenses, and will yield substantial savings.

**e. No-transport billing**

No-transport billing offers another means of reducing operating deficits. Frequently, EMS calls do not entail transport. Bystanders of potential emergencies often call for EMS. When presumed emergencies prove non-emergent, potential patients refuse treatment. Similarly, patients often call an ambulance but determine transport unnecessary. Because EMS providers are not allowed to transport unwilling patients, and insurance reimbursements arise from only transport, these calls do not generate income (Lyford, 2013). Rather, EMS organizations incur up to $1000 in expenses each time an ambulance leaves a station (Lyford, 2013). In response, some communities are implementing a new fee scale.

The Town of Princeton, Massachusetts recently implemented a "no transport" fee. The Town received approximately 175 EMS calls in 2012. Of these, 40 (22 percent) were refusals. In 2013, Princeton began charging $100 for refused BLS calls, and $400 for refused ALS calls. Using Princeton's no transport fee-scale the sub-region can issue approximately $174,400 per year in extra billings.

| Jurisdiction | Total Non-Transport Calls | ALS Non-Transport Calls | BLS Non-transport Calls | ALS Revenues ($400/call) | BLS Revenues ($100/call) | Total Non-transport Fees |
|---|---|---|---|---|---|---|
| **Charlton** | **215** | **133 (62%)** | **82 (38%)** | **53,200** | **8,200** | **$61,400** |
| **Leicester** | **211** | **99 (47%)** | **112 (53%)** | **39,600** | **11,200** | **$50,800** |
| **Spencer Rescue Squad** | **234** | **136 (58%)** | **98 (42%)** | **54,400** | **9,800** | **$62,200** |

CMRPC suggests the sub-region utilize this strategy judiciously, if at all. Although no-transport billing offers a way to mitigate per-call loss, it is not likely to be popular. Patients who refuse treatment called on their behalf may be less likely to pay bills since they did not call for the service. This type of fee policy would most likely incur a high political cost to the EMS provider and municipality.

**f. Address changes in insurance reimbursement policy**

As previously stated, Blue Shield Blue Cross's new reimbursement policy has decreased reimbursement revenue for providers outside its network. By contracting with BCBS as preferred providers, the EMS organizations can avoid losses resulting from un-forwarded patient reimbursements. However, in-network negotiations can reduce billables by 30-35 percent (Andrews, 2011). The EMS providers should determine whether the loss of forwarded reimbursements outweighs potential reductions resulting from joining the BCBS network. Negotiating as a sub-region may yield higher reimbursement rates than bargaining individually. If joining the network will increase income, the providers should consider doing so. However, CMRPC offers this suggestion with a caveat.

The changes undertaken by BCBS represent a systemic change that, if implemented by other insurance providers, will jeopardize EMS as a field. If other insurers follow suit, EMS providers will need to negotiate on a routine basis or chase patient reimbursements to a greater extent. Several organization, include the Massachusetts Municipal Association, Fire Chiefs Association of Massachusetts, and the Massachusetts Ambulance Association, are lobbying for legislation that would prohibit insurance companies from reimbursing patients directly. Bill H. 863, *An Act relative to the use and payment of ambulance services*, was sponsored by Representative James Cantwell in 2013. It is currently before the Massachusetts House of Representatives Healthcare Financing Committee, where it has lingered since July. The proposed legislation would end practices such as those being undertaken by BCBS of

Massachusetts. The Bill follows several recently defeated bills that sought to prohibit patient reimbursement, including H. 3695 in 2011 and amendment of H 3028 Sect.31 in 2010 (Beckwith, 2011). The sub-region's EMS providers should consider partnering with the Bill's supporters to leverage support for its passage.

**OPTION 3: SUB-REGIONAL ALS CHASE CAR** (Not recommended)

Based on the limited availability of ALS in the sub-region, and the precarious condition of nearby ALS providers, CMRPC looked at the three communities maintain existing BLS services and establish a sub-regional ALS intercept system. This option would not increase or improve ALS service throughout the sub-region and not be financially viable.

A centrally-located ALS intercept vehicle could replace existing ALS services, in part or in total. By combining ALS departments, the three providers would eliminate redundancies and increase call volumes. Recommendations on location require greater analysis of call demographics; however, a middle location along the Charlton/Leicester/Spencer border would render the intercept vehicle central. Although the sub-region comprises more than 100 square miles, the distance between a middle location along the three-town border and the furthest sub-regional point (Spencer's northeastern tip) is approximately ten miles. Each of the communities currently travel further distances for transport. It is likely that back-to-back ALS calls on opposite ends of the sub-region will eventually occur. However, these calls can be handle by mutual aid, as they often are now.

Establishment of an ALS chase vehicle would entail approximately $76,500 in up-font expenditures ($41,500 for a 2013 Ford intercept vehicle, $30,000 for a Life Pac 15 Monitor, and $5,000 for a drug box and additional supplies). Maintenance of this system (replacement every five years) would entail $15,300 in escrowed expenses. Fuel and vehicle maintenance can be expected to total $10,000 per year. Consequently, the yearly cost of maintaining and ALS intercept vehicle (before staffing) is $25,300.

Staffing an ALS chase car will cost approximately $333,000 per year. There are 1,092 eight-hour shifts in a year. Paramedics can work five shifts per 40-hour week, or 260 eight-hour shifts per year. As such, staffing an ALS chase vehicle with one paramedic 24 hours per day, seven days per week, requires 4.2 paramedics per year. To allow for vacations and sick time, the organizations should retain five full-time paramedics. At $20 an hour, a full-time paramedic earns $800 per week or $41,600 per year. Per-employee insurance and benefits can be expected to total $25,000 per year. The cost per paramedic is therefore approximately $66,600 per year, and $333,000 for the five paramedics necessary to staff an ALS chase car.

In year one, the total ALS chase car cost will total $409,500 (acquisition), and $358,300 per year thereafter. Since all three jurisdictions in this study have ALS capabilities, having one ALS chase car for the region may not be practical, but the ALS chase car could be a practical tool regarding reducing the number of ALS calls. In the future EMS agencies will play a role in reducing hospital transports and cost saving to keep patients out of the hospital. They will be paid for performance outcomes and not fee-for-services.

Currently EMS providers agree that paramedic interventions are actually required and will make a difference in about 20% of current ALS responses (Widner, Mauro 2014). If an ALS chase car can effectively reduce current ALS call levels by a conservative 65%, the cost/benefit to insurance companies and hospitals are worth considering. The resulting reduction in cost could be $610,000 in EMS provider

cost, as well as possible reductions in hospital emergency room charges. If EMS providers can show performance based outcomes and the cost of maintaining an EMS chase car is $348,000 per year (333,000 plus 76,500/5 years = 348,120) a yearly savings of $262,080 could be realized ($610,000 less $348,120). If EMS agencies could get 10 percent of the savings that would be $34,800 for each community and they would have the service of the ALS chase car and its associated paramedics.

| Jurisdiction | Total ALS/BLS Calls/Year | Number of ALS Calls/Year | Reduction in ALS Calls (65%) | Billing Cost Savings/Call (550.00/Call) |
|---|---|---|---|---|
| Charlton | **1097** | 680 (62%) | 442 | 243,100 |
| Leicester | **933** | 440 (47%) | 286 | 157,300 |
| Spencer Rescue Squad | **1009** | 586 (58%) | 381 | 209,550 |
| Totals | **3,039** | 1,706 | 1,109 | $610,200 |

**OPTION 4: SUB-REGIONAL EMS SYSTEM (BLS AND ALS) (Recommended)**

In order to stem the ever increasing costs of local EMS provision, the three service providers within the sub-region should consider undertaking significant restructuring. There are several ways this restructuring could occur. One way would be to look at forming a regional ALS service. Another alternative would be to create a combined ALS/BLS service. This recommendation is based on the study's findings regarding response times, cost, revenues and effects of future regulations/service provider models. This study predicts a future where small rural EMS services are going to face continued increases in municipal subsidies just to keep minimal EMS services available to their residents.

As previously stated, ALS provision on a per-town basis is rarely feasible for rural communities. Low call volumes and high fixed expenses usually prove prohibitive such services. These three communities are not exception. However, the towns' collective EMS call volumes may be sufficient to render a sub-regional system economical. The collective call volume (3,039 calls per year) would better support a sub-regional EMS system utilizing the economies of scale realized by larger organizations.

**Mutual-Aid – The Current Regional EMS System**

A type of regional EMS system now exists, at a high cost, when you consider the reliance on mutual aid between EMS services. As previously stated, heavy dependence on mutual aid could yield systemic failure. If the closure or scale-back of any one EMS/ALS organization occurs, it will affect multiple communities, each of whom are dependent upon that provider. The sub-region's three communities are no exception. Recently, Spencer Rescue Squad had an increase in medical calls in January and February 2014. One surrounding community indicated to the Director of Spencer Rescue they could not continue to respond to Spencer's calls because it was draining their organization's ability to meet its own jurisdictional EMS needs.

In 2013 Spencer Rescue Squad required mutual aid for ALS/BLS calls 271 times. This indicates 18% of Spencer's ambulance calls were responded to by adjoining jurisdictions in 2013. Many of these mutual aid calls occurred during Spencer's peak demand times between 8:00am through 7:00pm. In conversations with both Leicester and Charlton EMS services, they reported a reliance on mutual aid from surrounding jurisdictions as well. This study indicates Leister and Charlton are subsidizing EMS calls

at $113.00 and $215.00 respectively. This means Leicester's mutual aid cost for responding to Spencer Rescue's calls was $3,510.00 and Charlton's cost was $1,075.00.

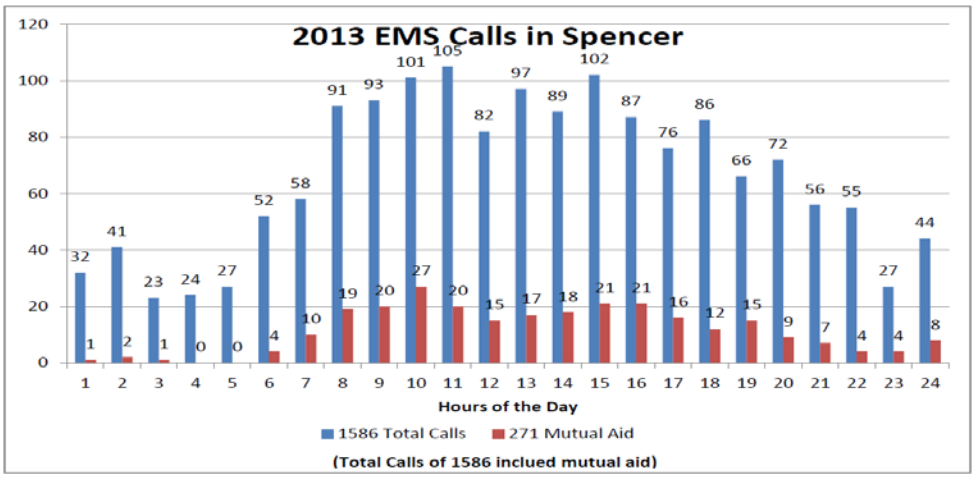
In 2013 Paxton responded with mutual aid 196 times (January through October) to Spencer. In October of 2013, the Town of Paxton stopped being the primary mutual aid provider to the Spencer Rescue Squad. After October, the mutual aid calls that normally went to Paxton had to be absorbed by the other surrounding communities. In the future, Leicester and Charlton EMS agencies could predict mutual aid requests from Spencer Rescue to triple. The numbers of mutual aid calls were not made available by Leicester or Charlton, but, most likely they have utilized mutual aid from Spencer and each other as well.

Creation of a regional EMS system would eliminate duplication of management and administrative functions and increase the organizations ability to efficiently handle increased call loads while reducing response times. A unified sub-regional EMS service could utilize priority dispatching and fleet management techniques to increase efficiency and reduce dependency on mutual aid. At this point, should any one surrounding jurisdiction's EMS service fail, the absorption effect to surrounding communities will result in increased EMS cost and subsidies and very likely a "domino effect" causing other EMS services to fail as well.

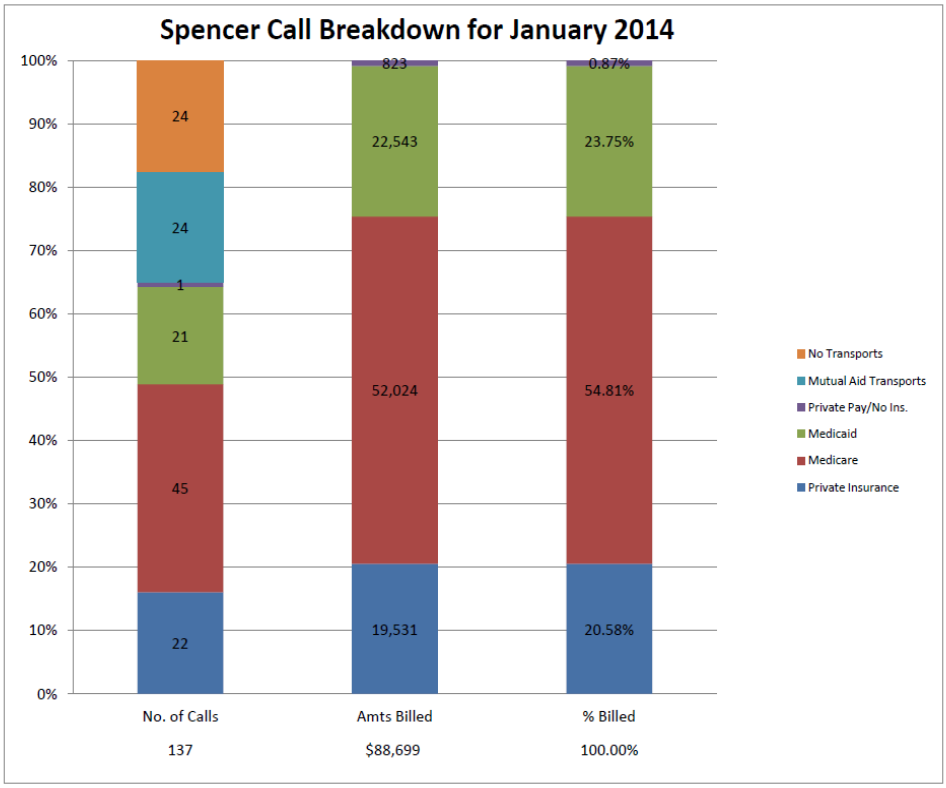
**Spencer Rescue Emergency Squad, Inc. Analysis of Mutual Aid Provided to Spencer Year Ended December 31, 2013**

| Mutual Aid Provided | Total | Transport | No-Transport |
|---|---|---|---|
| Brookfield | 1 | 1 | 0 |
| Charlton | 5 | 4 | 1 |
| East Brookfield | 37 | 35 | 2 |
| Leicester | 27 | 24 | 3 |
| North Brookfield | 4 | 3 | 1 |
| Paxton ** | 196 | 172 | 24 |
| Rutland | 1 | 1 | 0 |
| **Totals** | **271** | **240** | **31** |

** Paxton was primary mutual aid provider until October 4th 2014



Mutual Aid Transports 18% of business




Spencer Rescue Emergency Squad, Inc.
2013 Billing Analysis
As of March 18, 2014

| | | | | Est. Medicare | | Write Offs | Transfer to | Total | |
|---|---|---|---|---|---|---|---|---|---|
| | Count | Charges | Payments | Payments | Write Off | Contractual | Collections | Credits | Balance |
| Totals | 1009 | 1,119,450.20 | 492,102.46 | 32,498.41 | 15,148.47 | 506,001.27 | 8,154.37 | 1,053,904.98 | 65,545.22 |
| ALS Intercepts | 8 | 2,000.00 | 2,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2,000.00 | 0.00 |
| BLS | 366 | 312,722.00 | 142,384.99 | 11,755.63 | 4,762.42 | 128,078.50 | 3,230.11 | 290,211.65 | 22,510.35 |
| ALS | 635 | 804,728.20 | 347,717.47 | 20,742.78 | 10,386.05 | 377,922.77 | 4,924.26 | 761,693.33 | 43,034.87 |
| **Totals** | **1009** | **1,119,450.20** | **492,102.46** | **32,498.41** | **15,148.47** | **506,001.27** | **8,154.37** | **1,053,904.98** | **65,545.22** |
| **Breakdown:** | | | Averages | | | | | | |
| | | | % | $$ | | | | | |
| ALS Intercept Charges | | 2,000.00 | 0.18% | 250.00 | | | | | |
| BLS Charges | | 312,722.00 | 27.94% | 854.43 | | | | | |
| ALS Charges | | 804,728.20 | 71.89% | 1,267.29 | | | | | |
| **Total Charges** | | **1,119,450.20** | **100.00%** | **1,109.47** | | | | | |
| Actual Collections | | 492,102.46 | | | | | | | |
| Anticipated Medicare | | 32,498.41 | | | | | | | |
| **Total Collections** | | **524,600.87** | **46.86%** | **519.92** | | | | | |
| Actual Write Offs | | 506,001.27 | | | | | | | |
| Anticipated Medicare | | 15,148.47 | | | | | | | |
| **Total Write Offs** | | **521,149.74** | **46.55%** | **516.50** | | | | | |
| **Uncollected** | | **73,699.59** | **6.58%** | **73.04** | | | | | |

## Payer-Mix Demographics

Consideration of regionalizing the EMS services would also improve overall reimbursement rates. The amount that EMS services collect is affected by "payer mix"- the amount of Medicaid, Medicare, private and uninsured payments the EMS service receives from its patients.

| Payer-Mix for EMS Sub-Region | | | | |
|---|---|---|---|---|
| **Jurisdiction** | **Medicare** | **Medicaid** | **Private Insurance** | **Uninsured/Self Pay** |
| **Charlton** | 13.0% (Est) | 3.0% (Est) | 56.0% (Est) | 28.0% (Est) |
| **Leicester** | 19.0% | 6.0% | 51.0% | 24.0% |
| **Spencer** | 49.75% | 17.99% | 28.04 | 4.22 |
| **National Standards*** | 44.0% | 14.0% | 14.0% | 7.0% |

* National EMS Advisory Council (NEMSAC) average payer mix

A sub-regional EMS system would spread the payer-mix over a larger area, bringing the distribution closer to the State's median Payer-mix figures. A sub-regional EMS system would bring more diverse demographics regarding payment sources and improve overall revenues. This will be especially true as the population "baby boomers" age and other types of medical delivery systems develop as a result of regulatory changes such as the Affordable Care Act and patient-centered care models expand.

## Performance Measurements – We will be rated in the future

As discussed earlier in the "Performance Measurement" section of this study, EMS reimbursements are currently based solely on whether a patient is transported. In the future governmental subsidies and other local funding from hospitals or ACOs may supplement or even replace revenues generated from patient transports. These subsidies will most likely be tied to incentive type performance measures that smaller EMS organizations may not be able to track. Larger EMS organizations will have a better chance of tracking this data because of larger call volumes, diverse demographics, increased budgets and larger cumulative bargaining power. This is already happening with hospitals.

Under the Affordable Care Act hospitals now receive performance-based bonuses or penalties from a measurement called Value-based purchasing (VBP), which generates a Total Performance Score (TPS) based on several criteria. In 2014 the VBP program links a portion of the hospitals payment from Medicaid and Medicare insurance to these performances based on the Patient Experience of Care. This performance-based measurement is determined from required patient surveys and accounts for 30% of the hospitals Total Performance Score. The lower the score the more a hospital's Medicare and Medicaid reimbursements are reduced.

These quality measurements are important to EMS organizations because one of the largest healthcare providers (Medicare/Medicaid) is providing bonuses and initiating penalties based on patient satisfaction scores at hospitals. CMRPC predicts an acceleration of these quality and outcome metrics for physicians, clinics and EMS providers. In the near future other insurance payers will follow suit requiring these quality measures as well. It is going to be very hard for smaller EMS agencies to accumulate and maintain these quality/performance measures. This will become especially true when the scope of EMS services expands to programs like "Community Paramedicine".

## Organizational Flexibility - Changing the way we provide EMS services

Currently EMS systems are not viewed by insurance companies or medical professionals as providing medical care. EMS is thought of as mainly transportation taking patients to the hospital. That is why EMS services aren't paid if they don't transport. In the future, EMS agencies must be proactive and better trained, becoming an organization that delivers patient health care rather than delivering patients to health care. This will be tough challenge because many EMS organizations do not adapt to change easily.

Recently, the firefighter's union in Green Bay Wisconsin filed a grievance over firefighters making house calls to check on patients after they had been discharged from the hospital. To reduce hospital remittance rates, the local hospital partnered with the fire department to follow-up and check on specific patients discharged back to their home. The hospital pays the fire department $50.00 per house call. The union grievance indicated the house call program was an inappropriate expansion of firefighter's duties without union approvals. Many municipal fire/EMS organizations may have personnel that would feel checking on home patients was not a part of their "Scope of Work".

Some of the arguments brought out by the union and public included:

- The hospital should take that money and use it to hire some nurses to do the job! While firefighters are usually trained to at least the EMT level, this is in NO WAY in their scope of practice! One mistake and guess who gets sued? The Fire Department.
- Would home health nursing be a better fit for this program? Could RNs make the visits for less money? How detailed is the documentation and protocols for the firefighters? Is this program a good use of the community's firefighters when there are nurses trained to do the same thing?
- The hospital only pays the city $50 per call. When you figure in gas and salary costs for each call is the cost to the city more expensive. The hospitals should hire a nurse/doctor for these house calls not use firefighters who might be needed elsewhere.

Clearly municipal EMS organization's responsibilities are steeped in tradition and set job expectations. How will they transition to paying for outcomes rather than receiving a fee for a service? Hospitals are already starting to partner with EMS providers to brainstorm unconventional care delivery options. The issue is how can smaller EMS organizations just trying to survive have the funding and personnel to participate in a pilot program or be proactive with new healthcare programs. A larger EMS organization may have a better chance of implementing these future changes.

## Medical Director – Service based medical director

As previously discussed in the near future, Massachusetts is expected to move from hospital-based Medical Control Physicians to service-based Controllers. In the future, inpatient (hospital/clinical) and out-of-hospital (EMS/pre-hospital care) practice will converge. With future programs such as Paramedicine and community health initiatives, EMS agencies are going to need more directed medical control protocols and oversight. These programs will be an EMS/hospital/ACO partnership contracting and reimbursing local EMS services to provide routine checks and evaluations of patients in the field. This will increase individual scopes of practice for EMS providers and will require a service-based Medical Control Physician. The cost of contracting a Medical Control Physician will most likely not be practical for a small EMS organization. The distributed cost for a medical director over a regional EMS organization would be more affordable to individual communities but increase service quality, training and performance management.

## Health Information Technologies – How to prove our effectiveness

In the future, pre-hospital provider's health care delivery decisions are going to be compared to patient outcomes. Historically, EMS agencies have not done a great job of measuring the patients' outcome experience based on provided services and at best have only maintained minimal required records. In the future, the Department of Health and Human Services (DHHS) is going to increase efforts to combat unnecessary provider services and Medicare/Medicaid fraud. DHHS recently reported that for every dollar spent on the medical billing auditing process, they can recover approximately seven dollars in recoupments and refunds.

In the future, EMS agencies can expect increased audits of their services for Medicare/Medicaid billings. Should a Medicare representative notice an increase in a certain type of transport an EMS organization provides over a two year period (such as above average ALS vs. BLS transports or trips not medically necessary) they can do a random sampling of transport records. If their review finds a certain percentage of trips and associated charges were not medically necessary, DHHS could ask for a reimbursement for not only those costs, but they could also extrapolate the reimbursement over the two year period.

As previously stated, many smaller EMS services are just trying to keep up with service call demands and volunteer staffing. They are having a hard time keeping the patient records currently required, yet alone future evidence-based performance indicators. Most EMS provider agencies lack the sophistication to measure patient outcomes in a way that is verifiable and comparable to the levels used by medical directors or other health care organizations.

EMS services will need to embrace the growing use of health information technology and tracking systems that will ensure the service has a "Quality Management System" in place that can measure every aspect of their "delivery-of-care" to patients. In the future, EMS provider revenues are going to be determined based on why specific treatments were performed to patients presenting very specific symptomatic conditions tied to verifiable patient outcomes. These "Root-Cause" analyses are going to be used as the basis for reimbursements. A good example of this is many EMS providers place Oxygen on patients solely based on SaO2 protocols. Now many medical directors are questioning pre-hospital use of high flow oxygen.

The technology needed to perform "Root Cause" analysis can be very expensive and will take dedicated personnel at the local provider level to input and follow-up on data. This technology will be unaffordable to smaller jurisdictional EMS providers. A larger regional service could utilize economies of scale to better implement and support these performance based requirements.

## What Would a Regionalized ALS/BLS Service Look Like and How Could It Happen

A regional ALS/BLS service could happen in many ways, but before any regionalization could start the following research would need to be implemented and fully completed.

1. Complete review of all records of each EMS organization including review all revenue, balance sheets, accurate response times, transport numbers and cost. A complete understanding of revenue streams and payer-mix trends will be vital in determining if regionalization of EMS services is practical. During the course of this study it was found obtaining exact call numbers and cost can be challenging to some organizations.

2. A call load study will need to be done for each organization. This study would determine the location of all calls, call modality and response times. This study would also help all agencies understand their call prioritization processes and actual ALS/BLS requirements.
3. Start an EMS coordination committee to review local and regional EMS issues. This group would monitor key industry issues, publications and other information sources. This would include regular meetings with State Office of Emergency Medical Services (OEMS), hospital administrators, insurance companies, local ACO's and physicians.
4. Increase individual EMS organizational record keeping. After the record review any gaps of information shortages will need to be resolved so all EMS organizations will have consistent and standardized information available. This way factual and verifiable evaluation of potential regional partnerships can be done.
5. Jurisdictional surveys need to be completed (political and resident levels) to determine the desire for local and regional EMS service levels. These surveys need to determine the cost residents are willing to pay for levels of EMS services. Very specific EMS service questions need to be explored. This includes time related issues such as "are you willing to pay $500.00 per year to have EMS service within 5 minutes of a 911 call or $250.00 for a 7 minute response time.
6. Review the dispatch systems each jurisdiction now uses. Is utilizing a regional dispatch practical or even possible. Should a new regional EMS entity be created what cost savings will be realized by utilizing an existing dispatch facility?
7. A review of how communications are now done between agencies will be vital. A potential regional communications plan will need to be explored.
8. A staffing study will be vital for any type of regional EMS system. A larger EMS organization would have improved economies of scale, but since personnel cost are the largest expense category of EMS service, appropriate staffing requirements must be known. This study would need to look at how current employees would be incorporated into the new organization, shift schedules (Burkley, Kelly, 12 hr.) etc.
9. Review of State regulations regarding regional EMS provider systems and Regional Service Zone implementations.
10. Mutual Aid Standards need to be reviewed for all EMS organizations in the region. This not only includes the review of local Service Zone Plans but reviews how surrounding jurisdictional EMS providers who are unable to maintain their call loads or cease operations will affect other EMS providers.
11. Determine the practicality of having a shared service based medical director for all EMS services. This study would coordinate with the State OEMS regarding current and potential regulations for medical directors and potential opportunities for community paramedicine etc.

Once the research is completed, and as many factors as possible are brought to light, then the determination of whether or not a regional or sub-regional EMS is practical could be determined. If even practical, this regional system could be done in many ways.

1. It could be made-up of existing EMS provider organizations and personnel.
2. A private provider could be contracted to service the area.
3. A new service entity could be created out of the current provider assets and equipment.

# F. SUMMARY

It is beyond the scope of this study to develop a detailed regional or sub-regional EMS organizational model. The study's findings do support a strong potential for cost savings and improved EMS services to the community utilizing a regional approach.

In Summary, CMRPC recommends the following steps be considered by the three (3) Towns outlined in this study:

1. Maintain the existing EMS services until additional data can be determined and verified that could be used in a regional EMS study.
2. There are several cost saving initiatives that can be done by the individual jurisdictions at this time that do not involve a regionalization process:
    a. Start coordination efforts immediately.
    b. Explore joint training opportunities.
    c. Review and implement better record management procedures.
    d. Review Mutual-aid absorption issues regarding all surrounding jurisdictions.
    e. Public information outreach (telling the same story).
    f. Utilization of CMRPC's Regional Joint Purchasing Cooperative for supplies, equipment and vehicles.
    g. Implement jurisdictional EMS service surveys; find out what citizens really want in an EMS system.
    h. Conduct a communications study.
3. Develop an EMS coordination group between the three (3) Towns to explore the potential for regional expansion possibilities.
4. Review the need for unified medical director local services.
5. Start preparing for future changes that are coming regarding managed care systems and ACOs. Determine how these changes will affect your call load and opportunities for potential partnerships.
6. Immediately start discussions with local hospitals regarding customer service to their patients and re-admittance ratios. How can local EMS services help with patient care issues to increase their patient quality of service ratings or programs to reduce specific patients from returning to the hospitals? How might this relate to potential revenue sources?
7. Start regional training opportunities which can decrease cost and increase the quality of training.
8. Explore the possibility of how advanced forms of dispatching may affect local EMS agencies.

The following proactive measures should be considered in the near future.

- Conduct a regional EMS study to determine if regionalization is practical.
- Develop an Opportunity Assessment Process (OAP) that will allow jurisdictions to explore key facets of the ever changing pre-hospital provider arena such as :
    - Legal and political obstacles such as restrictions on publically funded staff or competitive or tax implications for public entities competing with private industry.
    - Operational readiness regarding current system capabilities such as billing, records, staffing, training and certifications. What expanded services can be provided based on current expertise, equipment and what would need to be put in place to implement new programs?

- Operational prioritization regarding how core EMS responsibilities could be balanced with the new services being explored.
- Financial assessments and modeling where a pro-forma plan is developed looking at start-up cost, utilization of service, market needs assessment, reimbursements and profit and loss
- Explore partnerships but keep in mind the following issues:
  - Determine whether there is the potential for improved quality and lower cost perusing the new partnership that involves a municipal EMS/fire department model. Having current hard data will be vital.
  - Assess the impact the opportunity may have on existing for-profit entities. The fact that a public resource may be used to compete with companies that pay taxes could create significant issues for local elected officials. However, under the concept of a "public/private partnership," if the opportunity for improved efficiency and greater value can be demonstrated this issue may be palatable.
  - The method of reimbursement for emergency services will be important and must be completely analyzed. Since the concepts of "global", "bundled", "episode-based", Shared-savings" and 'capitation" payments are prevalent among hospitals today, they may desire to pay for emergency services by using a flat fee versus a charge per service. Financial analysis is essential to determine whether this method of reimbursement is reasonable and whether safeguards can be built in to protect against unanticipated surges in utilization or payer-mix severity.
  - There are going to be other services, besides emergency treatment and transportation, which local EMS organizations may be able to provide on a cost effective basis. This report has covered many of these services including post-discharge patient consultation and care management for patients with chronic conditions. Although these new opportunities may look enticing as a way to broaden the scope of services and revenues, departments should consider whether these services can be offered within the current resource deployment model or whether a new resource deployment configuration is necessary.
  - The terms of any initial agreement will be important. Since changes to the healthcare system and to the EMS system continue to evolve, the municipality should assure an adequate termination clause in any agreement in case the financial terms turn-out to be unfavorable due to unforeseen changes in regulatory or healthcare issues.

- Be open and communicate with EMS staffing regarding the implementation of Community Paramedicine or Community Health Check programs. These services may be seen as additional work without compensation to EMS personnel. Look at expanding organizational "Mission Statements" which include advancement of "Total Community Health" issues.
- Volunteerism in the EMS field is not dead just changing. Implement programs that will increase volunteer interest such as training contracts to help pay for certifications and training, child care when volunteers are on shift and local businesses to allow employees to leave work and answer emergency calls.
- Be ready to embrace performance-based issues and evidence based protocols.
- Be proactive and find roles EMS can play in community based prevention programs. This will expand the EMS role in the eyes of the community making entry into future health programs easer and visualized as part of the municipalities EMS mission.

- Be proactive and find ways to develop future programs where EMS agencies are paid “Not to Transport”.

Healthcare as we know it is going to change. Unless the Affordable Care Act is modified or repealed in the future, healthcare and EMS will look totally different in years to come. This study finds the biggest challenge to EMS organizations in the future will be the uncertainty of change itself. EMS organizations should start preparing now to be flexible for the changes that are coming, no matter what might occur. As the saying goes, “Chance favors the prepared mind” EMS systems that starts preparing for the long term impacts to the healthcare system will be in the position to take advantage of new opportunities and more importantly have a better chance of survival.