



INTERNAL AUDIT REPORT

Performance Audit Review of Trumbull Emergency Medical Services

James W. Henderson, Financial /Accounting Controls Analyst

12/8/2011

Town of Trumbull
Office of the Financial/Accounting Controls Analyst



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December 8, 2011

Mrs. Elaine Hammers, Chairperson
Board of Finance
Town of Trumbull
5866 Main Street
Trumbull, CT. 06611

Dear Mrs. Hammers:

I respectfully submit the enclosed report entitled **Performance Audit Review of Trumbull Emergency Medical Services**.

The audit review and planning was performed from August 12, 2011 to October 21, 2011. My report contains information regarding availability of EMS units, enhancing EMS standards, and strengthening financial and management controls of the Trumbull EMS. The report is based on discussions with personnel, review of selected documentation and site visits at Trumbull EMS and the dispatch center at the Trumbull Police Department.

I would like to express my appreciation to Barbara Crandall Chief of Trumbull EMS for her cooperation and assistance during the audit and also Assistant Chief Mike Delvecchio.

Respectfully Submitted,

James Henderson
Financial/Accounting Controls Analyst

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Background

The Trumbull EMS was established in 1976 and is responsible for providing emergency medical services to the community. The Town contracts directly with Danbury Ambulance Service, Inc. to provide paramedic level service. Trumbull EMS operates six shifts per day with a manpower level of eighteen paid personnel and fifty volunteers.

Trumbull EMS leases two ambulances from Gorham Leasing Group and owns one ambulance. Three other vehicles are available to assist in various emergency situations.

Two dispatchers located at Trumbull Police Headquarters are utilized for EMS calls. The Southwestern Regional Communications Center (C-MED) is designated as the primary coordinator for day-to-day EMS ambulance mutual aid response. Mutual aid is called within one minute of an initial call if a paramedic is not available on a Trumbull EMS ambulance.

Nelson Ambulance Service and American Medical Response supplement EMS operations in responding to emergency calls that Trumbull EMS ambulances cannot respond to due to lack of crew availability. The Town has a signed ambulance service contract with Nelson Ambulance but, does not currently have a signed agreement with American Medical Response. Currently counsel for the Town has requested a change of contract language in the tentative proposed agreement with American Medical Response.

When dispatched, a Trumbull EMS ambulance will transport patients to a healthcare facility for treatment. At the completion of the transport and treatment billing information is entered by the EMT into EMS Charts a software program used to create billing information. Barbara Crandall then reviews the billing information for accuracy. This information is uploaded by COMSTAR the contracted company to produce bills to the patients who have utilized the Trumbull EMS ambulance. COMSTAR also handles the collections process after the bills are generated.

Medical emergency calls are classified into six different priorities of dispatch, determined through a series of questions that the dispatcher asks the caller. The ambulance modes of travel are:

1. Alpha- No lights or sirens- Basic Life Support ambulance only
2. Bravo- Lights and sirens- Basic Life Support ambulance only
3. Charlie- Lights and sirens- Basic Life Support ambulance; paramedic no lights or sirens
4. Delta- Lights and sirens- Basic Life Support ambulance and paramedic
5. Echo- Lights and sirens- Basic Life Support ambulance and paramedic
6. Foxtrot- No lights or sirens- Basic Life Support ambulance and paramedic

A typical EMT class of twenty participants will usually result in just three recruits actually coming to work for Trumbull EMS. EMT classes are held twice a year for a sixteen week period. The course fee is six hundred dollars and requires a dedicated commitment by the class participant to become a certified EMT.

The external medical oversight of the Trumbull EMS system is handled at Bridgeport Hospital by Medical Director Dr. Donnal Conway with EMS coordinator Barry Barinski. Medical oversight at St. Vincent's Hospital is provided to Trumbull EMS by Medical Director Dr. Frank Illuzzi with EMS coordinator Ken Kellogg.

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The State of Connecticut Department of Health regulates rates that licensed and certified emergency and non-emergency transporting service providers can charge patients. The rate schedule provides for ambulance service rates and also various ancillary charges. The schedule of maximum allowable rates for 2012 and explanatory notes for maximum allowable rates are as follows for the 2012 calendar year.

SCHEDULE OF MAXIMUM ALLOWABLE RATES

EFFECTIVE January 1, 2012 through December 31, 2012

PROPOSED RATE SCHEDULE FOR 2012

AMBULANCE SERVICE RATE SCHEDULE

Basic Life Support (BLS) Rate	\$547.00
Advanced Life Support Level 1 Non-ER	\$551.00
Advanced Life Support Level IER	\$868.00
Advanced Life Support Level 2	\$896.00
Paramedic Intercept	\$617.00
Basic Life Support (BLS) Helicopter Assist	\$360.00
Advanced Life Support (ALS) Helicopter Assist	\$559.00
Advanced Life Support (ALS) Assessment	\$322.00
Specialty Care Transport	\$1,193.00

ANCILLARY CHARGES

Waiting Time Charge	\$147.00
Per Mile Charge	\$ 13.34
Special Attendant Charge	\$108.00

INVALID COACH RATE SCHEDULE

Base Rate	\$ 95.00
Two Patients	\$ 122.00

ANCILLARY CHARGES

Per Mile Charge	\$ 8.29
Second Attendant Charge	\$ 55.00
Waiting Time Charge	\$ 82.00

All charges must be in conformance with the definitions on the subsequent pages entitled "Explanatory Notes On The Implementation of the 2012 Schedule of Maximum Allowable Rates," which are attached to, and become part of, this Rate Schedule.

EXPLANATORY NOTES FOR THE IMPLEMENTATION OF THE 2012 SCHEDULE OF MAXIMUM ALLOWABLE RATES

Not Applicable or "N/A" — indicates that charges are not applicable in this category for the provider named on page one of this Schedule. Connecticut issues rates consistent with the provider's certification/licensure level. Basic Life Support — means transportation by ground ambulance vehicle and supplies and services, plus the provision of BLS ambulance services. The ambulance must be staffed by an individual who is qualified in accordance with State and local laws as an emergency medical technician-basic (EMT—Basic).

An emergency response by a certified or licensed ambulance provider, when no transportation is provided due to the fact that the patient is pronounced/presumed dead by an individual authorized by the State to make such pronouncement/presumption after the ambulance is called. No ancillary fees, including mileage, may be added to this rate for patients that are pronounced dead.

The ambulance service and personnel must comply with all relevant CT General Statutes and DPH Regulations, including, but not limited to, the minimal vehicle standards and staffing requirements specified, and cited, in DPH Regulations Section 19a-179-10 (b) "Basic Ambulance Service." Basic life support level services are those performed by personnel certified in Connecticut as Emergency Medical Technicians (EMT). Advanced Life Support Level 1 Non-Emergency (ALS Non-ER) the maximum charge, in addition to applicable ancillary fees, that may be assessed a patient who is transported in a ground ambulance vehicle by a licensed provider for the purposes of receiving, non-emergency, ambulance services at the Advanced Life Support Level 1. The ambulance service and personnel must comply with all relevant CT General Statutes and DPH Regulations, including, but not limited to, the minimal vehicle standards and staffing requirements specified, and cited, in DPI-1 Regulations Section 19a-179-10 (c) "Mobile Intensive Care-Intermediate Level (MIC-1) Service." Advanced Life Support Level 1 services are those performed by personnel certified in Connecticut as an Emergency Medical Technician -Intermediate (EMT-1) or Paramedic.

Non-emergency ALS services may include, but are not limited to the following:

1. Inter-facility transport to/from a hospital, skilled nursing facility or the patient's home; and/or,
2. Round trip transportation to a hospital or non-hospital based outpatient facility to obtain necessary diagnostic and/or therapeutic services such as a CT scan, radiation therapy or dialysis for renal disease.

Advanced Life Support Level 1, Emergency (ALS 1, ER) — means transportation by ground ambulance vehicle, supplies and services and either an ALS assessment by ALS personnel or the provision of at least one ALS intervention, in compliance with the CGS and DPH Regulations, in the context of an emergency response to a 911 call or equivalent. An emergency response is defined as responding immediately at the ALS 1 level of service to a 911 call or equivalent. An immediate response is one in which the ambulance provider begins as quickly as possible to take the steps necessary to respond to the call.

EXPLANATORY NOTES FOR THE IMPLEMENTATION OF THE 2012 SCHEDULE OF MAXIMUM ALLOWABLE RATES

An emergency response that was necessary because the patient's reported condition at the time of dispatch was such that only an ALS crew was qualified to perform the assessment to determine whether ALS interventions were needed, or may be needed, during transport. An ALS assessment does not necessarily result in a determination that the patient requires an ALS level of service, or that ALS personnel accompany the patient during transport. It is incumbent on the ALS Service to verify that the call was dispatched as an ALS call according to Emergency Medical Dispatch (EMD) protocols pursuant to Public Act 00-151. The transporting BLS service is entitled to the BLS Rate in the ALS Assessment billing process.

An ALS provider is defined as a provider whose staff includes an individual trained and authorized at the EMT-Intermediate or Paramedic level. An ALS assessment charge is only relevant and reimbursable in an emergency response. The ALS 1 category replaced the Intermediate Surcharge definition used for the 2003 Rate Schedule.

Advanced Life Support Level 2 (ALS 2) — means either transportation by ground ambulance vehicle, supplies and services, and the administration of at least three medications by intravenous push/bolus or by continuous infusion excluding crystalloid, hypotonic, isotonic, and hypertonic solutions (Dextrose, Normal Saline, Ringer's Lactate); or transportation, medically necessary supplies and services, and the provision of at least one of the following ALS procedures:

- (1) Manual defibrillation/cardio version.
- (2) Endotracheal intubation.
- (3) Central venous line.
- (4) Cardiac pacing.
- (5) Chest decompression.
- (6) Surgical airway.
- (7) Intraosseous

ALS 2 services are those performed by personnel licensed in Connecticut as Paramedics pursuant to the provisions in CGS Section 20-206jj 206nn. The ambulance service and personnel must comply with all other relevant CT General Statutes and DPH Regulations, including, but not limited to, the minimal vehicle standards and staffing requirements specified, and cited, in DPH Regulations Section 19a-179-10, (d) "Mobile Intensive Care-Paramedic Level (MIC-P)."

Paramedic Intercept — means EMT—Paramedic services furnished by an entity that does not furnish the ground ambulance transport. The provider must be able to document that:

1. Paramedic/ALS services were provided in accordance with medical direction and control.
2. The paramedic accompanied the patient to the hospital in the patient transport vehicle.

BLS Helicopter Assist — Indicates the maximum charge that may be assessed a patient, including applicable ancillary fees, for a Basic Life Support Ambulance Service providing care at the scene to such patient when such patient is ultimately transported by a state certified or licensed air ambulance.

ALS Helicopter Assist - Indicates the maximum charge that may be assessed a patient, including applicable ancillary fees, for an Advanced Life Support Service providing care at the scene to such patient when such patient is ultimately transported by a state certified or licensed air ambulance.

EXPLANATORY NOTES ON THE IMPLEMENTATION OF THE 2012 SCHEDULE OF MAXIMUM ALLOWABLE RATES

ALS Assessment — Indicates the maximum charge that may be assessed a patient, including any and all ancillary fees, when a paramedic level care provider performs a complete patient assessment which is beyond the scope of BLS care providers and may include monitoring of EKG, obtaining a 12-Lead EKG, assessment of blood values or other assessment interventions and then a determination is made that the patient does not need continuous ALS monitoring or ALS level care and transportation to a receiving hospital.

Specialty Care Transport (SCT) - means interfacility transportation of a critically injured or ill beneficiary by a ground ambulance vehicle, including supplies and services, at a level of service beyond the scope of the EMT—Paramedic. SCT is necessary when a beneficiary's condition requires ongoing care that must be furnished by one or more health professionals in an appropriate specialty area, for example, nursing, emergency medicine, respiratory care, cardiovascular care, or a paramedic with additional training.

To assess the SCT charge a provider must be authorized at the paramedic level and must provide such care in accordance with medical direction and/or authorized protocols and applicable Connecticut statutes and DPH Regulations, including, but not limited to, those specified above in ALS 2.

Waiting Time Charge —may be assessed, in addition to the applicable ground ambulance transport charge, on the basis of a minimum wait of one hour. When waiting time exceeds one hour, additional time shall be charged in quarter hour increments.

Per Mile Charge — may be assessed, in addition to the applicable ambulance transport charge, from the point of origin to the point where the patient is transported. Mileage reimbursement shall be based on the number of actual miles the patient is transported.

Special Attendant Charge— may be assessed, in addition to the applicable ambulance transport charge, for the use of attendants with characteristics specifically requested by or on behalf of the patient. Such special characteristics include, but are not limited to, special training or experience or an attendant of a specific gender. There shall be no additional charge if an attendant with the requested characteristics has already been scheduled by the provider.

Bundle Billing — It is permissible for a BLS ambulance service to bill for ALS assessment and interventions provided that the ALS care is rendered by an EMS service, authorized at the paramedic level, which has entered into a bundle billing agreement with the BLS service that submits the bill

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For the fiscal year ended April 30, 2011 the Trumbull EMS generated \$928,054 in billing revenue. Operating expenses for the period were \$918,251 with general administrative expenses of \$121,079 resulting in a net loss for the year of (\$111,276).

TRUMBULL EMERGENCY MEDICAL SERVICES
INCOME STATEMENT
FOR THE YEAR ENDED APRIL 30, 2011

OPERATING REVENUES

BILLING REVENUE	
TOWN GRANTS/CONTRACTS	928.054
TOTAL OPERATING REVENUE	928.054

OPERATING EXPENSES

PAYROLL EXPENSES	573,691
PAYROLL TAXES/FRINGE BENEFITS	81,177
AUTOMOBILE EXPENSE	45,526
DEPRECIATION EXPENSE-AUTOMOBILE	46,105
DEPRECIATION EXPENSE-BUILDING	5,924
MEDICAL SUPPLIES	34,545
MEDICAL EQUIPMENT DEPRECIATION	8,350
UNIFORMS & LAUNDRY	3,107
INSURANCE EXPENSE	71,711
MAINTENANCE EXPENSE	11,303
EDUCATION & TRAINING	12,411
UTILITIES (HEAT, ELEC, WATER)	18,595
TELEPHONE	5,806
<u>TOTAL OPERATING EXPENSES</u>	<u>918,251</u>
 OPERATING INCOME	 9,803

GENERAL AND ADMINISTRATIVE EXPENSES

ADMINISTRATIVE SALARY	47,624
PAYROLL TAXES/FRINGE BENEFITS	31,907
BILLING CONTRACT	39,027
ADVERTISING AND PROMOTION EXPENSE	951
OFFICE SUPPLIES	<u>1,570</u>
 TOTAL GENERAL AND ADMINSTRATIVE	<u>121,079</u>
 NET INCOME (LOSS)	(111,276)

Objectives, Scope and Methodology

- Reviewed pertinent laws, policies and regulations related to Emergency Medical Services.
- Gathered and analyzed agreements and information related to Trumbull EMS with Nelson Ambulance, Danbury Ambulance Service, American Medical Response, C-Med, and COMSTAR.
- Identified, collected, and analyzed financial information and management reports related to the Town's EMS operations.
- Performed testing of financial and dispatch data provided to me which I relied on for this review.
- Evaluated current EMS processes and practices to determine efficiency and effectiveness.
- Interviewed management and key staff in charge of managing and monitoring information related to the Town's EMS operations.
- Analyzed the quality and effectiveness of the reporting to EMS operations and the Town.
- Toured 911 dispatch center and interviewed dispatchers.
- Evaluated the internal controls related to my audit objectives, including the adequacy of financial reporting and oversight.
- Utilized EMS System Benchmarks self-assessment

I conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that I plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for my findings and conclusions based on my audit objectives. I believe that the evidence obtained provides a reasonable basis for my findings and conclusions based on my audit objectives.

EMS Systems in the United States

The Emergency Medical Services Act of 1973 defined EMS as a system that provides for the arrangement of personnel, facilities, and equipment for the effective and coordinated delivery of health care services under emergency conditions. Such a system is administered by a public or non-profit entity with the authority and resources to provide effective administration of the system.¹ An EMS system includes human resources; medical direction; legislation and regulation; education systems; public education; prevention; public access; communication systems; clinical care; information systems (data collection); and, evaluation. There are certain components of an EMS system that are considered critical to the overall functioning of the EMS system; they include timely responses, adequate staffing, and appropriate deployment of equipment, transportation, and system review.²

EMS delivery in the United States is primarily local in nature. Public policy officials decide how their EMS systems will be structured and how they adapt to changes in the environment. They determine the organization of the delivery system, the structure of EMS response-times, the development of finance mechanisms, and the management of other system components. Because of this local control, EMS systems across the country are

¹ Boyd,D., "Emergency Medical Services System Development: A National Initiative," *IEEE Transactions on Vehicular Technology*; November 1976

² International Association of Fire Fighters. Emergency Medical Services: A Guide Book for Fire-Based Systems. 4th Edition

extremely variable and fragmented. The current design of EMS systems in the U.S. promotes local self-determination and tailors EMS systems to the needs and expectations of local residents.³

Nationally, recruitment and retention is a growing problem for volunteer EMS operations. The main factors that are contributing to this situation are increased commutes to work, reduced availability of volunteer time because of family responsibilities, and concerns about the quality of EMS services and the length of training.

Ambulance Response Performance

The American Ambulance Association's (AAA) *Community Guide to Ensure High-Performance Emergency Ambulance Service* defines a high-performance community emergency ambulance as one that assures the public of clinical excellence, response time reliability, economic efficiency, and customer satisfaction-simultaneously. These are the "essential performance results of a high-performance emergency ambulance service". The AAA lists five "hallmarks" to ensure high performance emergency ambulance service. These references are intended for local government officials who wish to improve the quality of their services.

The hallmarks can effectively be used as broad benchmarks yet there are no significant widely accepted benchmarks to follow in the EMS field. There are components that I found in an unpublished doctoral dissertation that have support in the industry:

- I. Use of protocol-based dispatch
- II. Response-time reliability
- III. Single tier: all ALS
- IV. Full service: emergency & nonemergency
- V. Absence of call screening
- VI. Transport for further evaluation⁴

Hallmark 1- Hold the emergency ambulance service accountable. With effective emergency ambulance service design and performance-based contracting, ambulance services can achieve high performance in communities of various sizes and demographics.

Hallmark 2- Establish an independent oversight entity. Independent oversight promotes performance accountability by giving the overseeing entity the authority and tools to improve service or safely replace a non-performing provider. Independent oversight is accomplished by creating a true arm's-length relationship between an overseeing entity and the provider organization. The independent oversight entity is responsible for monitoring and routinely reporting the provider's performance and compliance in clinical excellence, response-time reliability, economic efficiency, and customer satisfaction.

³ Institute of Medicine of the National Academies. Future of Emergency Care: Emergency Medical Services at the Crossroads. 2007

⁴ Dean SF. A study of the political and economic obstacles to improvement of emergency medical service systems. Unpublished doctoral dissertation, University of Maryland County 2004

Hallmark 3- Account for all service costs. An effective emergency ambulance service accounts for all its costs- direct, indirect, and shared. These costs include labor, medical communications center, buildings, vehicles, equipment, supplies, liability exposure, administrative overhead, and independent oversight costs. User fees should be used as the primary source of funding for the costs of emergency ambulance service.

Hallmark 4- Require system features that ensure economic efficiency. Since the volume and location of medical emergencies varies by hour of day and day of week, ambulance deployment should be based on geographically deploying the right number of ambulances according to historical call demand and redeploying as events occur. The EMS system design should allow the ambulance provider to offer inter-facility ambulance transports to maximize economies of scale. Economic efficiency can also be accomplished with a multi-jurisdictional system serving regional medical trade areas.

Hallmark 5- Ensure long-term high performance service. Contractually required performance standards should be established through effective competition for service rights. Properly structured competition promotes the greatest quality for the optimum cost. This usually involves a competitive procurement process for interested ambulance service providers. By applying an effective competitive process, local officials can create a level playing field for all potential providers and ensure that the best and most cost-effective service for the community is obtained.⁵

The Commission for Accreditation of Ambulance Services (CAAS) mandates an advanced life support unit on-scene in 8:59 or less, 90% of the time or better and an out-of-chute time of less than or equal to 2:00, 90% of the time or better. CAAS defines response time as the time difference between call receipt time (in public safety answering point) and arrival at incident location.

Many high-performance emergency ambulance services have converted voluntarily to all-ALS; full service fleets, recognizing that gains in efficiency far outweigh the minimal additional cost of staffing and equipping the entire fleet at the ALS level.⁶

Audit Results

Finding 1: Lack of available staff to handle call demand

The Trumbull EMS has at its disposal three ambulances to respond to dispatched emergency calls. I reviewed all shift calls for a three month period and found that many times only enough EMT's were available to staff one ambulance. Revenue is lost when the only Trumbull EMS ambulance in service is responding to a dispatched call when multiple incidents occur. A contracted ambulance has to respond (i.e.) Nelson Ambulance as a mutual aid responder when events overwhelm the available Trumbull resources. These instances can compromise public safety due to slower response time.

Volunteer staffing has decreased over the last several years making it difficult to fully deploy the available vehicles for emergency situations. Paid staff has also been lost to private competitors who pay a higher hourly

⁵ American Ambulance Association. Community Guide to Ensure High-Performance Emergency Ambulance Service. 2004

⁶ American Ambulance Association. Annual Membership survey. McLean, VA: American Ambulance Association; 2008.

wage rate, offer benefits and the EMT more hours of work. The ability to staff shifts is also hampered by call outs because of change in availability or sickness and injury.

The commitment and demand on potential EMT recruits makes a large impact on the ability to attract new staff both in terms of financial as well as the time investment required to become a certified EMT. Recruitment and retention are a major factor in the amount of service that the Trumbull EMS can provide to the community.

Unfortunately, there are no criteria or models that give an answer for best practices in recruitment of workers into the EMS field. Retention of the current workforce is of critical importance to sustaining a viable service. There is a need to address the wages, compensation and employee benefits which can be a means of attracting new recruits into the ranks of the Trumbull EMS service and improve retention.

Recommendation

Peak-load staffing should be implemented for the demands of the busiest hours of the day. This model should be used as the foundation for achieving high performance and improving economic efficiency. The wage scale of the paid EMT's should be increased to be competitive with other ambulance services in the provider area. The allowable amount of hours an EMT can work should be increased to improve retention of current staff. Evidence suggests that retaining workers is a definite challenge due to low wages and lack of benefits. Many do not leave the profession, but are lost to competitors who are able to offer more work hours, higher wages and benefits.

Though volunteerism is declining the need still continues for volunteer staffing. The EMS Commission should consider a recruitment program. The program should have these key components:

- Appoint one person or a committee to take the lead in recruitment type activities
- Make known the level and characteristics of those persons needed for EMS operations
- Be able to identify specific recruitment strategies and activities that can be useful in attracting volunteers
- Develop recruitment materials such as brochures or flyers that describe Trumbull EMS and how it serves the community
- Conduct on-going recruitment activities; and
- Do a thorough evaluation of what recruitment techniques work and do not work and then make modifications as needed to the program
- Host an annual recruitment social event (barbeque/picnic)
- Provide business cards to current EMS members for the purpose of spontaneous recruiting

For new recruits who complete the certification requirements for EMT and work for Trumbull EMS for one year an incentive program could be set up to reimburse the recruit for one half of their tuition for the EMT certification course as an incentive. This may help in the retention of candidates to stay in the Trumbull EMS ranks. The requirements for EMS education, certification and licensure are unique in the healthcare profession.

Develop strategies to increase the recruitment and retention of older individuals. EMT's and paramedics are young compared to other public safety and healthcare professionals in the medical field. The retention and

recruitment of older or more experienced EMT workers to Trumbull EMS would conserve their talents in the EMS workforce and should help address the staffing shortages by enlarging the pool of EMT's to draw from. Hire EMT's to work specific hours of the work day will also assist in assuring coverage during the busiest hours of calls. Creative strategies to recruit and retain personnel are a key performance requirement.

A demand analysis should be performed to show historical call volumes. This analysis will help pinpoint the busiest hours where coverage is needed the most and make the best use of manpower deployment.

Management Response

The Commission agrees with the fact that TEMS does not always have adequate staffing to cover the call demand. Volunteer numbers are decreasing for various reasons in all EMS services, not just TEMS. The hiring of additional paid staff with competitive wages and increased hours would help to minimize shift openings. Current paid staff signed a letter as a condition of their employment acknowledging that no benefits are associated with their position at TEMS.

Recruitment is done through various activities in the town including EMT/CPR classes, public events such as health fairs, career nights, open houses, as well as word of mouth. Retention is difficult due to the factors mentioned in the audit and is a concern of all services with changing economic times, family dynamics and a general decrease of certified personnel in the profession as a whole.

Finding 2: Does not meet all hallmarks of establishing independent oversight

Trumbull EMS follows an in-house model of operations where by as an entity it reports to a government department or elected body. The in-house model does allow and provide for access to important essential infrastructure and guarantees uninterrupted service to the Town i.e. (communications systems, vehicles, equipment, etc.) but, there is no means to terminate an under-performing government operation. The in-house model fails to achieve the hallmarks defined by the American Ambulance Association. It becomes a question of how does the Trumbull EMS system monitor and improve its quality of service.

One of the three Trumbull ambulances was out of service for an extended period of time creating a possible hazard to public safety. This type of critical situation should be managed more closely for an efficient and positive outcome. Economies of scale cannot be achieved due to constant manpower shortages that do not allow the number of Trumbull EMS transports to increase responses to calls.

Recommendation

The Town should consider contracting the services of an Emergency Medical Services system design expert to compare its emergency medical service to other high rated performing emergency ambulance services that are recognized as being clinically and financially successful.

System review and continuous evaluation of an EMS system is one of the main critical components of an EMS system. Based on this assessment appropriate adjustments should be made to enhance the present EMS system. Comprehensive quality improvement programs are designed to evaluate every aspect of the EMS

system including the performance of every individual involved in the operation as well as the overall system performance.

Management Response

We support the idea of an independent review of the service. The Commission has the best interest of the service in mind and encourages the opportunity to make it better.

Finding 3: Accounts Receivable Patient Billings

The patient billing accounts receivable of 120 days and over reflects an outstanding balance at July 31, 2011 of almost \$367,000.00 dollars. The industry standard for reporting days in A/R compares gross accounts receivable (prior to any write-offs of contractual allowances for bad debt) against average daily sales. Sixty to ninety days is an appropriate benchmark for days in A/R.

I have examined the accounts turned over for collection by COMSTAR and found the rate of collection to be poor by the agency utilized First Financial Resources, Incorporated.

Recommendation

Trumbull EMS should more closely monitor outstanding accounts receivable particularly those accounts which have been outstanding more than 120 days. Patient billings should be reviewed with COMSTAR the billing service for accuracy and to determine which patient accounts need to be written off as uncollectable.

Accounts determined to be uncollectable have been turned over to a collection agency used by COMSTAR First Financial Resources, Incorporated. After I examined their record of collection I have seen that the rate of collection has been poor. I would recommend that the accounts not collected by this agency be turned over to another firm for follow-up.

Account billings returned because of inaccurate addresses need to be skip-traced and pursued for collection more aggressively.

Management Response

The Commission reviewed the monthly reports submitted to the service by COMSTAR, our medical billing service. It has been the Commission's position that they should not be passing judgment on bad debts to the town and has recommended the Board of Finance, through the Director of Finance, take on this responsibility.

The Commission is willing to contact COMSTAR with regard to the success rate of collection. Accounts Receivable noted in the audit amounted to \$367,000. As a point of reference, some of these accounts date back to the year 2008.

**Town of Trumbull
Office of the Financial/Accounting Controls Analyst**

While we feel improvement can be made, conversations will continue with COMSTAR. With their assistance and our efforts as a service, we hope to decrease the outstanding debt to the Town.

APPENDIX

Glossary

Advanced Life Support (ALS): Patient care assessment and treatment services provided by ALS personnel (i.e., a paramedic), including the services of Basic Life Support (BLS) and advanced emergency care such as intravenous therapy, endotracheal airway, cardiac monitor (EKG), cardiac defibrillator, medications, relief of pneumothorax, and other invasive procedures and services.

Ambulance: Vehicle (ground, air, water) designed to provide medical services and safe transport for sick or injured persons. The ambulance also safely accommodates the health care providers, medical equipment and supplies providing a clinical work environment for providing medical care for the patient.

Ambulance Service Contract: Agreement between an ambulance service provider and any local government agency, independent oversight entity, health facility, or third-party payer that incorporates clinical standards and financial provisions.

Average Response Time: A response-time calculation method in which all cumulative elapsed response times are divided by the number of incidents to determine an average.

Basic Life Support (BLS): Patient care assessment and treatment services provided by BLS personnel (i.e., an emergency medical technician) such as defibrillation, first aid, oxygen administration, application of splints and bandages, and CPR.

Benchmarking: A process that allows the independent oversight entity to evaluate the incumbent provider by assessing certain performance indicators within specific parameters. The performance indicators are measured against comparables from other high-quality, efficient systems to determine the value and quality of the service that the provider is delivering to the community.

Calls: The total number of events to which an ambulance is dispatched that may or may not result in patient transport. (Also known as requests for service or responses.)

Deployment: The procedures by which ambulances are distributed throughout the service area, including the locations at which the ambulances are placed and the number of ambulances placed in service for each hour of the day and day of the week.

Demand Analysis: A statistical chart showing historical call volumes and demand fluctuations for each hour of the day and each day of the week.

Dispatch Time: The interval between the time the call is received at the medical communications center until the time the ambulance has been selected and notified of its assignment.

Economies of Scale: The efficiencies gained as the number of ambulance transports increases. For ambulance services, the cost per transport decreases as the number of transports performed increases.

Emergency Medical Services (EMS): The full spectrum of out-of-hospital care and transportation (including interfacility transports), encompassing bystander action (e.g., citizen CPR, PAD), priority dispatch and pre-arrival instructions, co-response and rescue service, ambulance services, and medical oversight.

EMS System: The EMS system consists of those organizations, individuals, facilities, and equipment whose participation is required to ensure a timely and medically appropriate response to each request for out-of-hospital care and medical transportation.

EMT: An individual trained and certified as a basic EMT (requiring about 120 hours of instruction) and trained in the use of an automated external defibrillator (about 4 to 20 additional hours).

External Medical Oversight: The supervision and coordination of emergency medical services through an independent medical entity, as prescribed, adopted and enforced through protocols and procedures.

Hallmarks: The five system design features that are integral to achieving optimal patient care and economic efficiency: hold the emergency ambulance service accountable, establish an independent oversight entity, account for all service costs, require system features that ensure economic efficiency, and ensure long-term high performance service.

Independent Oversight Entity: The entity established by one or more local governments responsible for establishing the system design and performance requirements, managing the contracting and procurement process, monitoring the emergency ambulance provider's performance, and performing other oversight functions.

Interfacility: Transportation of patients between health-care facilities, such as hospitals, nursing homes, diagnostic facilities, and treatment centers, including transports from nursing homes to patient homes.

Medical Director: The physician under whose license and authority EMT's and paramedics provide services.

Mutual Aid: Emergency ambulance service performed by neighboring providers during periods of severe weather, multi-casualty incidents, or other extraordinary events that overwhelm existing resources.

On-Scene Time: The interval from the time the ambulance arrives on scene to the time the ambulance leaves the scene and initiates transport.

Out-of-Chute Time: The interval between the time the ambulance is notified of the request for service to the time the ambulance responds enroute to the assignment. For emergency requests, an out-of-chute standard of 30 seconds maximum is optimal.

Paramedic: An individual trained and licensed to perform advanced life support procedures under the direction of a physician.

Peak-Load Staffing: The design of multiple shift schedules and staffing plans so that coverage by ambulance crews matches the call demand pattern changes for every hour of every day based on the requirements of the system status plan.

Protocol: A planned set of actions or course of treatment.

Response Time: The interval from the time the medical communications center receives enough information to initiate the response to the time a properly equipped and staffed ambulance arrives on the scene.

Response-Time Performance: The performance of the ambulance provider in reliably meeting or exceeding specified response times measured on a fractile basis.

Responses: The total number of events to which an ambulance is dispatched that may or may not result in patient transport. (Also known as requests for service or calls).

Figure 1

Time of day for EMS Incidents

Number of Incidents

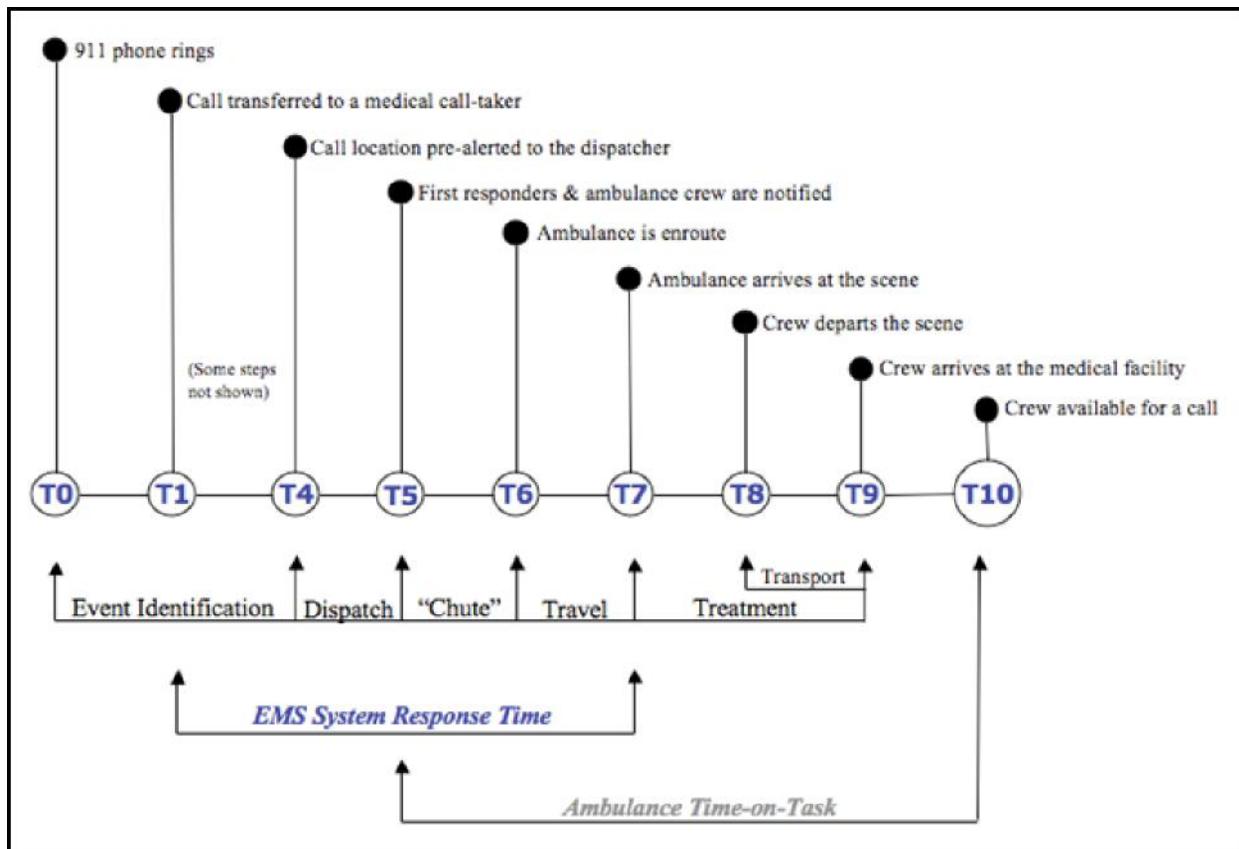
Time of Occurrence

Time of Day Analysis

Information about the time of day EMS incidents are occurring is useful for understanding the workforce and EMS capabilities and availability. The above figure illustrates this information for the incidents included in my sample for the three month period between June and August.

I took a sampling of EMS incidents and found that sixty-eight percent of the EMS incidents in the three month period happened between the hours of 6:00a.m.and 6:00p.m. Therefore, the peak EMS activity hours are during the day (typical work day hours). Volunteer EMT's are often working during peak EMS traffic hours, which often leave EMS units short-handed to respond to calls during this time frame.

Figure 2
Process of an EMS Incident⁷



⁷ Note: International City/County Management Association. (2005). EMS in critical condition: Meeting the challenge [Item No. E-43338]. IQ Report, 37(5). Washington, D.C.: International City/County Management Association, p.9.

Figure 3 EMS Time Intervals and Benchmarks

Time Interval	Description of Time Interval	Recommended Fractile
T0-T1	Length of time between when the 9-1-1 call is received at the public safety answering point and when it is transferred to an EMS answering point	Benchmark <30 seconds; 90% reliability
T1-T2	Length of time between when the phone rings at the EMS answering point and when the call-taker picks up	<5 seconds; 90% reliability
T2-T3	Length of time between when the call is picked up and when the incident type and location are verified	<25 seconds; 90% reliability
T3-T4	Length of time between verification of the incident location and transfer of the call details to the dispatcher's screen	<5 seconds; 90% reliability
T4-T4.1	Length of time between verification of the location and conclusion of emergency medical dispatch (may occur at any time between T4 and T7)	Establish benchmarks by call type
T4-T5	Length of time between when the call appears in the to-be-dispatched queue and when it is actually dispatched to a crew	<25 seconds; 90% reliability
T5-T6	Length of time between when the crew receives the call and when the crew is en route to the call (wheels turning)	<45 seconds; 90% reliability
T6-T7	Length of time between when the crew is en route and when it arrives at the incident scene	Actual travel time (assuming a total response time of 8:59, this component would be 434 seconds)
T7-T7.1	Length of time between when the crew arrives at the location and when it reaches the patient	Establish benchmarks for quality improvement purposes (e.g., for critical patients, patients in high-rise buildings, and inaccessible patients)
T7-T8	Length of time between when the crew arrives at the scene and when it departs for the destination	<15 minutes; 90% reliability (depending on protocols)
T8-T9	Length of time between when the crew departs from the scene and when it arrives at the destination	Actual travel time
T9-T10	Length of time between when the crew arrives at the destination and when the crew becomes available for further work	<15 minutes; 90% reliability (additional benchmarks may be required for incidents of varying severity)
T10-T11	Length of time between when the crew becomes available and when it departs from the destination	Establish internal benchmark
T11-T12	Length of time between when the crew departs from the destination and when it arrives at its designated post	Establish internal benchmark

Note: Response time is typically computed as the elapsed time between T2 and T7 for the first-arriving transport-capable ambulance. It is also appropriate to measure the same interval for first responders. However, to avoid confusion about reporting methods, response times for the first transport-capable ambulance and for first responders should be recorded and benchmarked separately.

Volunteer staffing has declined over the past four years as indicated by Table 1.

Table 1

**Trumbull EMS
Volunteer Staffing by Year**

Year	Number of Volunteers
2010	45
2009	73
2008	87
2007	94
2006	82
2005	104

The following are EMS incidents by shifts and response categories for the six month period from January 1, 2011 to July 31, 2011.

Table 2 Criteria

ALL by Shift Date From: 01/01/2011
Date To:07/31/2011

Group	Count	Pct.
11-6	312	12.3
12-3	452	17.9
3-6	403	15.9
6-11	584	23.1
6-9	258	10.2
9-12	502	19.9
<i>Not Entered</i>	16	0.6
Total:	2527	

Table 3 Criteria

ALL by Response Code
Date From: 01/01/2011
Date To:07/31/2011

Group	Count	Pct.
Alpha	635	25.1
Bravo	623	24.7
Charlie	583	23.1
Delta	618	24.5
Echo	38	1.5
Foxtrot	14	0.6
<i>Not Entered</i>	16	0.6
Total:	2527	

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