Clark County EMS District #2

2007

Annual Report

Performance and Accountability

Prepared By:

Clark Regional Emergency Services Agency’s
EMS Program
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1 - Coalition of Advanced EMS Systems 2006 Market Study Summary Matrix. Compares the EMS District #2 system to other High Performance EMS Systems.

2 - Contract Response Time Reports. Shows monthly and cumulative year-to-date response time compliance.

3 - Annual Financial Report. Independently reviewed report documenting the gross revenues and total number of patients transported.

4 - Subsidy / Price Trade-Off Chart. Shows incremental adjustments to the average price for ambulance service based on a given subsidy per capita.

A Letter From Our Chair

In 1992, Clark County and the Cities of Battle Ground, LaCenter, Ridgefield, and Vancouver entered into an EMS Interlocal Cooperation Agreement to improve the regulatory oversight in EMS; and participate in group purchasing of ambulance service within EMS District #2.

The District was charged with providing the role of “EMS Consumer Advocate” by designing a system of Clinical Excellence; Response Time Reliability; Customer Satisfaction; and Economic Efficiency.

The EMS Administrative Board was created to design and oversee the system. This multi-jurisdictional advisory body is comprised of citizen volunteers with expertise in business, finance, law, health care administration and insurance.

Our diverse and dedicated Board members have served the community’s interests by sharing their skills and expertise as they guide the District and participating jurisdictions actions. The District benefits from a superb team of dispatchers, medics, and support personnel who work hard to provide the efficient and effective emergency medical care.

Each year, the District provides a report to the participating jurisdictions on the ambulance contractor’s response time, clinical, and economic performance.

This year’s report shows the District’s all-Advanced Life Support (ALS) ambulance system continues to provide quality prehospital care at a reasonable cost with no subsidy from local jurisdictions.

The Executive Summary outlines several significant enhancements that we collectively implemented during this contract year. These are designed to keep the District at the forefront, and to continue our status as a high performance EMS system.

There are still challenges ahead. We continue to monitor the changes in reimbursement from Medicare and other payers that is placing increased financial burden on our nation’s ambulance providers. Yet I’m confident that, by working together, we will rise to the challenge and meet our community’s needs with the same level of quality and skill our citizens have come to expect.

As Chair of this Board, I’m pleased to share some of the highlights of this past contract year’s EMS performance.

Sincerely,

Michael J. Plymale, C.P.A.
Chair of the EMS Administrative Board
EMS District #2 Ambulance Franchise Contract Designed to Provide:

Fast Response Times

State-Of-The-Art Equipment and Advanced Patient Care

System Accountability Through Independent External Oversight

Innovative Training, Education, and Community Services

Protection from Deterioration, or Loss of Service.

A System That Is Self-Correcting and Provides Stability

No Tax Support of Any Kind

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**EMS District #2 Vision, Mission and Values**

**Vision**
Excellence in Emergency Medical Services

**Mission**
Provide quality prehospital care at the most reasonable cost through a performance based ambulance contract; benchmarking against other high performance EMS systems; research; and community illness/injury prevention.

**Values**
- Citizen and employee safety is our first priority
- Professional conduct at all times
- Cooperation and open lines of communication
- Flexibility and creativity
- Recognize success
- Provide direct and forthright response to difficulties
- Evidence-based decision making that satisfy medical, legal, and professional concerns
EMS Administration

Thomas R Griffith, Director
Clark Regional Emergency Services Agency

Doug Smith-Lee, EMS Manager
Clark Regional Emergency Services Agency

Lynn Wittwer, MD
Clark County Medical Program Director

Marc Muhr, Assistant
Clark County Medical Program Director

Elizabeth Vergano, EMS Data Analyst
Clark Regional Emergency Services Agency

EMS Administrative Board

Mike Plymale, Chair
Michael J. Plymale Inc. PS

Carol Fox
Carolee’s Mt. View Adult Care

Dan Keteri
V. P. of Patient Care Services
SW Washington Medical Center

Jerry Nies
Nies Community Insurance

Nancy Nellor-Retsinas
Nellor-Retsinas Attorneys At Law
Executive Summary

Call / Transport Volume

During the contract year 2006/2007 (October 1, 2006 – September 30, 2007) the District responded to 35,927 EMS calls and completed 27,463 patient transports.

Response Time Reliability

The District has one of the most stringent response time standards in the nation. Based on the American Heart Association standards for our most critical patients, the ambulance contractor is required to have a paramedic ambulance on the scene within 7 minutes and 59 seconds, 90 percent of the time in the urban area. For non-emergency 9-1-1 calls the contractor is required to reach the scene within 11 minutes and 59 seconds, 90 percent of the time.

Urban 9-1-1 Emergency = 7:59

Urban 9-1-1 Non-Emergency = 11:59


**Economic Value**

**Ambulance Costs and Rates “101”** - Unlike most retail service providers, the cost of providing ambulance service is not based on each time patient care is provided. Rather, the main cost involves providing the coverage necessary to meet the level of response time requirements established.

The user fees to recover this cost are then based on the transport volume to spread the costs over, any subsidy provided and the payor mix. Payor mix affects rates based on its impact on the collection rate. For example, a higher private/uninsured percentage and those covered by Medicare/Medicaid result in lower collections. Fees are then adjusted to other payor groups (within contractual allowance) to offset the lost revenues.

![Percent of Bills](chart)

**Percent of Bills**

Private Pay, 29%

Private Insurance, 7%

Contracts, 2%

Other HMO, 1%

Kaiser, 15%

Medicare, 33%

Medicaid, 13%

**Decreasing Collection Rates** - Based on the federal Balanced Budget Act of 1997, a new Medicare fee schedule implemented April 1, 2002, it was understood this new fee schedule would result in ambulance services losing money when compared to the actual cost of providing service. To compound this problem, Clark County has experienced a growing Medicare population as the “baby boomers” reach the retirement ranks; in addition to a growing uninsured population as employers have greater difficulty in offering health insurance due to rising costs. As a result, the District has experienced a decreasing collection rate moving from 64% in 2001 to 47% in 2007.

**Benchmarking with the Best** - District participates in an annual survey with other High Performance EMS (HPEMS) systems in the country. The last survey was completed for 2006.

What distinguishes HPEMS systems to other EMS systems is they share the common characteristics of: 1) high standards in patient care and economic efficiencies through medical priority dispatching, an all Advanced Life Support (ALS) service, and exclusivity of the market for emergency and non-emergency transports; 2) performance stability through earned extensions based on superior performance, as well as bonds and lease arrangements should takeover of the contract be necessary; 3) full activity cost recognition; and 4) functional external oversight for both clinical and business/financial performance.

The following tables compare the District’s 2006/2007 contract year’s economic performance to the other 12 HPEMS systems participating in the 2006 survey.

**Zero Subsidy** - The District’s ambulance contractor is funded entirely from user-fees. There is no subsidy provided to off-set the cost of providing service to the community. Currently, seven of the 12 HPEMS systems receive a subsidy.

<table>
<thead>
<tr>
<th>Subsidy per Capita</th>
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<tbody>
<tr>
<td>District</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Median</td>
</tr>
</tbody>
</table>
Cost per Unit Hour – The Cost per Unit Hour is based on the total costs divided by the total number of hours of staffed ambulances.

Cost per Transport – The Cost per Transport is based on the total costs divided by the total number of transports.

Cost per Capita – The Cost per Capita is based on the total costs divided by the total service area population.

<table>
<thead>
<tr>
<th></th>
<th>Cost Per Unit Hour</th>
<th>Cost per Transport</th>
<th>Cost per Capita</th>
</tr>
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<tr>
<td>District</td>
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<tr>
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<td>$394.65</td>
<td>$38.30</td>
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<tr>
<td>Median</td>
<td>$124.18</td>
<td>$362.14</td>
<td>$32.11</td>
</tr>
</tbody>
</table>

It’s important to note a variety of factors that affect cost as mentioned above. The higher the response time and clinical standards, and the more disperse your patient population and fewer transports, the higher the costs in comparison to other systems.

With a population density below the HPEMS systems participating in the survey, and having one of the highest response time standards, the District demonstrates an efficient cost performance.

**Quality Patient Care**

**Advanced Clinical Procedures** - The District continues to work hard at its mission of providing quality prehospital care at the most reasonable cost. In comparing this past year’s performance to the other 12 HPEMS systems that participated in the survey, the District is one of three systems meeting all the advanced clinical procedures identified.

**High Cardiac Arrest Survival Rate** - One of the best ways to measure an EMS systems clinical effectiveness is by tracking patient outcomes. Yet conducting accurate outcome measures in prehospital care is currently very difficult to achieve due to a variety of factors, most notably the control of variables of accurately measuring intervention times. Understanding this limitation, the survey applied an agreed upon clinical research guideline for reporting out-of-hospital cardiac arrests were the patient’s pulse and blood pressure is restored upon arrival at the hospital. The survey did not measure the patient’s condition on discharge from the hospital. Based on this guideline, the District reported a 30% Return of Spontaneous Circulation (ROSC). The survey’s mean for ROSC was 33%.

To see more on how our system compares in the areas of Emergency Medical Dispatch, Response Time, Clinical Delivery and Performance Oversight see Exhibit 1 “System Summary Matrix” at the end of this report.
**2007 Performance Highlights**

**Enhanced Data for Performance Monitoring and Research**

CRESA’s EMS Data Analyst has made a number of enhancements to the “EMS Data Network” this past year. The network is a web based system that currently stores the ambulance contractor’s response time and clinical data. The system allows access to the District’s ambulance contractor, American Medical Response (AMR) and the county Medical Program Director (MPD). The enhancements to the network’s reporting tools this past year include:

The **Response Time Report** was moved from month end data being downloaded from AMR’s server to CRESA’s server to live or real-time response time data. Through the EMS Data Network, this web based utility now allows CRESA and AMR to: 1) view raw real-time response time performance that can be viewed within any time frame including month-to-date; 2) review and approve appropriate exemptions or corrections to the response times; and 3) comparisons between the AMR’s and CRESA’s reports servers to ensure data integrity.

Development and testing a new **Individual Performance Report (IPR)** that permits individual AMR medics to log in, and review their own clinical skills recorded and to receive and provide responses on a given patient care record from AMR’s training and quality assurance coordinator or the MPD. The program is pending implementation until assurances are made on the MPD’s participation in on-line chart reviews and that inquiries will be answered in a timely manner.

Further enhancements were made to the **MPD Flag Chart System**. The improvements included better navigation and screen view of electronic Patient Care Reports (ePCRs). The system allows the MPD’s office to review calls online for quality assurance and provide feedback to AMR’s clinical coordinator and individual AMR paramedics and Emergency Medical Technicians (EMTs). This allows the MPD to efficiently identify all flag charts such as cardiac arrests and review them only one time each, regardless of whether or not the chart meets multiple flag criteria.
National Academy of Emergency Dispatch Re-Accreditation

CRESA’s Emergency Medical Dispatch (EMD) program was re-accredited by the National Academy of Emergency Dispatch (NAED). CRESA was initially the fourth NAED accredited center in the world. There are 20 standards that must be met. Some of them include: all dispatchers certified in EMD; a detailed quality assurance program with ongoing case reviews that provide a statistically sound sample size; and a Continuing Dispatch Education (CDE) program.

Bio-surveillance Early Warning System

FirstWatch™ was implemented in July 2007. This is an early warning system that monitors 9-1-1 medical calls for certain sentinel events, such as a Norovirus outbreak. This system was purchased in 2006 for $75,000 using fines from late ambulance contractor response times. FirstWatch is a real-time situational awareness and surveillance software system that monitors 9-1-1 data. Once a given volume or geographic trend is detected an alert page is sent to the CRESA EMS Manager and one of the Emergency Management duty officers. Those persons can then log onto a website and view summary call charts and distribution maps. CRESA will be using FirstWatch to monitor Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) incidents and high profile emergencies involving multiple patients.
**EMS Response Newsletter**

“EMS Response” is a quarterly newsletter from CRESA’s EMS program that began in April 2007. The purpose of the newsletter is to keep people better informed. The intended audiences are the paramedics and EMTs who make Clark County EMS District #2’s ambulance service a success and the jurisdictions who benefit from the ambulance contract.

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**2008 – 2012 EMS Program Strategic Plan**

The CRESA EMS Program 2008 – 2012 Strategic Plan was developed to guide the Program’s focus and work over the next five years considering both the internal organization’s strengths and weaknesses, and the external opportunities and threats.

The growing issue behind the plan is a decreasing collection rate (64% in 2001 to 52% in 2006) experienced by the District’s ambulance contractor and is being experienced by other ambulance services nationwide due in large part to the new Medicare fee schedule. As a result, the CRESA EMS Program wanted to re-examine current and projected financial environment of the District’s contract, as well as review the current and projected health of District’s EMS system as a whole.

The strategic planning process consisted of several distinct phases that included: 1) an **Internal Assessment** through staff interviews and document review; 2) an **External Assessment** that surveyed stakeholders, included a comparable agency study and an environmental scan; 3) an identification of key **Strengths, Weaknesses, Opportunities and Threats (SWOT)** based on the assessments; 4) a review the EMS Program’s **Mission, Vision, and Values** to ensure they're consistent with the EMS Program’s and stakeholders’ desires; and 5) development the plan’s **Goals, Objectives and Strategies** that refine what the EMS Program and stakeholders want most to accomplish over the next five years.
Pandemic Influenza – Contagious Disease Guidelines

Developed Communicable Disease Procedures that direct dispatchers to use the protocol software ProQA™ “Severe Respiratory Infection (Flu-Like) Symptoms” screen on all patients with signs of nausea, vomiting, diarrhea, or respiratory infections. The procedures also provide guidelines based on the level of transmission of the disease.

Developed CRESA Communicable Disease Staff Entry Control Procedures to control access and screening of persons during a communicable disease outbreak.

Drafted Viral Respiratory Disease, Pandemic Standard Operating Procedures for county EMS providers. These guidelines provide infection control, assessment, and transport options.

Drafted the Healthcare Advisory Group (HAG) Procedures to provide a rapid and unified response to elevations of health related threat levels, crisis situations, and disasters. These procedures provide medical technical expertise and policy level guidance to ensure uniform health preparedness and response practices.

Lower Fees to Patients

The actual Average Patient Charge (APC) was $5.97 less than the amount allowed ($696.97). This represents a $173,918 in savings to those paying for ambulance service provided.
**Investing In The Community**

**Public Illness and Injury Prevention**

Child Car Seat Inspections – 11 Clinics with a total of 1,159 Inspections

Citizen CPR – 76 Trained

Contract Penalty Funded Projects – The ambulance contractor’s late run penalties (i.e., $15 per every minute over standard) fund public education and first responder support projects. The following are those projects funded in 2007

- **Smoke Alarms for the Deaf and Hard of Hearing** - $2,000 to SW Washington Center for Deaf and Hard of Hearing to purchase 30 smoke alarms with flashing strobe and horn.

- **EMS Consortium** - $37,118 to Vancouver Fire Department to fund a program that provides to participating fire agencies post exposure evaluations, TB testing, vaccinations, and maintenance of training records.

- **Helmets for Safety** - $4,658 for the Vancouver Police Department as the lead agency of Clark County Safe Kid to purchase 1,300 bicycle helmets for low income and at risk populations in Clark County.

- **Smoke Alarm Program** – $6,116 to the Fire District #6 for county-wide purchase and distribution of 600 smoke detectors to low-income homes in need.

**Innovative Public - Partnerships**

Fire District #3 - AMR continued its partnership with Fire District #3 by providing ALS supplies, a fully stocked ALS transport capable first response vehicle, and $40,000 per year to assist in funding a firefighter-Paramedic. The purpose of this partnership is to provide for limited ALS first response and back up ALS ambulance coverage.

Fire District #11 – AMR increased its commitment of providing a paramedic and ALS equipment on the ambulance provided by District #11. This partnership provides scheduled ambulance coverage 168 hours per week.

Fire District #12 – AMR also continued its partnership with Fire District #12 by providing one Paramedic (or funding difference between Firefighter-EMT and Firefighter-Paramedic) and a fully stocked ALS ambulance. The purpose of this partnership is to provide scheduled ambulance coverage for a minimum of 40 hours per week.

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1 AMR is part of a county-wide team of public safety agencies and conduct car seat inspections.
Annual Report in Detail

Purpose

Based on the EMS Interlocal Cooperation Agreement, EMS District #2 (District) is to present to the participating jurisdictions an annual report addressing the ambulance contractor’s: 1) the economic performance (accounting of user fees and subsidies, if any); 2) clinical capability; and 3) response time reliability.

This report is for the third year (October 1, 2006 through September 30, 2007) of the Paramedic Ambulance Services Contract (Contract) between the District and American Medical Response Northwest (AMR).

The 2007 EMS District #2 Annual Report measures its performance against the standards established in the Contract, as well as a comparison of performance to other High Performance EMS (HPEMS) systems who participated in the Coalition of Advanced EMS (CAEMS) 2006 Benchmarking Study. A summary of this survey is provided at the end of this report as Exhibit 1.

In addition, a longitudinal analysis with past years’ core performance measures is also provided in this report in Exhibit 5.

Background

In 1992, Clark County, the City of Vancouver, and the District entered into an EMS Interlocal Cooperation Agreement. The purpose of this Agreement is to enable: 1) the County, Vancouver, and other participating jurisdictions to exercise uniform regulatory oversight; and 2) the District and participating jurisdictions to participate in group purchasing of ambulance service in the Contract Service Area.

Three competitive ambulance procurements have successfully taken place, with the most recent performance based franchise contract being awarded to American Medical Response Northwest (AMR). This contract commenced October 1, 2004, with an initial term of six (6) years, and the possibility of up to three (3) "earned" two (2) year extensions.

Through key policy decisions made by the participating jurisdictions, it was agreed that EMS system design and administration is quite complex and best carried out by medical and business authorities who offer the necessary expertise. Medical responsibilities are carried out through the Medical Program Director who provides a countywide program of quality control and regulation for the system standard of care. This system standard of care includes in part training, certification, and monitoring of the ambulance contractor’s clinical and response time performance.

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2 In June 1995, the Cities of Battle Ground and Ridgefield and in September 2002 the City of LaCenter signed the Interlocal to participate in this agreement.
Decisions involving EMS system business, finance, and contracts are best made by individuals with expertise in business, finance, law, and health care administration. Based on this understanding the EMS Administrative Board was created to carry out such development and oversight. This multi-jurisdictional advisory body is composed of citizen volunteers, appointed by the County, who offer the expertise outlined above.

**A Note on Comparison to Other Systems**

As stated earlier, the 2007 EMS District #2 Annual Report measures performance against the standards established in the Contract, as well as a comparison of performance to other High Performance EMS (HPEMS) systems who participated in the CAEMS 2006 Benchmarking Survey.

A number of considerations need to be given when comparing the quality and cost of ambulance services. For example, it is entirely possible for an ambulance service to provide excellent response time performance, efficient use of resources, clinical sophistication, and sound billing practices and be perceived as charging unreasonable rates; while another service provides the same level of performance and be perceived as charging reasonable rates.

To truly compare these services you must take into account a number of factors in order to try and make like comparisons. For example, the higher the response time and clinical standards, and the more disperse your patient population, the higher the costs. In addition, the services may be serving similar communities and have the same response time, clinical, and billing performance, but one provider’s rates could still be higher. This may be due to the other service receiving a subsidy to offset the rates charged.

To do a fair comparison, the question then becomes “Do similar communities get similar service for a similar cost?”

**Difficulties and Limitations in Benchmarking**

The CAEMS 2006 Benchmarking Survey is limited by the lack of diversity of system designs agreeing to participate. The most common reason given is the lack of data needed necessary to complete the survey.

**Annual Report Findings**

**SYSTEM DESIGN**

The response to a medical emergency can range from a highly structured performance based delivery system requiring local government accountability to a historical structure with minimal or no regulation. To date, approximately 30 different system designs exist in the United States and many others are identified in Europe. The six most common types of EMS systems include: 1) private for-profit; 2) private

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not-for-profit; 3) fire service; 4) third service; 5) hospital-based; and 6) High Performance EMS (HPEMS).

Extremely sophisticated HPEMS systems have evolved over the past 20 years. This EMS system design specifically focuses on clinical and response time performance, and economic efficiency. Such High Performance EMS (HPEMS) systems are further delineated by: external oversight, full activity based cost recognition, priority dispatch, system status management, and all-Advanced Life Support (ALS) ambulances.

Currently, there are three types of EMS system that are included in HPEMS systems. These include the Public Utility Models (PUM), the Franchise Model, and the governmental or non-profit service with no contractor. The PUM and Franchise model have performance-based contracts, and the governmental or not-for-profit system in this survey do not have contractors yet are required to meet the mandated performance of HPEMS. Under the PUM, ownership of the infrastructure, and accounts receivable is the responsibility of the PUM. The contractor’s sole responsibility is to focus its expertise on field operations; whereas under Franchise Model, the contractor retains the infrastructure and is responsible for accounts receivable. The governmental or not-for-profit owns the infrastructure, accounts receivable, and also manages field operations.

**DEMOGRAPHICS**

**Population Density per Square Mile**

The purpose in reporting population density is to show which services potentially have greater difficulties in meeting response times. Assuming everything else is the same between services, those with lesser population densities will have a harder time providing coverage, thereby requiring higher operational costs to meet response times.
**Transports per Square Mile**

Transports per square mile is for the most part a direct reflection of density per square mile, although other influencing factors can contribute also to transport volumes such as age of the population (more health problems yet on fixed incomes) and crime rate (higher assaults and injuries yet with limited insurance and income). Assuming everything else is the same between services, those with lower transports per square mile will have higher rates in order to recover operational costs.

<table>
<thead>
<tr>
<th>District</th>
<th>Transports / Sq. Mile</th>
</tr>
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<tbody>
<tr>
<td>District 107</td>
<td>107</td>
</tr>
<tr>
<td>Mean</td>
<td>164</td>
</tr>
<tr>
<td>Median</td>
<td>118</td>
</tr>
</tbody>
</table>

**Response Time Reliability**

HPEMS systems design their response around the most time critical cardiac arrest patient. Based on the American Heart Association recommendations, most urban systems have the goal of having Basic Life Support (BLS) with the ability to defibrillate at the victim’s side within 4 minutes and Advanced Life Support (ALS) within 8 minutes. The most important factors in achieving successful cardiopulmonary resuscitation are initiation of CPR and defibrillation. The survival rate from untreated ventricular fibrillation decreases up to 10% for every minute that passes without treatment.\(^4\)\(^5\) The use of Automatic External Defibrillators (AEDs) has given the public and BLS first responders the ability to rapidly initiate critical care and needs to be evaluated when evaluating response times.\(^6\)

All services in this report stated they had fractile response time standards that required at least 90 percent of the calls meeting the given standard. A fractile response time of 90 percent is a higher performance level than an average response time that some systems use. Standards varied as to the type of call (Hot – lights and siren, or Cold – no lights or siren, Scheduled, or Unscheduled) and location of the call (urban, suburban, rural and wilderness).

The purpose of reporting response time standards not only shows which services have higher performance requirements, but also which services have higher performance costs. Assuming everything else between the services is the same, it costs more to meet higher response time standards.

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CLINICAL CAPABILITY

Control Center Standards and Performance

Emergency Medical Dispatch (EMD) call taking and dispatch functions are provided by Clark Regional Emergency Services Agency (CRESA) and AMR’s control center. CRESA is responsible for all 911 EMD call taking functions and the dispatch of two public ambulance providers, and all first response agencies. AMR is responsible for Clark County seven-digit "non-emergency" EMD call taking functions, as well as the coordination and dispatch of its ambulances. AMR is also responsible for a two-way interface between CRESA’s Computer Aided Dispatch (CAD) system AMR’s CAD.

All dispatchers who provide medical call taking for CRESA and AMR are required to be EMD certified by the National Academy of Emergency Dispatch (NAED). Both centers use the advanced Medical Priority Dispatch System (MPDS) protocols. Currently, first response providers and ambulance services respond on all 911 medical requests. The mode of their response, "Hot" (lights and siren) or "Cold" (no lights and siren), is based on the MPDS triage criteria.

Under the contract, AMR’s control center is required to meet the accreditation requirements of the National Academy of Emergency Dispatch (NAED). AMR became an accredited center by NAED in 2004. CRESA was re-accredited in January 2007.

CRESA operates an enhanced system providing caller Automated Number Identification (ANI) and Automated Location Identification (ALI) information. To ensure the speedy transfer of medical call related information and unit status updates, and to eliminate the need to verbally transfer information over the phone and/or pager, AMR furnishes at its own expense a state-of-art SSM based Computer.

EMD Certification

Nationwide, the public now expects emergency medical dispatchers to accurately triage emergency medical calls; send appropriate EMS response; and provide patient care instructions until EMS arrives. At this time there is no national standard for Emergency Medical Dispatch (EMD). Yet based on the endorsements from the National Association of EMS Physicians and meeting the Standards of Practice for EMD, a certification by the National Association of Emergency

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7 Both CRESA and AMR use the Medical Priority Dispatch System (MPDS) to initially triage EMD calls. The Medical Program Director has further identified EMD calls that require transfer to the 9-1-1 center to ensure seven-digit calls received by AMR are truly “non-emergency.”

HPEMS Performance Comparison

<table>
<thead>
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<tr>
<td>Mean</td>
<td>100%</td>
</tr>
<tr>
<td>Median</td>
<td>100%</td>
</tr>
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Figure 4.1
Dispatch (NAED) has become the profession’s standard of care.

**Accreditation**

The NAED has established standards for control center accreditation. These standards cover performance standards for EMD training, management and quality improvement processes, and compliance to dispatch protocols.

<table>
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<tr>
<th>NAED Accreditation</th>
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</tr>
<tr>
<td>Gov. / N-F-P</td>
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<td>2</td>
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*Figure 4.2*

**Ambulance Service Standards and Performance**

Retail competition within the ambulance market is ineffective in determining quality and price of service. For example, emergency patients or those calling for medical assistance don’t have the inclination to comparison shop when help is needed. In addition, the primary cost of ambulance service is the cost of providing geographic coverage to ensure timely response. The cost and rates increase when multiple firms compete within the same area as a result of duplicate coverage and reduced transports.

There needs to be a way of reviewing patient care and cost of services up front, before the medical emergency happens. Nationwide it’s recognized local governments are in the best position to do this. Through regulatory and contracting action, public officials have the ability to establish standards for EMS within a community and the cost of the service provided.

In 1992, the District and the participating jurisdictions chose to take an active role to establish standards for ambulance service and oversee the quality and cost of service provided. Through periodic and managed competition for the market, the District has been able to improve the level of clinical and response time reliability at costs below those of systems depending on retail competition within the market, or no competition at all.

**Advanced Level of Care**

There are two types of production strategies for ambulance service. One pursues efficiency through specialization of ambulances (i.e., multi-tiered Advanced Life Support, ALS and Basic Life Support, BLS systems). The other pursues efficiency through more flexible multipurpose ambulances (i.e., single-tiered, all-ALS, full-services systems).

The All-ALS, Full-Service approach recognizes some patients need more sophisticated care, yet questions whether specialization is appropriate in a profession where peak load demand fluctuations requires considerable surplus
production capacity. Efficiency is realized by spreading the costs out over the emergency and non-emergency market.

A full-service system also eliminates the costs from duplicate coverage that occurs in multi-tiered systems. This production method is supported by studies that show all-ALS systems significantly reduce response times and provide fiscal and operational efficiencies.8

In addition, an all-ALS, full-service system eliminates the risk of not sending the appropriate level of ambulance service, and thereby delaying response. It also removes the risks of patient abandonment and handoffs of patients from ALS crews to BLS crews.

Assuming everything else between the services is the same, it costs more to provide more clinically sophisticated service ALS than less clinically sophisticated service BLS. Yet for those system designs with exclusive all-ALS contracts, there’s an improved ability to reduce costs of service through improved resource utilization. The rates in exclusive systems can also be reduced through economies of scale through a larger market for services.

<table>
<thead>
<tr>
<th>HPEMS Performance Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced Level of Care</strong></td>
</tr>
<tr>
<td>District</td>
</tr>
<tr>
<td>PUM</td>
</tr>
<tr>
<td>Franchise</td>
</tr>
<tr>
<td>Gov. / N-F-P</td>
</tr>
</tbody>
</table>

**Figure 4.3**

Advanced Training

Higher training standards indicate a higher clinical standard of care or service delivery. The CAEMS survey measured three specific certifications above the paramedic level including: Advanced Cardiac Life Support, Pre-Hospital Trauma Life Support, and Pediatric Advanced Life Support.

<table>
<thead>
<tr>
<th>HPEMS Performance Comparison</th>
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</thead>
<tbody>
<tr>
<td><strong>Advanced Training</strong></td>
</tr>
<tr>
<td>District</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Median</td>
</tr>
</tbody>
</table>

**Figure 4.4**

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Advanced Clinical Delivery

New technologies that have shown to be medically efficacious in the prehospital setting include: 12 lead EKG to enhanced diagnostics in the field and shorter times for the administration of thrombolitics and external pacing for specific cardiac arrhythmias; Intraosseous delivery of fluid and medication to the bone marrow when an intravenous route is unobtainable; Rapid Sequence Intubation using a paralytic when intubation is needed on a patient with a gag reflex; End Tidal CO2/Capnography for better monitoring of blood oxygen and carbon dioxide levels; and Ventilators for enhanced supportive oxygen delivery to patients.

### HPEMS Performance Comparison

<table>
<thead>
<tr>
<th>Advanced Clinical Delivery</th>
<th>12 - Lead</th>
<th>Intraoss.</th>
<th>RSI</th>
<th>CO2 Cap.</th>
<th>Ventilators</th>
</tr>
</thead>
<tbody>
<tr>
<td>District</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>PUM</td>
<td>6/6</td>
<td>6/6</td>
<td>2/6</td>
<td>5/6</td>
<td>6/6</td>
</tr>
<tr>
<td>Franchise</td>
<td>1/1</td>
<td>1/1</td>
<td>1/1</td>
<td>1/1</td>
<td>1/1</td>
</tr>
<tr>
<td>Gov. / N-F-P</td>
<td>6/6</td>
<td>6/6</td>
<td>2/6</td>
<td>6/6</td>
<td>4/6</td>
</tr>
</tbody>
</table>

*Figure 4.5*

### Clinical Outcomes

One of the best ways to measure an EMS systems clinical effectiveness is by tracking patient outcomes. Yet conducting accurate outcome measures in prehospital care is currently very difficult to achieve due to a variety of factors, most notably the control of variables of accurately measuring intervention times. Understanding this limitation, the survey attempted to apply the Utstein Guidelines for reporting out-of-hospital resuscitation.

The CAEMS survey included all cardiac arrests, from presumed cardiac origin, with a presenting rhythm of Ventricular Fibrillation (VF), Ventricular Tachycardia (VT), Pulseless Electrical Activity (PEA), and Asystole. The results measured those patients reaching to hospital with Return Of Spontaneous Circulation (ROSC). If everything being equal (i.e., intervention times for BLS, shock, and ALS) those systems responding to a higher number of patients with shockable rhythms (VF/VT) should have a higher ROSC. This survey does not measure the patients’ condition upon hospital discharge.

### HPEMS Performance Comparison

<table>
<thead>
<tr>
<th>Clinical Outcomes</th>
<th>ROSC</th>
<th>% Pts. VF/VT</th>
<th>% Pts. PEA</th>
<th>% Pts. Asystole</th>
<th>% Pts. Not Recorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>District</td>
<td>30%</td>
<td>17%</td>
<td>18%</td>
<td>50%</td>
<td>15%</td>
</tr>
<tr>
<td>Mean</td>
<td>31%</td>
<td>27%</td>
<td>25%</td>
<td>46%</td>
<td>2%</td>
</tr>
<tr>
<td>Median</td>
<td>30%</td>
<td>28%</td>
<td>20%</td>
<td>49%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*Figure 4.6*
Accreditation

The Commission on Accreditation of Ambulance Services (CAAS) established a comprehensive series of standards for the ambulance service industry that covers a variety of categories including: clinical, equipment, communications, human resources, safety, community relations and financial management. The process includes a comprehensive self-assessment and an independent outside review of the EMS organization. This independent process provides verification to local government and the medical community that quality care is provided to the community.

**ECONOMIC EFFICIENCY**

**Cost**

When you compare ambulance service costs to that of another communities, you need to make sure you're doing a true apples-to-apples comparison. There are a variety of factors that affect ambulance costs, including:

1. *Clinical Sophistication.* More clinically sophisticated services cost more to produce than less clinically sophisticated services. In other words, paramedic or Advanced Life Support (ALS) services costs more than Basic Life Support (BLS) services.

2. *Response Time Reliability.* Good response time performance costs more to produce than bad response time performance. For example, it costs more to get to 90 percent of your patients in less than eight minutes than have an "average" response time of eight minutes.

3. *Geographic Difficulty of Providing Coverage.* Some communities are simply harder to cover than others. It's easier to cover a dense population in a small area that has easy access, than to cover a population that's spread out and difficult to reach.

4. *Multiple Ambulance Services For the Same Geographic Area.* Unlike other health care services, the primary cost of ambulance service is the cost of providing coverage. This means having enough ambulances staffed, equipped and ready to go to meet response time reliability 24 hours-a-day, 365 days-a-year. This cost is only increased when multiple firms must duplicate coverage in the same geographic area.
Unit Hour Utilization

Unit Hour Utilization (UHU) in this report equals the total number of transports divided by the total number of Unit Hours (UHs) an ambulance is staffed and equipped to respond.

\[
\text{UHU} = \frac{\text{Transports}}{\text{UHs}}
\]

There are two kinds of deployment methods used to provide ambulance coverage that affect UHU. One is called flexible deployment that moves ambulances based on the number of available ambulances in the system at any given time, historic call demand, and historic call locations. The other method is called static deployment where ambulances are assigned to respective posts and remain at those posts throughout the shift unless dispatched to a call or providing back-up for another post. All HPEMS systems participating in the survey use the flexible deployment methodology.

The purpose of reporting UHU is to show the service’s efficiency while taking into consideration the factors that affect UHU that may or may not be within the service’s control (i.e., response time standards and geographic difficulty).

<table>
<thead>
<tr>
<th>HPEMS Performance Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UHU</strong></td>
</tr>
<tr>
<td>District</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Median</td>
</tr>
</tbody>
</table>

*Figure 5.1*

Unit Hour Cost

The Unit Hour Cost (UHC) is based on the reported total ambulance system costs divided by the number of Unit Hours (UH) for the reporting period.

\[
\text{UHC} = \frac{\text{Total Costs}}{\text{UH}}
\]

The purpose of reporting UHC is to show the service’s economic efficiency while taking into consideration the factors that affect UHC that may or may not be within the service’s control. Direct labor costs typically account for 65 to 70 percent of UHC. The remaining 30 to 35 percent of the cost is comprised of vehicles, equipment and supplies, communications systems, facilities, and liability insurance.

<table>
<thead>
<tr>
<th>HPEMS Performance Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UHC</strong></td>
</tr>
<tr>
<td>District</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Median</td>
</tr>
</tbody>
</table>

*Figure 5.2*
Cost per Transport

The cost per transport in this report equals the total ambulance system costs divided by the total transports.

\[
\text{Cost Per Transport} = \frac{\text{Total Costs}}{\text{Transports}}
\]

The purpose of reporting the cost per transport is to provide a method of comparing economic efficiency while considering factors that are or are not beyond a service’s control. For example, assuming that everything else is equal between system performance standards (i.e., clinical levels and response time standards) the cost per transport will be higher in those systems with disperse populations, geographic barriers, or inefficient deployment methodologies, thereby lowering the UHU.

In addition, by knowing the cost per transport, a service can estimate what the average charge per transport should be, taking into account collection rates and subsidies (if any). If increasing rates and/or subsidies is not an option for covering costs, then the service is left with either reducing these costs or increasing its UHU.

Cost Per Capita

The cost per capita is based on the reported ambulance system costs divided by the population served.

\[
\text{Cost per Capita} = \frac{\text{Total Costs}}{\text{Population}}
\]

The purpose of reporting the cost per capita is to provide another method for comparing the economic efficiencies of services while taking into account factors beyond a service’s control as mentioned above.

Revenue

User-Fees

During this contract period, the District required AMR to charge user fees that result in an Average Patient Charge (APC) not to exceed $696.97. In addition, the Contract required AMR not exceed a Maximum Patient Charge (MPC) of $937.69. Finally, a Maximum per Mile Charge (MMC) of $10.66 is established. The APC is...
based on the Unit Hour Cost for services offering similar levels of service and market conditions\(^9\). The intent of the MPC is to protect those payer groups that historically pay higher rates because they are unable to take advantage of specific contracts, or collection rate/economies of scale methodologies. The MMC is based on the industry’s average.

AMR is required by contract to submit an annual independently reviewed report, by a Certified Public Accountant (CPA), documenting the following information:

1. Gross revenues generated by each major carrier/payer group (Medicare, Medicaid, HMO-PPO, private insurance, etc.) for the transport of patients by the Contractor’s ground ambulance originating within the Contract Service Area and subject to the rate regulations established under the Contract; and

2. Total number of individual patients by each major carrier/payer group transported (one-way) by the Contractor’s ground ambulances originating within the Contract Service Area and subject to rate regulation established under the Contract.

The CPA firm of Van Beek and Company conducted the review in accordance with attestation standards by the American Institute of CPAs and stated that nothing came to their attention that caused them to believe the schedules submitted in the Annual Financial Report is not in conformity with the provisions in the District’s ambulance contract. (For further detail, see Exhibit 3).

<table>
<thead>
<tr>
<th>Payor Group</th>
<th>A(^B)No.</th>
<th>B(^B)Distrib.</th>
<th>C(^B)Billed</th>
<th>APC</th>
<th>MPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Pay</td>
<td>7914</td>
<td>27.2%</td>
<td>$5,872,075</td>
<td>$741.99</td>
<td>$890.00</td>
</tr>
<tr>
<td>Medicaid</td>
<td>3597</td>
<td>12.3%</td>
<td>$2,565,416</td>
<td>$713.21</td>
<td>$890.00</td>
</tr>
<tr>
<td>Medicare</td>
<td>9979</td>
<td>34.3%</td>
<td>$6,661,915</td>
<td>$667.59</td>
<td>$890.00</td>
</tr>
<tr>
<td>Kaiser</td>
<td>4405</td>
<td>15.1%</td>
<td>$3,013,022</td>
<td>$684.00</td>
<td>$890.00</td>
</tr>
<tr>
<td>Other HMO</td>
<td>258</td>
<td>0.9%</td>
<td>$187,056</td>
<td>$725.02</td>
<td>$890.00</td>
</tr>
<tr>
<td>Contracts</td>
<td>1055</td>
<td>3.6%</td>
<td>$473,189</td>
<td>$448.52</td>
<td>$890.00</td>
</tr>
<tr>
<td>Private Insurance</td>
<td>1924</td>
<td>6.6%</td>
<td>$1,357,499</td>
<td>$705.56</td>
<td>$890.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29,132</strong></td>
<td><strong>100%</strong></td>
<td><strong>$20,130,172</strong></td>
<td><strong>$691.00</strong></td>
<td><strong>$890.00</strong></td>
</tr>
</tbody>
</table>

\(Figure \ 5.5\)

The actual APC was $5.97 less than the allowed APC during the 2006/2007 contract year. This represents a $173,918 in savings to those paying for ambulance service provided by AMR. The area hospital’s (Contracts) lower APC is due to the majority

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\(^9\) Both the APC and MPC have excluded the mileage calculation, rather the MMC has been established for the purpose of capturing all transports originating within the contract service area.

\(^10\) As noted in the User Fees section, the total amount billed excludes the mileage rate currently set at $10.45 per mile.
of the calls being interfacility Basic Life Support transfers as compared to the other categories that includes 9-1-1 Advanced Life Support calls.

Unadjusted Collection Rate

The unadjusted collection rate is based on the total amount collected divided by the total amount billed.

\[
\text{Unadjusted Collection Rate} = \frac{\text{Total Collected}}{\text{Total Billed}}
\]

Factors affecting collection rates include those beyond the contractor’s control such as high private/uninsured, Medicaid and Medicare payor mixes. A factor that affects collection rates within the contractor’s control is billing practices.

HPEMS Performance Comparison

<table>
<thead>
<tr>
<th>Unadjusted Collection Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>District</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Median</td>
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</table>

Subsidy per Transport

Based on the EMS Interlocal Agreement and Contract, each participating jurisdiction reserves the right to reduce ambulance service user fees within its boundaries by way of subsidy payments to the ambulance contractor. During this reporting period, the contractor assumed no direct tax subsidy and relied totally on user fees.

Based on the "Subsidy/Price Tradeoff Chart" (Exhibit 4), a subsidy per capita of $30.42 for the entire contract service area would pay for 100% of the contractor’s revenues billed (excluding mileage charges) for the 2006/2007 contract period.

The two principle funding sources for ambulance service are user fees and local tax money (Some also offer annual subscription memberships, analogous to auto-club memberships). A system can be funded 100 percent from tax money, 100 percent from user fees, or from some mix of the two. Obviously, the larger the amount of tax funding, the lower the user-fees and vice-versa. The reasons for use of subsidies include: those factors beyond the service’s control such as a high federally insured and uninsured payor mix; and those factors within the systems control such as poor billing practices.

The subsidy per transport in this report equals the total subsidy divided by the total transports.

HPEMS Performance Comparison

<table>
<thead>
<tr>
<th>Subsidy per Transport</th>
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</thead>
<tbody>
<tr>
<td>District</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Median</td>
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</tbody>
</table>

11 Households pay a fee of $45-$55 per year, and the service only bills what insurance will pay. Such a program can’t be offered in Washington. The Office of Insurance Commission determined State law prevents all but insurance companies from offering such a program.
Problems Encountered and Improvements Made or Forecasted

Medicare Fee Schedule and Growing Under-Insured

Based on the federal Balanced Budget Act of 1997 a new Medicare fee schedule commenced April 1, 2002. This new fee schedule is being phased in with 100% being implemented in 2010. It’s understood that most ambulance services nationwide will not be fully reimbursed for the actual cost of service. For example, in 2006 it’s estimated the current EMS District #2 ambulance contractor lost on average $16 per Medicare transport.

In addition, District also has a growing population of federally insured (Medicare/Medicaid) and uninsured patients that is negatively impacting the ambulance contractor’s collection rate. For example, the percentage Medicare compared to total bills has changed from 17% in 2000 to 33% in 2007. Likewise the percentage of bills paid by patients without insurance has increased by from 14% to 29% during the same timeframe. As a result the collection rate has decreased from 64% in 2001 to 47% in 2007.

This past year the EMS Administrative Board has formed a financial work group to look at the current and projected financial environment and consider appropriate mitigation measures if proposed by the contractor. Options include decreasing costs which for the most part is limited by decreasing the number of ambulances and thereby response times; or increasing revenues either by increasing rates to other payor groups, or a subsidy. Should an option be proposed, the District’s legal counsel will need to determine if it would result in a fundamental change to the contract requiring a re-procurement process.

Other Problems or Issues

As a result of the CRESA EMS Program 2008 – 2012 strategic planning process, some additional issues have been identified the require attention and work in the near future. These issues include:

Control Center Operations – $200,000 in unanticipated costs to the ambulance contractor in 2008 or 2009 due to the new CRESA Computer Aided Dispatch (CAD) system and the need to maintain the CAD-to-CAD interface between the contractor’s and CRESA’s dispatch centers.

Response Time – The need to address a disproportionate share of mutual aid (7 to 1) that is provided by the District’s contractor for the two surrounding ambulance providers.

Clinical Care – Steps to improve coordination and teamwork between the first responder and ambulance contractor paramedics and Emergency Medical Technicians (EMTs).

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12 Source – Independent Account’s Audit Reports, October 13, 2000 and January 25, 2007, VanBeek & Co. LLC
CRESA’s EMS staff plans to role out the concept of best practices scenario based practical skills training jointly conducted with fire and ambulance personnel.

**Equipment, Fleet, and Facilities** – The current ambulance operations complex is inadequate for the size of operations and is in great need for remodel or replacement. Due to decreased revenues from a growing Medicare and uninsured patient population, staff proposes developing a business plan to determine the feasibility of funding and ownership of an ambulance operations complex between the contractor and the District.

**Financial** – A financial work group has been formed to look at the current and projected financial environment and consider appropriate mitigation measures to be proposed by the contractor.

**Quality Assurance and Research** – In an effort to support research and data for cost-benefit analysis, further development and use of the EMS Data Network is needed in order to: measure of continuum of patient care and outcomes; development of a daily contractor operations report showing clinical, response time and other operational Key Performance Indicators (KPIs); and developing the EMS data system to crosswalk other county EMS providers’ electronic Patient Care Report data.

**Management Training** – Based on feedback from employees and tracking turnover rates, the Contractor should work at retaining and training supervisors to ensure consistent enforcement and support of employee performance, as well as enhanced employee communications.

**Workforce** - Based on feedback from employees and tracking turnover rates, the Contractor should work to enhance the recruitment and screening process to hire the best from a shrinking qualified job pool and to successfully negotiate employee agreements.

**Conclusion**

The participating jurisdictions within EMS District #2 have established a carefully structured EMS system and ambulance contract to ensure the standards of clinical, response time, and economic reliability are met. This system was designed so that in a variety of settings and over a number of years it could be self-correcting, provide stability, and meet the performance standards established.

Through periodic managed competition for the right to provide ambulance service, along with independent performance based monitoring, the community is assured that service is delivered by a provider who meets the established EMS system standards. Financial penalties and default takeover provisions are in place should a provider fail to meet these standards. The design of the system and the standards established are developed by medical and business authorities who have the necessary expertise to be informed EMS consumer advocates.

The District continues to work hard at its mission of providing quality prehospital care at the most reasonable cost. In comparing this past year's performance to the other High Performance EMS systems in the country, the District is one of three systems meeting all the advanced clinical procedures identified. The District also has of the most stringent response
time standards established. And as this high quality of service continues to be provided to the community, the cost per transport is below those of other HPEMS systems. In addition, the Average Patient Charge (APC) is below the amount allowed and with no subsidy provided by the local jurisdictions.

Big challenges lie ahead that include showing the value that EMS has in health care and ensuring sustainable funding. The EMS community and elected officials will need to honestly look at these challenges and work together at solving them. Historically we’ve put aside special interests and have risen to past challenges. By looking at the EMS system as a whole and based on our working together in the past, I’m confident we’ll continue to meet the public's expectations of providing our quality prehospital care at the most reasonable cost.