City of Austin

AUDIT REPORT

A Report to the Austin City Council

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Mayor Pro Tem
Sheryl Cole

Council Members
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Laura Morrison
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Austin-Travis County Emergency Medical Services (ATCEMS) Outcomes Audit

September 2013

Office of the City Auditor

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REPORT SUMMARY

Austin-Travis County Emergency Medical Services (ATCEMS) provides quality patient care. However, ATCEMS has not established a long-term plan on how it will provide services as demand increases. ATCEMS employees report that they experience fatigue, it is getting worse, and it impacts the quality of their work. In addition, ATCEMS medics transport low-priority patients to facilities based on patient preference, which increases operational costs and may lead to periods when units are unavailable for higher-priority calls. ATCEMS also does not have a formal process to assess low-priority incidents.

AUDIT NUMBER: AU13014

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GOVERNMENT AUDITING STANDARDS COMPLIANCE

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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September 2013

Audit Report Highlights

Why We Did This Audit
The Office of the City Auditor (OCA) conducted this audit in response to a directive from the City Council Audit and Finance Committee.

What We Recommend
Management should develop a sustainable long-term action plan to ensure ATCEMS achieves its strategic goals. Management should also work with key stakeholders to address employee fatigue. The Medical Director should reform procedures for transporting low-priority patients considering both patient condition and operational efficiency, and formally assess patient care provided in low-priority/high-frequency incidents.

For more information on this or any of our reports, email oca_auditor@austintexas.gov

ATCEMS Outcomes Audit

Mayor and Council,

I am pleased to present this audit on Austin-Travis County Emergency Medical Services (ATCEMS) outcomes.

BACKGROUND

ATCEMS is responsible for providing emergency medical services to the City of Austin and, through an interlocal cooperative agreement, Travis County.

OBJECTIVE AND SCOPE

The objective of this audit was to evaluate ATCEMS key patient service outcomes and benchmark against emergency medical services in comparable communities. The audit scope included ATCEMS incidents occurring between October 1, 2011 and March 31, 2013.

WHAT WE FOUND

ATCEMS medics provide emergency medical services that result in positive patient care outcomes, as indicated by local hospital personnel. A significant majority (87%) rated ATCEMS as exceptional or above average.

ATCEMS has a strategic plan that lays out the mission and goals of the organization. Management also has a deployment plan that includes extensive data on Austin's growth and aging population. However, ATCEMS management has not established a comprehensive long-range plan on how the organization will provide effective, efficient, and economical services to meet the demands of a growing Austin. The absence of such a plan may have a negative impact on patient care in the long run.

Management established scheduling and workforce committees to provide ATCEMS employees opportunities for input on their schedules. However, employees we surveyed report they experience fatigue, it is getting worse, and it impacts the quality of their work. Medics surveyed say hybrid shifts lead to excessive fatigue and do not allow for adequate rest. Excessive fatigue may impair performance, compromise patient care, and slow response times.

Policy established by the Medical Director allows medics to transport patients to facilities based on patient requests. This increases operational costs and may lead to periods when units are unavailable for higher-priority calls. Comparable EMS providers in seven other communities report they restrict transporting patients based on patient preference.

ATCEMS may not have sufficient data to use as a basis for measuring the performance of field medics for low-priority/high-frequency incidents. This is because the Medical Director has not established a formal process to assess these incidents.

Kenneth J. Mory, City Auditor

BACKGROUND

Austin-Travis County Emergency Medical Services (ATCEMS) operated 33 full-time and 4 part-time ambulance units with budgeted positions for 448.5 uniformed and 84 non-uniformed personnel during the audit scope. In Fiscal Year (FY) 2013, ATCEMS's budget for operations totaled $39,588,904.

Between October 1, 2011 and March 31, 2013, ATCEMS reported 166,941 incidents, 192,878 responses, and 112,198 patient transports.

ATCEMS classifies field personnel as Medic I or II. Medic I personnel must be certified as Emergency Medical Technicians Basic (EMT-B) or higher. Medic II personnel must be certified as Paramedics (EMT-P). All field medics must be certified with the Texas Department of State Health Services.

The Office of the Medical Director (OMD) monitors clinical oversight. See organizational structure depicted in Appendix B.

ATCEMS uses the National Academies of Emergency Dispatch (NAEMD) Protocols to determine incident priority based on a scale of 1 to 5.

Priority 1 Incident: Incident with life threatening complaint with priority signs and symptoms

Priority 2 Incident: Incident with high potential to become life threatening with significant signs and symptoms

Priority 3 Incident: Incident with no life threatening complaints with potential for complications

Priority 4 Incident: Incident with no life threatening complaints and no significant signs, symptoms, or history

Priority 5 Incident: Incident is non-emergent

SOURCE: ATCEMS management, June 2013

OBJECTIVE, SCOPE, AND METHODOLOGY

The ATCEMS Outcomes Audit was conducted in response to a directive from the City Council Audit and Finance Committee (AFC).

Objective

The objective of this audit was to evaluate ATCEMS key patient service outcomes and benchmark against emergency medical service (EMS) in comparable communities to identify trends in recruitment practices, scheduling, patient transports, and quality assurance reviews of emergency incidents.

Scope

The audit scope included ATCEMS incidents occurring between October 1, 2011 and March 31, 2013.

Methodology

To accomplish our audit objective, the audit team:

- Interviewed key department personnel in ATCEMS's Field Operations Division, Professional Practices and Standards Division, and Administration Division as well as personnel from the OMD and inquired about fraud, waste, and abuse
- Researched industry standards, best practices, laws and regulations, clinical guidelines, and department policies and procedures related to patient outcomes
- Analyzed documentation including strategic plans and performance measures
- Reviewed and analyzed patient transport and parameters for a random sample of 60 transports from a population of approximately 109,000 transports recorded in the Computer Aided Dispatch system (CAD) during the scope period
- Administered and analyzed a survey on ATCEMS performance at six local hospitals that routinely receive patients from ATCEMS (see Appendix C)
- Administered and analyzed a survey regarding ATCEMS employee fatigue (see Appendix D)
- Conducted benchmarking interviews with seven comparable emergency medical service providers regarding their respective departments (providers were selected based on ATCEMS management input, population size served, operating authority, and yearly call volume)
- Compiled and analyzed Cardiac Arrest Registry to Enhance Survival (CARES) data submitted by Medical Directors from selected benchmarking cities (see Appendix E)
- Analyzed trends in employee recruiting, onboarding, turnover, and retirement
- Conducted onsite visits with ATCEMS staff to walkthrough processes and evaluate risks related to information technology systems including Move-Up-Module (MUM), CAD, COGNOS (Business Intelligence Software), and Telestaff
- Evaluated risks of fraud, waste, and abuse, as well as risks related to information technology relevant to the audit objective

AUDIT RESULTS

ATCEMS medics provide emergency medical services that result in positive patient care outcomes, as indicated by local hospital personnel. However, ATCEMS has not prepared a comprehensive, updated long-range plan defining specific strategies to achieve organizational objectives based on an analysis of increased demands on ATCEMS. In addition, ATCEMS medics report they have experienced increased fatigue that impacts the quality of their work. Medics also assert that schedules requiring them to work hybrid shifts lead to excessive fatigue and do not allow adequate time to rest and recuperate.

The Medical Director has not established restrictions for transporting low-priority patients considering operational effectiveness and efficiency, resulting in increased operational costs and periods when units may be unavailable to respond to higher-priority calls. Lastly, the Medical Director has not established a formal process to assess performance on the majority of ATCEMS incidents, which are low-priority yet frequent in occurrence.

Finding 1: ATCEMS medics provide quality patient care according to a survey of local medical professionals.

Doctors and staff members working in emergency rooms report that ATCEMS provides quality care to patients transported to local hospitals. A significant majority (87%) rated ATCEMS as exceptional or above average, when compared to other emergency medical service providers. These results indicate ATCEMS medics provide emergency medical services that result in positive patient care outcomes. This may be due, in part, to a workforce consisting of certified and licensed staff, each of whom has attended the ATCEMS training academy.

These results come from a survey of 136 medical professionals working at six Austin area hospitals[1]. Those hospitals received 85% of ATCEMS transports during the period covered by this audit. The majority of the respondents were registered nurses, clinical assistants, emergency room technicians, or emergency room physicians. Respondents had approximately seven years of experience on average. Results of the survey are included in Appendix C.

[1] Hospitals include Brackenridge, Dell Children's, Seton Central, St. David's Central, St. David's North, and St. David's South.

EXHIBIT 1
Emergency Room Staff Perception of ATCEMS

Survey Questions	Strongly Agree or Exceptional	Agree or Above Average	Neutral or Same	Disagree or Below Average	Strongly Disagree or Significantly Below Average	Don't Know
ATCEMS provided quality care prior to Emergency Room (ER) arrival	37%	49%	12%	0%	0%	1%
ATCEMS compared to other EMS providers	37%	50%	2%	2%	1%	8%
ATCEMS care for low-priority and high-priority patients	35%	44%	18%	3%	1%	N/A
ATCEMS and ER staff communicate well (patient condition/feedback)	28%	52%	8%	6%	3%	3%

SOURCE: OCA analysis of hospital survey responses, June 2013

Finding 2: Although ATCEMS established a strategic plan for the organization, it has not prepared comprehensive long-range implementation strategies to achieve and sustain its objectives.

In January 2012, ATCEMS published a strategic plan for the organization. The strategic plan lays out the mission, vision, and goals for ATCEMS, and addresses core competencies. According to ATCEMS management, this was the first strategic plan in the organization's history. In addition, management developed a deployment plan in March 2012 that includes extensive data on Austin's growth and aging population. However, neither plan includes implementation strategies describing how the organization plans to meet and sustain the increased demands.

For example, the deployment plan does not include specific strategies for acquiring and implementing resources, such as new stations, ambulances, and staff, to address the increasing demands. In addition, ATCEMS has not developed metrics to measure their success at implementing the strategic plan. Existing performance measures focus on response time for high-priority/ low-frequency incidents that represent a small portion of ATCEMS operations.

In March 2013, ATCEMS management began preparing action plans defining strategies for meeting increasing demands for emergency medical services. These plans relate to a patient callback program, safety performance management, an occupational health and risk management nurse, and hospital access to electronic patient care records. Management states that they are working on developing action plans for other operations, and they have mapped key business processes in an effort to create a fully developed strategic plan. Management also asserted that they are obtaining training to increase competencies for developing long-term business strategies.

ATCEMS employees report that from their point of view the organization does not appear to have sufficient resources to keep up with increasing demands. Furthermore, the employees state that they are unaware of management's plans to address the increasing demands. Without such strategies, ATCEMS may not use City resources effectively and efficiently while working to meet increased demands.

The Committee of Sponsoring Organizations (COSO) is recognized in the United States for establishing best practices for addressing risk in organizations. According to COSO, executive management must establish specific, measurable, and relevant strategies to assure the organization achieves its goals and objectives. Moreover, management must communicate these strategies to all key stakeholders.

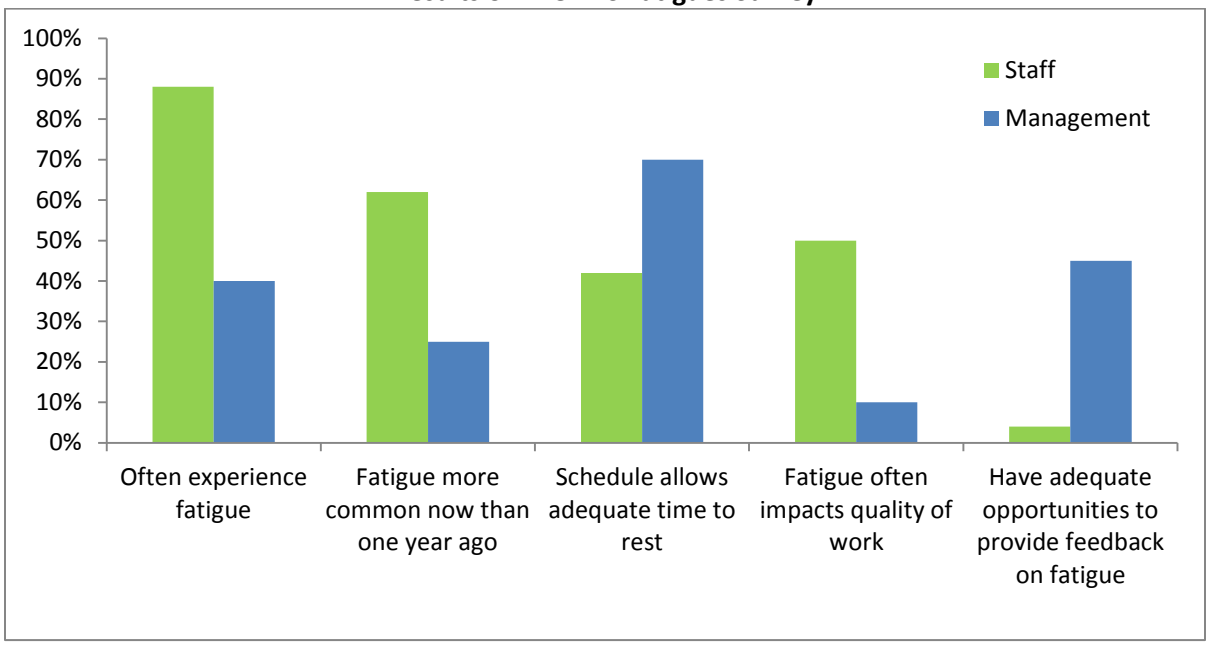
Finding 3: ATCEMS medics report they have experienced increased fatigue that impacts the quality of their work.

ATCEMS Field Operations and Communications Division staff members report that they experience fatigue, it is getting worse, and it may impact the quality of their work. This contrasts with management from those divisions who report that fatigue is infrequent and decreasing. These statements were made in response to a survey of Field Operations and Communications Division staff and management conducted by the Office of the City Auditor in June 2013, the results of which are shown in Exhibit 2. Management responses relate to management's perceptions of their own fatigue, not that of management's perceptions of their staff's fatigue. In addition, summarized results of this survey are included in Appendix D.

In recent years, ATCEMS management established a scheduling committee and a workforce committee which allowed ATCEMS employees to provide input on their schedules. These committees have been refining ATCEMS shift schedules since 2006 and ATCEMS management asserts that employees stated a preference for hybrid work schedules (work shifts consisting of varying work hours per day). Despite this, medics surveyed assert that hybrid shift schedules lead to excessive fatigue and do not allow adequate time to rest and recuperate. In the January 2013 shift bid, ATCEMS offered ten different shift options, six of which are hybrid schedules. Schedules established in January 2013 assigned 187 of the 239 (78%) medics to a hybrid shift.

Excessive fatigue may impair workforce performance, result in slower response times, and affect the quality of patient care. Furthermore, medics report they experience the following as effects of their fatigue: feeling drowsy while driving, decreased focus, sleep deprivation, burnout, anger, frustration, and decreased desire to attend work.

EXHIBIT 2
Results of ATCEMS Fatigues Survey



NOTE: Management responses relate to management's perceptions of their own fatigue.
SOURCE: OCA analysis of fatigue survey responses, June 2013

ATCEMS responses to the fatigue survey are consistent with findings from studies on overtime and work shifts. For instance, the Centers for Disease Control and Prevention analyzed several studies and found a pattern of deteriorating performance and injuries while working long hours. These patterns were particularly prevalent with very long shifts or with 12-hour shifts combined with more than 40 hours of work in a week. When 12-hour shifts are combined with other work related demands, research shows a pattern of more adverse findings, including reported increases in health complaints and deteriorated and less timely performance.[2]

The US Department of Labor Occupational Safety & Health Administration has reported that extended or unusual work shifts may be more stressful physically, mentally, and emotionally. Non-traditional shifts and extended work hours may lead to increased fatigue, stress, and lack of concentration. These effects lead to an increased risk of operator error, injuries, or accidents.

Comparable EMS providers in other communities generally have shorter workweeks than ATCEMS. Five of the seven[3] comparable providers operate on a 40 or 42-hour workweek. The two other providers (both with integrated fire and EMS operations) operate on a 45-hour and a 56-hour workweek. ATCEMS requires medics to work 48 hours per week plus overtime and on-call hours. In addition, all seven comparable providers have shift options that keep all medics on a consistent

[2] Caruso, Claire, Hitchcock, Edward, Dick, Robert, Russo, John, and Schmit, Jennifer. "Overtime and Extended Work Shifts: Recent Findings on Illnesses, Injuries, and Health Behaviors." *U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institute for Occupational Safety and Health.*

[3] Auditors defined the following EMS providers as comparable to ATCEMS: (1) Boston, MA, (2) Denver, CO, (3) Mecklenburg County, NC, (4) San Antonio, TX, (5) San Diego, CA, (6) Seattle, WA, and (7) Wake County, NC. Providers were selected based on: ATCEMS management input, population size served, EMS design model, operating authority, and yearly call volume.

schedule with fixed hours worked and fixed work shift times, unlike ATCEMS. We did not identify any law requiring employers to limit the total hours worked by medics.

Finding 4: The Medical Director has not established restrictions for low-priority transports that consider patient condition, operational effectiveness, and efficiency.

The Medical Director has not defined limits on transporting low-priority patients to the hospital of their choice. Limitations could include restrictions on how far ATCEMS may transport patients in relation to where the emergency occurred, or restrictions on patient choice during peak hours of operations. As a result, ATCEMS generally transports low-priority patients to their preferred facility, even when other clinically acceptable facilities are closer. Therefore, ambulance units can travel to outlying facilities at peak times when there are fewer ambulances available. In addition, ATCEMS does not have defined time goals for completing transports.

An analysis of 59 ATCEMS transports[4] revealed the following:

- Fifty-three (90%) of the transports took patients to facilities based on their preference for a specific hospital. Six transports (10%) were to facilities for clinical reasons.
- Twenty-eight of these 53 transports (53%) were to facilities further than the closest hospital. ATCEMS medics classified all of those as low-priority.
- Of those 28 transports, 10 (36%) went to a facility that was further away than other qualified facilities in the same hospital network. For example, a patient was taken at their request to a Seton facility that was further away than another Seton facility.
- For those 10 instances, ATCEMS transported patients further than 4 closer facilities on average. In one instance, ATCEMS transported the patient to a hospital 20 miles further away than 12 clinically acceptable hospitals that were closer to the emergency.

See Exhibit 3 below depicting the location of incidents in relation to the destination hospital where ATCEMS transported patients, along with the closer clinically acceptable facilities.

Comparable EMS providers in seven other communities report those organizations have restrictions for transporting patients based on patient preference (i.e. evaluation of system status, geographic boundaries, or a combination of the two). One of the providers reportedly only transports patients to the closest facility, unless a related, prior emergency necessitates a deviance from this policy.

Transports to distant facilities occur because the current policy established by the Medical Director allows medics to transport patients to facilities further than those closest to the location where emergencies occur based on patient requests, which increases operational costs and may lead to periods when units are unavailable to respond to higher-priority calls. Clinical Guidelines state that any approved transport facility can receive low-priority patients, but lack instructions specifying that medics should utilize the closest facility. The ATCEMS Operations Manual states that transports should be to the closest appropriate hospital unless the patient expresses a hospital choice. The Medical Director places no further limitations on transports based on patient preference for routine daily operations. However, the Medical Director states that he has required ATCEMS to take patients to the closest facility, regardless of patient preference, in extreme situations, such as during snowstorm or wildfires events.

[4] Auditors initially pulled a sample of 60 but only tested 59 as one instance was an interfacility transfer that did not consist of transporting a patient from the scene of an emergency.

EXHIBIT 3

Map of Incident Transport that Bypassed 12 Clinically Acceptable Hospitals

SOURCE: OCA Analysis of Transport Data, August 2013

Finding 5: The majority of ATCEMS incidents, which are low-priority yet frequent in occurrence, are not reviewed and evaluated to assess the quality of care provided.

ATCEMS has not defined standardized guidelines for the formal review of low-priority/high-frequency incidents, including when they should be reviewed and how the quality of patient care provided should be assessed. As a result, there is no assurance that ATCEMS handles these incidents in a consistent manner; nor is there data available to assist in measuring performance of field medics responding low-priority/high-frequency incidents.

Unlike ATCEMS, comparable EMS providers have formal processes for reviewing low-priority/high-frequency incidents on a periodic basis. Of seven comparable EMS providers:

- three reported they evaluate low-priority/high-frequency incidents daily,
- one reported it evaluates the incidents weekly, and
- three reported they evaluate the incidents on a monthly basis.

Management asserts that ATCEMS staff resources are consumed with reviewing critical high-priority/low-frequency incidents (such as cardiac arrest emergencies). Low-priority/high-frequency incidents, which make up the majority of ATCEMS incidents, may be reviewed in the course of another review, or in response to a reported complaint when conducting clinical event reviews. Review of low-priority incidents during the clinical event reviews is reliant upon someone (i.e. a hospital professional or a patient) making a complaint to ATCEMS as opposed to ATCEMS proactively performing a review of such an incident.

RECOMMENDATIONS

The recommendations listed below are a result of our audit effort and subject to the limitation of our scope of work. We believe that these recommendations provide reasonable approaches to help resolve the issues identified. We also believe that operational management is in a unique position to best understand their operations and may be able to identify more efficient and effective approaches and we encourage them to do so when providing their response to our recommendations. As such, we strongly recommend the following:

1. The ATCEMS Director should develop, document, and communicate a sustainable long-term action plan that addresses increases in service demands and ensures the organization achieves its strategic goals and objectives. In addition, the ATCEMS Director should review and revise the plan annually to assure it recognizes changing demands and aligns with the City's Imagine Austin plan.

MANAGEMENT RESPONSE: **Concur.** Refer to **Appendix A** for management response and action plan.

2. The ATCEMS Director should establish a group with representatives, including the Office of the Medical Director, human resources, the ATCEMS employee association liaisons, and other key stakeholders to develop a plan to address employee fatigue. This plan should evaluate the hybrid shift option and the total work hours per week, with regard to safety and effectiveness.

MANAGEMENT RESPONSE: **Concur.** Refer to **Appendix A** for management response and action plan.

3. The Medical Director should work with stakeholders, including ATCEMS management, to review and revise policies laid out in the current clinical guidelines and Operations Manual for transporting low-priority patients to the facility of their choice. The Medical Director should ensure the policy considers the efficient and effective use of its resources, while continuing to meet desired patient outcomes.

MANAGEMENT RESPONSE: **Concur.** Refer to **Appendix A** for management response and action plan.

4. The Medical Director should develop, implement, and monitor guidelines governing the formal review of low-priority/high-frequency incidents, including how to assess the quality of patient care provided in these instances.

MANAGEMENT RESPONSE: **Concur.** Refer to **Appendix A** for management response and action plan.

APPENDIX A

ATCEMS MANAGEMENT RESPONSE

MEMORANDUM

TO: **Ken Mory, City Auditor**

FROM: **Ernesto Rodriguez, Chief**
Austin – Travis County Emergency Medical Services

DATE: **September 17, 2013**

SUBJECT: **ATCEMS Outcomes Audit**

Finding 1. Management concurs. The City of Austin EMS personnel are among the finest in the country.

Finding 2. Management Concurs. The auditor was provided copies of our current strategic plan and performance objectives. The EMS department developed its first strategic plan in 2012. It was the first strategic plan that the organization had since its inception. The department is in its first cycle of learning with the current strategic plan. The strategic planning process, its products, and the results gained from it will improve with each cycle of learning. In order to move forward towards achieving results, the department decided to become accredited by the only industry accrediting body in the nation for ground ambulance providers. The rationale for that decision was because all of the components of an EMS system and of our strategic plan would be reviewed and evaluated through the internal self-assessment, an external evaluation, and an external site-visit. The department was required to conduct extensive action planning to meet all the accreditation requirements prior to submitting its application. The department became accredited in July 2013 after completion of external assessments by the accrediting organization. The strategic planning process and our first cycle of learning indicated that the department needed new capabilities to implement the improvements called for by the plan and the following knowledge, skills, and capabilities were added:

- Adopted the Institute of Healthcare Improvement (IHI) Model for Improvement;
- Trained 80 managers, supervisors, and representatives of the Employee Association in patient safety and quality improvement through IHI's Open School;
- Trained six personnel as Six Sigma Green Belts;
- Implemented the IHI PDSA cycles of rapid, incremental improvement;

- Trained 18 managers and supervisors as TapRooT© - Root Cause Advisors;
- Added tools and skills in Performance Measurement including:
  - Creation of a business and research team;
  - Installation and development of a Business Intelligence system;
  - Development of Data and Report Definitions;
  - Completion of Statistics 101 For Executives course by leadership team;
- Developed an outward facing Performance Dashboard that is in final draft stages;
- Developed training in developing SMART goals and added a "long-reach" component to goal setting;
- Implemented the use of A3 Improvement Project Reporting that consolidates all of the tools just mentioned into learning storyboards.

The department has developed a deployment plan that focuses on the next 6 years to better utilize system resources and plan for future needs. That plan is the basis for the programing that drives the computer aided dispatch system and its move-up module. The assessment of need for future resources is also contained in the deployment plan. The method of acquisition and addition of resources is managed within the city's budgeting and business planning process.

Management agrees that an extensive assessment of system resource distribution that better achieves the regionalization goal set forth by the Imagine Austin plan is necessary. The department will propose a plan for this assessment.

Management agrees that better communication about the plan is necessary. The department is continuing to improve its employee oriented website and will soon be offering access to the strategic plan, A3 storyboards, the performance dashboard, leadership blogs with feedback capabilities, podcasts, whiteboard videos, and other resources. The department has already produced a whiteboard video to introduce our Strategy Map.

The EMS Department has incorporated the Baldrige Criteria for Performance Excellence and is in the process of training its executive team in the Baldrige-based best practice strategies. Category 2 of the Baldrige Criteria addresses Strategic Planning. The EMS department is already using this framework to mature its strategic plan. The attached diagram entitled," ATCEMS Strategic Planning Process" shows how the strategic plan is reviewed, modified, and implemented.

Finding 3. Management concurs. The EMS Chief led a session at a national conference with more than 40 industry leaders to discuss fatigue issues and the consensus of this group is that fatigue is not just a bi-product of employee schedules. This issue is much more complicated and must be addressed holistically including such areas as off duty work, resource allocation, unit deployment strategies, sleep hygiene, physical fitness, mental wellness, intentional rest, and healthy eating.

The EMS Department has asked for additional resources over the past several years through the budget process to address the increased workload for our employees. Travis County has recently added additional units, however, demand continues to increase within the City and County and adequate available resources and resource deployment will continue to be a challenge.

The department has worked on assessment and adaptations to shift design and work week length for several years. In 2006, the department reduced the workweek from 56 hours to 48 hours per week. The department also reduced shift lengths from 24 hours to 12 hours for many shifts and will continue to assess the need to make further changes. The department will be assessing the options that are available and evaluating the impact from both a financial and operational perspective.

The department is currently chartering a fatigue workgroup to address all of the drivers to this complex issue. The workgroup will be chartered with specific tasks and make recommendations to the Chief for consideration and implementation.

APPENDIX A

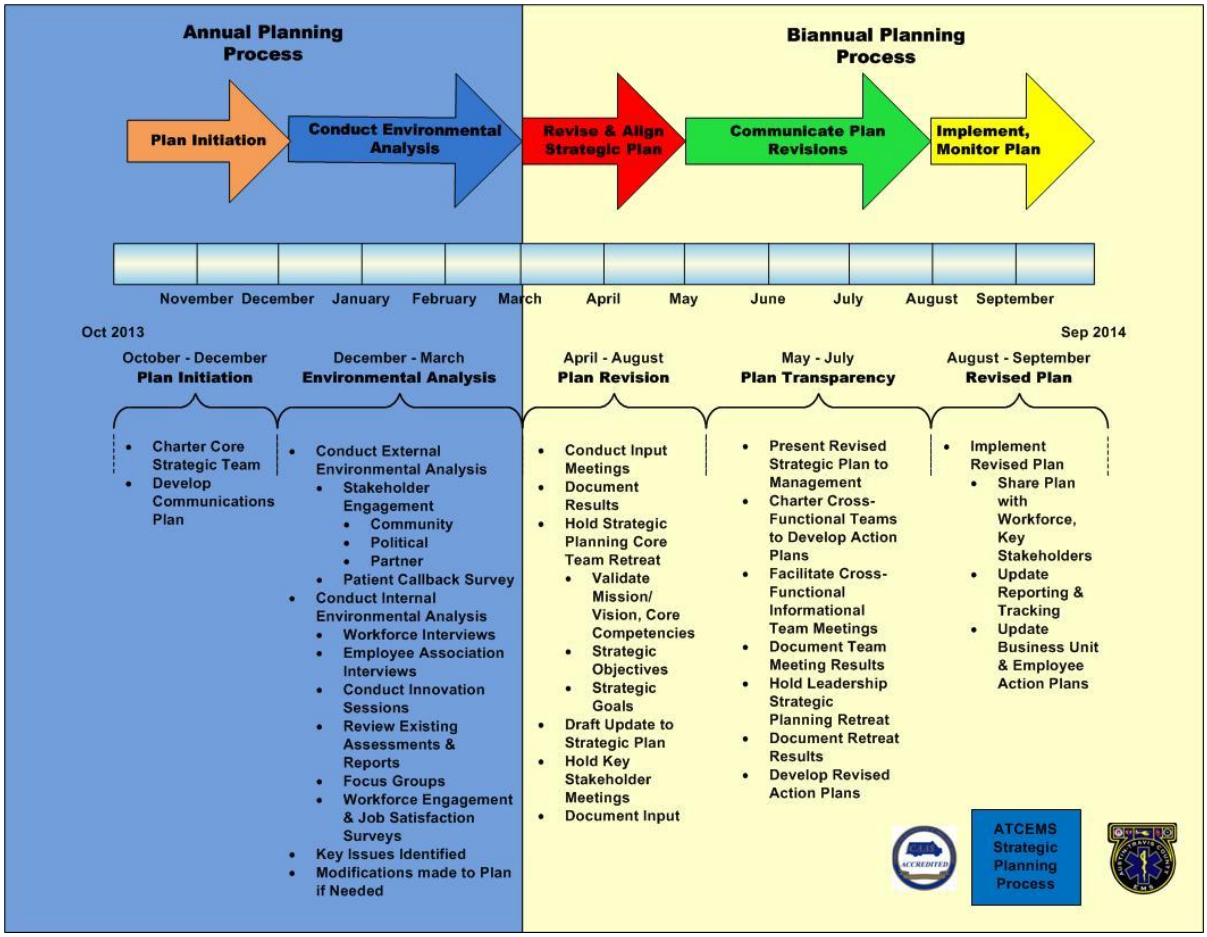
ACTION PLAN

ATCEMS Outcomes Audit

Recommendation	Concurrence and Proposed Strategies for Implementation	Status of Strategies	Proposed Implementation Date
1. The ATCEMS Director should develop, document, and communicate a sustainable long-term action plan that addresses increases in service demands and ensures the organization achieves its strategic goals and objectives. In addition, the ATCEMS Director should review and revise the plan annually to assure it recognizes changing demands and aligns with the City's Imagine Austin plan.	**Concur**	Cycles of Learning In Progress	See attached Strategic Planning Process diagram
2. The ATCEMS Director should establish a group with representatives, including the Office of the Medical Director, human resources, the ATCEMS employee association liaisons, and other key stakeholders to develop a plan to address employee fatigue. This plan should evaluate the hybrid shift option and the total work hours per week, with regard to safety and effectiveness.	**Concur** **1. Charter Fatigue Workgroup** **2. Evaluate causes of fatigue within the ATCEMS system. Report findings and make recommendations to the Chief to consider immediate countermeasures if necessary.** **3. Create Plan to address the root causes of fatigue that include potential modifications to policies, procedures and include action plans (A3) for any proposed improvements.**	1. Underway 2. Planned 3. Planned	1. 9/23/13 2. 3/31/14 3. 4/30/14

APPENDIX A

ATTACHMENT TO ATCEMS MANAGEMENT ACTION PLAN



APPENDIX A

OMD MANAGEMENT RESPONSE

OFFICE OF THE MEDICAL DIRECTOR
CITY OF AUSTIN/TRAVIS COUNTY EMS SYSTEM

TO: Audit and Finance Committee

FROM: Paul Hinchey, MD, MBA, FACEP
Medical Director

DATE: September 3, 2013

RE: ATCEMS Outcomes Audit

The Office of the Medical Director (OMD) appreciates the work of the City Auditors Office in the difficult task of benchmarking these clinical components of EMS performance. The OMD concurs with the recommendations to the extent able given the information presented in the report. We welcome comparison with other respected EMS systems but additional review is needed to evaluate their practices for suitability in our healthcare community and impact on patient care. The OMD will continue to work with EMS system providers and our healthcare delivery partners to identify more cost effective means of delivering service while improving the quality of patient care.

Recommendation 3 warrants additional comment given the Medical Director's ethical duty to function as a patient advocate and to create patient centric policies and protocols. The reasons behind patient choices in healthcare are complex and are still being studied. Established provider relationships, perceived benefit, recent admission, prior experiences, availability of specialty care, or financial considerations unknown to EMS caregivers, are only a few examples of factors affecting patient choices. Given that EMS serves as a means of access to healthcare across a highly diverse socio-economic population any restriction of patient autonomy must be evaluated as a potential barrier to access.

Any barrier to access based on perceived acuity is not without risk. EMS caregivers have limited diagnostic tools at their disposal making determination of the true acuity difficult. Limiting access when acuity is unclear may interfere with continuity of established care relationships which can result in delayed diagnosis, increased testing, unwarranted admission, the need for transfer to another facility and difficulty obtaining follow-up care. All contribute to increased personal and financial cost to both the patient and the healthcare system.

The importance of continuity of care and changes in the national healthcare system are making EMS agencies and healthcare systems re-examine how care is delivered. This redesign of care delivery in our community is in its earliest stages. ATCEMS, the OMD, community healthcare providers and hospitals are working together to identify better, more cost effective ways to provide patient centered care. The EMS system's role will likely change to place increased emphasis on facilitating access at appropriate points of care. Federal reimbursement for services is expected to change to incentivize these models with payment tied to use of alternative lower cost healthcare destinations and an increased emphasis on patient satisfaction. Any changes to the destination policy must take into account the impact on current initiatives and future innovation.

APPENDIX A

ATCEMS Outcomes Audit

Recommendation	Concurrence and Proposed Strategies for Implementation	Status of Strategies	Proposed Implementation Date
3. The Medical Director should work with stakeholders, including ATCEMS management, to review and revise policies laid out in the current clinical guidelines and Operations Manual for transporting low-priority patients to the facility of their choice. The Medical Director should ensure the policy considers the efficient and effective use of its resources, while continuing to meet desired patient outcomes.	**Concur** 1. **Contact cities to determine their transport destination policies.** 2. **Create policy/procedure that formalizes existing practice regarding reduction of service in cases of weather or catastrophic event.** 3. **Discuss transport policy options and impact on patient care with Travis County Medical Society's ED/EMS Committee and other community stakeholders as needed.**	1. Underway 2. Planned 3. Planned	1. 8/21/13 2. 2/14 (annual protocol revision) 3. 10/2/13
4. The Medical Director should develop, implement, and monitor guidelines governing the formal review of low-priority/high-frequency incidents, including how to assess the quality of patient care provided in these instances.	**Concur** 1. **Contact comparison cities to determine what they evaluate and why (see attachment 1).** 2. **Prioritize clinical significance of call types not being reviewed.** 3. **Implement prioritized call type review as appropriate and staffing resources and/or technology allow.**	1. Underway 2. Planned 3. Planned	1. 8/21/13 2. 11/6/13 3. To be determined

APPENDIX A

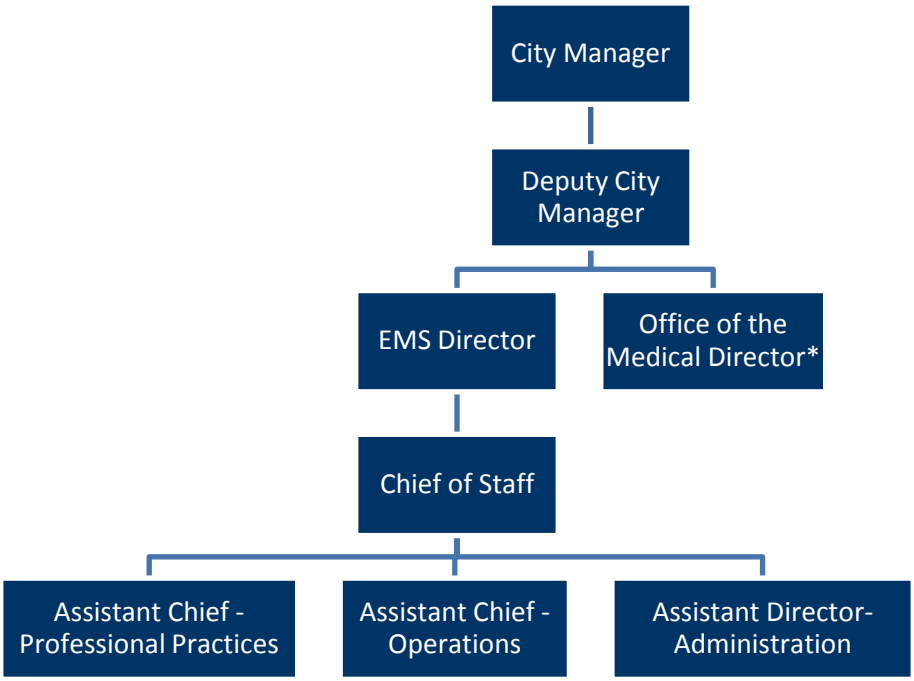
ATTACHMENT TO OMD MANAGEMENT ACTION PLAN

Attachment 1. Clinical Audits Conducted by ATC OMD vs Comparable Cities (DRAFT v9.3.13)

	Austin	Denver	Boston	Wake Cnty	Mecklenburg	San Antonio	San Diego	Seattle
Call Types Reviewed						Pending	Pending	Pending
Cardiac Arrest	x	x	x	x	x			
Stroke	x		x	x	x			
STEMI	x	x	x	x	x			
Trauma	x	x	x	x	x			
Refusal/Non-transport	targeted	x	x	x	x			
DOS			x					
Non-specific low risk 1				x	x			
Assist	targeted			x				
Pulmonary Edema				x				
Other respiratory				x				
Falls				x				
Interventions								
Airway								
Intubation	x		x	x				
CPAP	x			x				
Surg airway	x	x		x				
Electrical Therapy								
Cardioversion	x	x		x				
Trauma								
Tourniquet	x		x		x			
Pelvic Binder	x							
Needle Decompression	x	x		x				
Medication								
Fentanyl (narcotic)	x	x	x	x	x			
Versed (sedative)	x			x				
Enalapril	x	N/A	N/A	x				
Cardizem	X							
Ketamine	NA	x						
Med Assisted Intubation	NA			N/A				
Epinephrine Auto injector	x		x					
Narcan			x					
Albuterol		x	x	x				
ASA	x		x					
Items Reviewed	17	10	13	19	8			
% Total Volume Reviewed(n)	10-15%(10-15k)	5%(4,800)	10-18%		7-8.5%			

1. Wake and Mecklenburg County indicate these are new programs (<1yr) and in trial

ATCEMS AND OMD ORGANIZATIONAL STRUCTURE

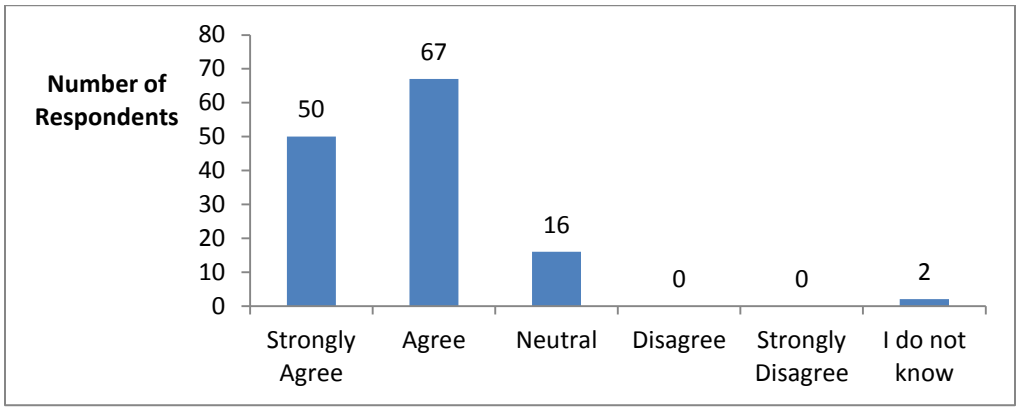


* The Office of the Medical Director for the City of Austin/Travis County EMS System (ATCOMD) is responsible for comprehensive medical oversight of all clinical care provided in the ATCEMS System. The Office was developed as a collaborative effort between the Austin/Travis County EMS Department, the Austin Fire Department, and Travis County Emergency Services. Collectively, those groups are currently comprised of 33 organizations with over 2000 individual providers. The System also interfaces with 16 Texas Department of State Health Services licensed hospitals within the ATCEMS service area.

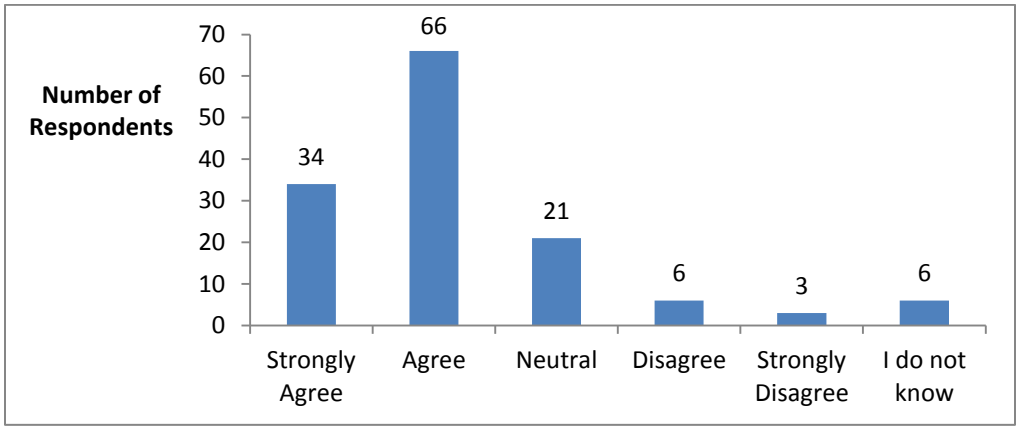
SOURCE: Office of the Medical Director; City of Austin, July 2013 Year

SUMMARY OF FEEDBACK FROM LOCAL HOSPITAL STAFF[5]

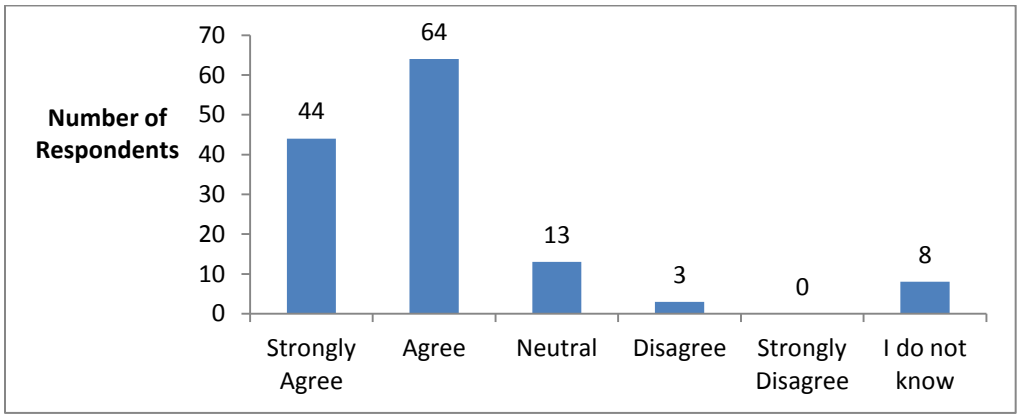
Question 1: Patients receive quality care from Austin-Travis County Emergency Medical Service (ATCEMS) prior to their arrival at the Emergency Room (ER)/hospital.



Question 2: ATCEMS effectively administers medications to patients.

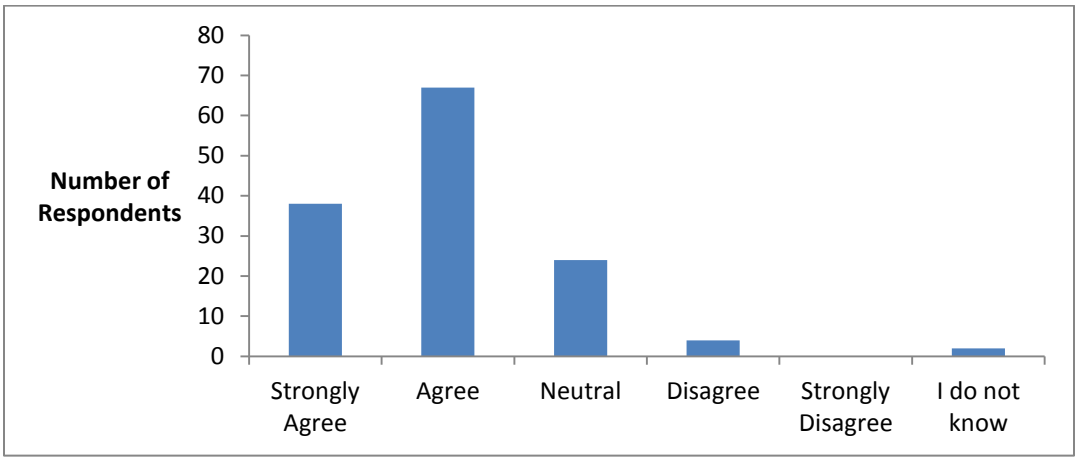


Question 3: ATCEMS effectively monitors patients after administering medications.

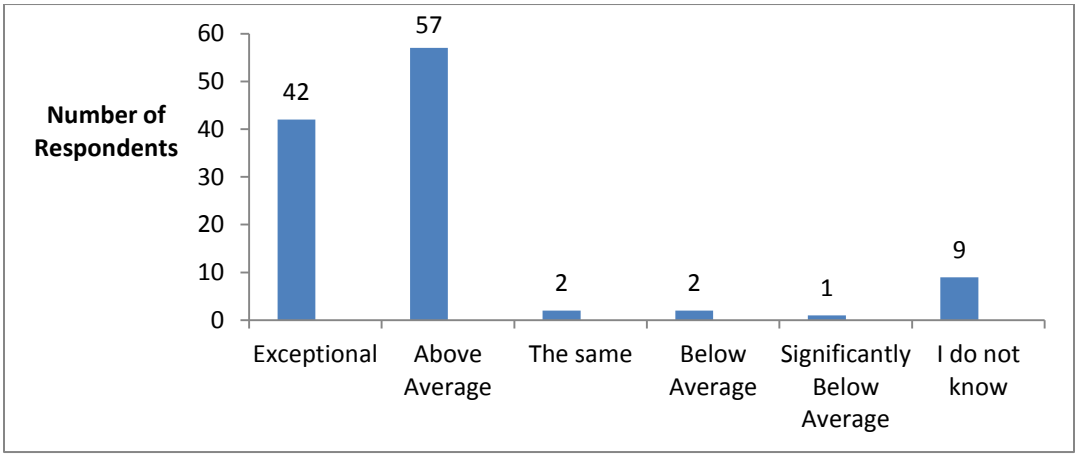


[5] Surveys were completed by 136 respondents, the majority of whom were registered nurses, clinical assistants, emergency room technicians, and emergency room physicians. Respondents had approximately seven years of experience on average.

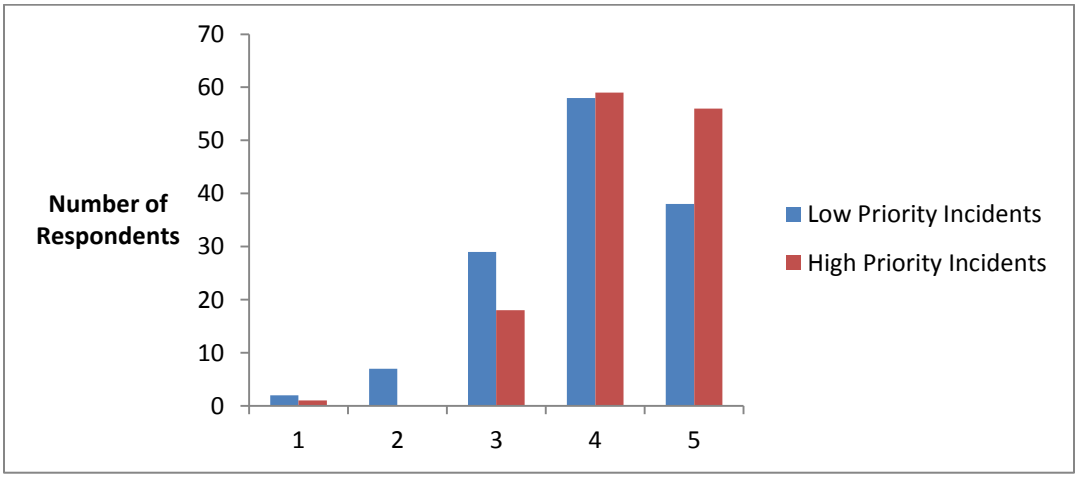
Question 4: ATCEMS takes the most appropriate measures to effectively care for the patient's ailment.



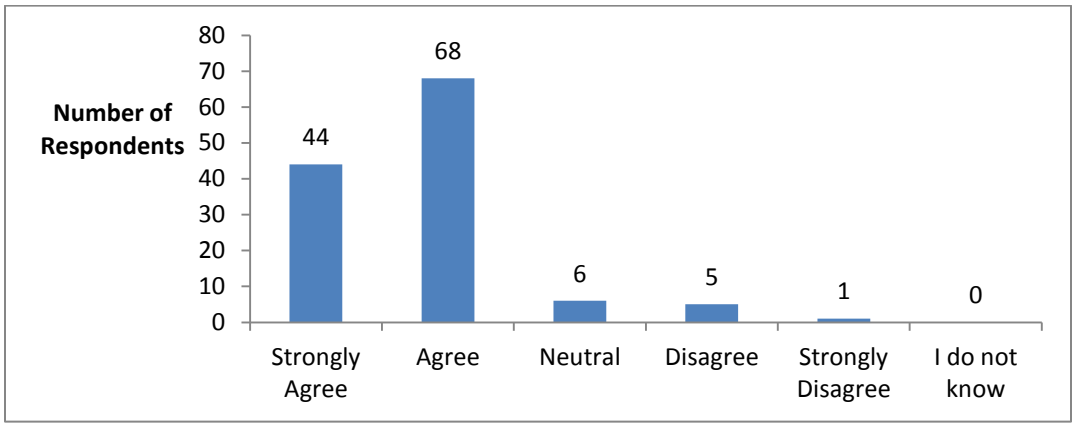
Question 5: In relation to quality of patient care, compared to other local community and private EMS providers, ATCEMS care is:



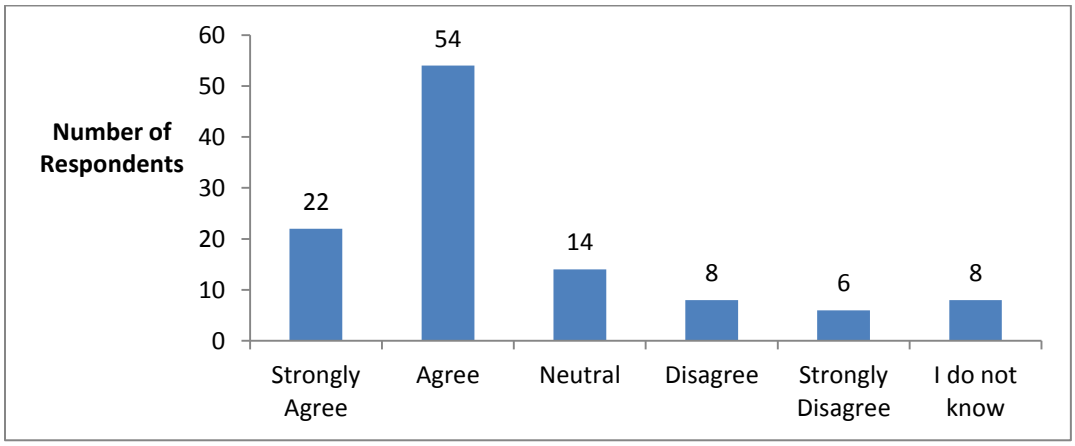
Question 6 & 7: Using a scale of 1-5 (**with 1 as the lowest score and 5 as the highest**), how would you rate ATCEMS care of ***low-priority*** and ***high priority*** patients?



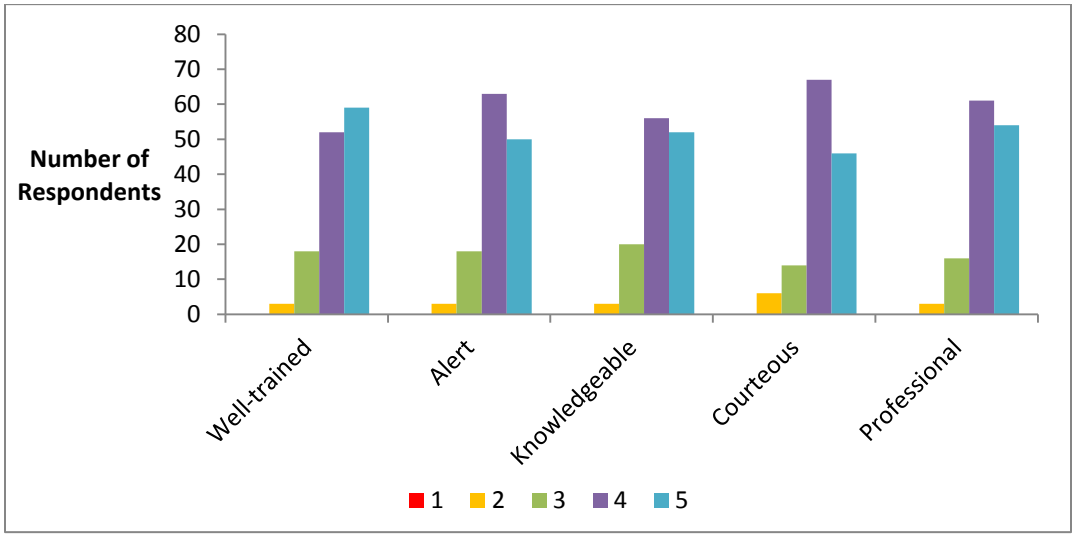
Question 8: ATCEMS personnel effectively communicate patient injuries/illness and condition to ER/hospital staff.



Question 9: ATCEMS provides opportunities for me to provide feedback on their service.



Question 10: Using a scale of 1-5 (with 1 as the lowest score and 5 as the highest), please rate ATCEMS personnel on the following characteristics:



SUMMARY OF FATIGUE SURVEY RESPONSES

Questions 1 and 2: What is your job title and division you work in? How many years have you been working for EMS?

Breakdown of Respondents		
	Number	**% of Total**
Management Responses	**20**	7%
Communications	3	15%
Operations	17	85%
Staff Responses	**261**	93%
Communications	9	3%
Operations	252	97%

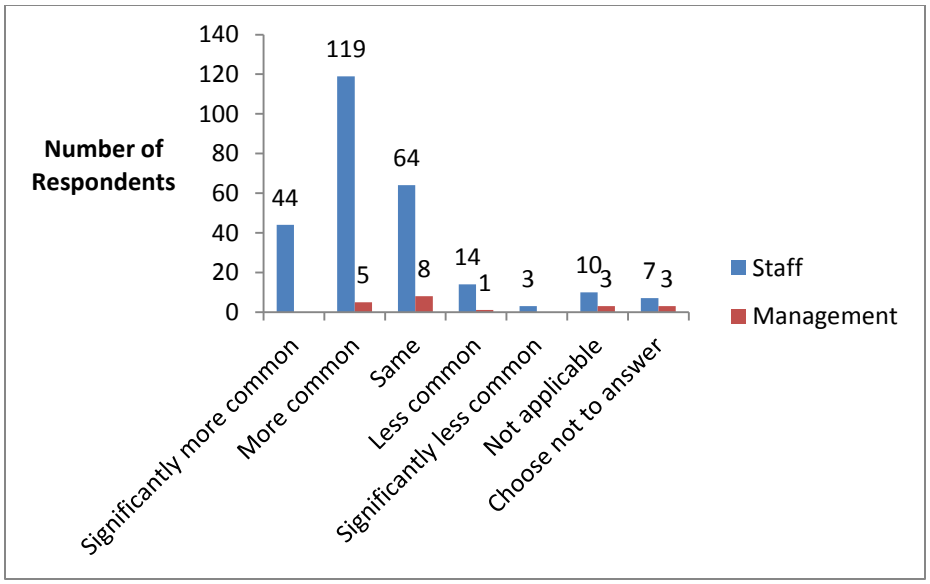
Average Years of Service	
Overall	**9.3**
Operations Management	18.4
Operations Staff	8.7
Communications Management	11.8
Communications Staff	10.5

Question 3: How frequently do you experience the effects of fatigue[6] as defined?

Management (Operations & Communications) 20 Responded		
Choose not to answer	3	15%
Not at all	1	5%
Rarely	8	40%
Often	6	30%
Very Often	2	10%
Always	0	0%

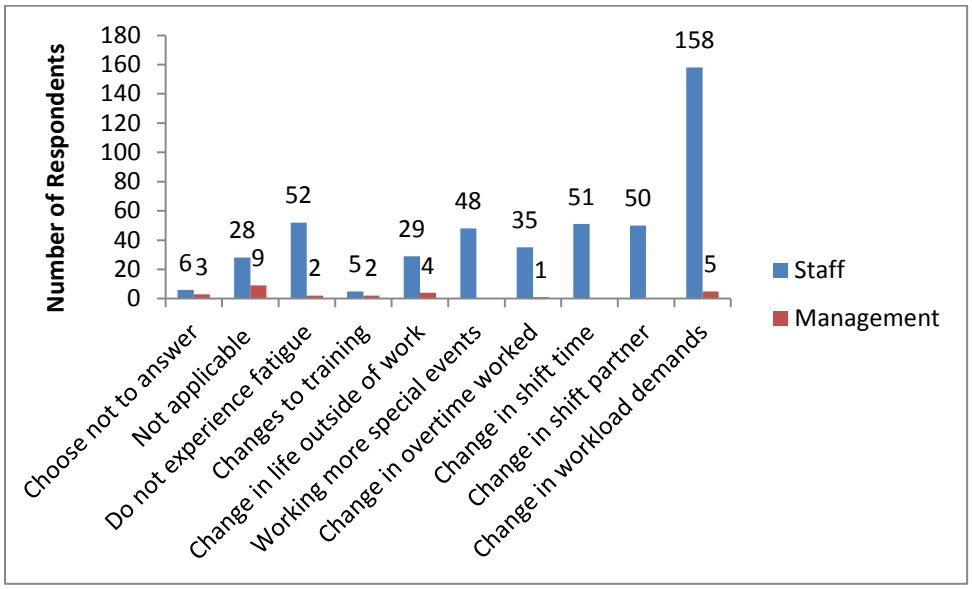
Staff (Operations & Communications) 261 Responded		
Choose not to answer	6	2%
Not at all	1	0%
Rarely	25	10%
Often	103	39%
Very Often	88	34%
Always	38	15%

Question 4: If you often experience fatigue as described, the fatigue you experience now compared to one year ago is:



[6] For purposes of this survey, "Fatigue" is defined as a state of weariness or exhaustion resulting from labor, stress, and/or physical, mental, or emotional exertion.

Question 5: If the fatigue you experience now is more common than it was one year ago, what has caused this change in your level of fatigue (check all that apply)?



Question 6: Do you feel your schedule allows adequate time to rest and recuperate?

Management (Operations & Communications)		
20 Responded		
Choose not to answer	3	15%
Yes	14	70%
No	3	15%

Staff (Communications)		
9 Responded		
Choose not to answer	0	0%
Yes	6	67%
No	3	33%

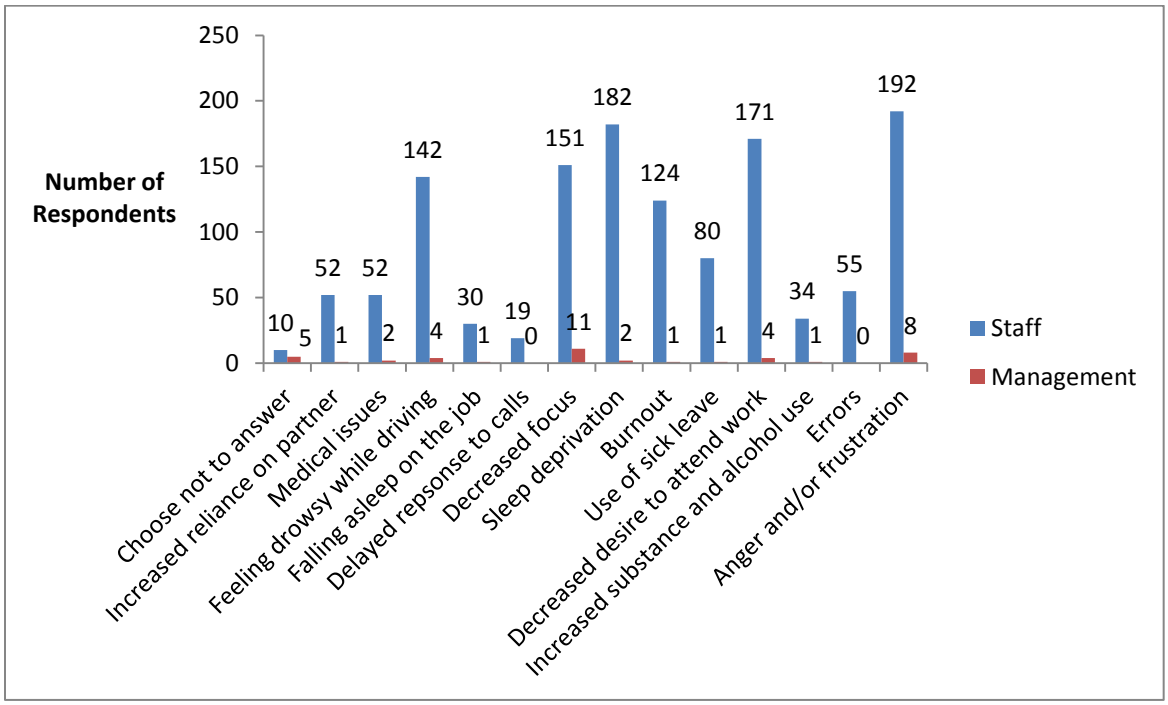
Staff (Operations)		
252 Responded		
Choose not to answer	8	3%
Yes	103	41%
No	141	56%

Question 7: How often does fatigue impact the quality of your work?

Management (Operations & Communications)		
20 Responded		
Choose not to answer	3	15%
Not at all	4	20%
Rarely	11	55%
Often	2	10%
Very Often	0	0%
Always	0	0%

Staff (Operations & Communications)		
261 Responded		
Choose not to answer	7	3%
Not at all	16	6%
Rarely	109	42%
Often	77	30%
Very Often	40	15%
Always	12	5%

Question 8: Which of the following do you usually experience as an effect of fatigue (check all that apply)?



Question 9: EMS personnel are offered adequate opportunities to provide feedback on fatigue they are experiencing and ways to address it.

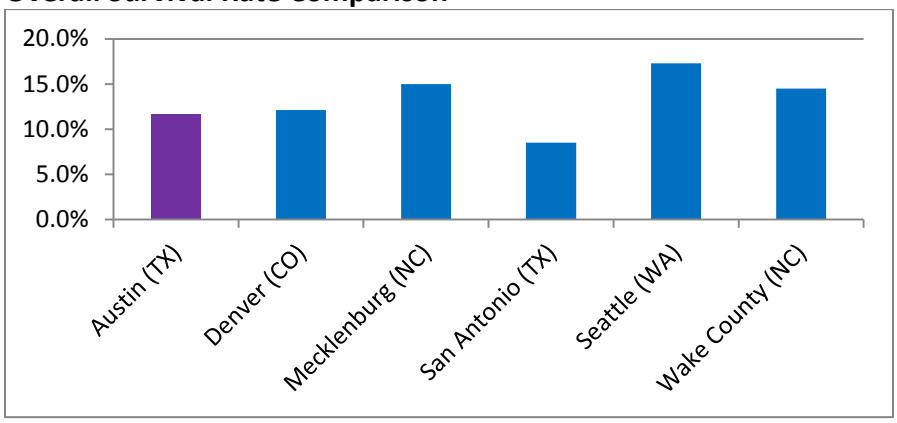
Management (Operations & Communications)		
20 Responded		
Choose not to answer	3	15%
Strongly Disagree	1	5%
Disagree	5	25%
Neutral	2	10%
Agree	6	30%
Strongly Agree	3	15%

Staff (Operations & Communications)		
261 Responded		
Choose not to answer	6	2%
Strongly Disagree	116	44%
Disagree	79	30%
Neutral	49	19%
Agree	6	2%
Strongly Agree	5	2%

CARDIAC ARREST REGISTRY TO ENHANCE SURVIVAL (CARES) DATA

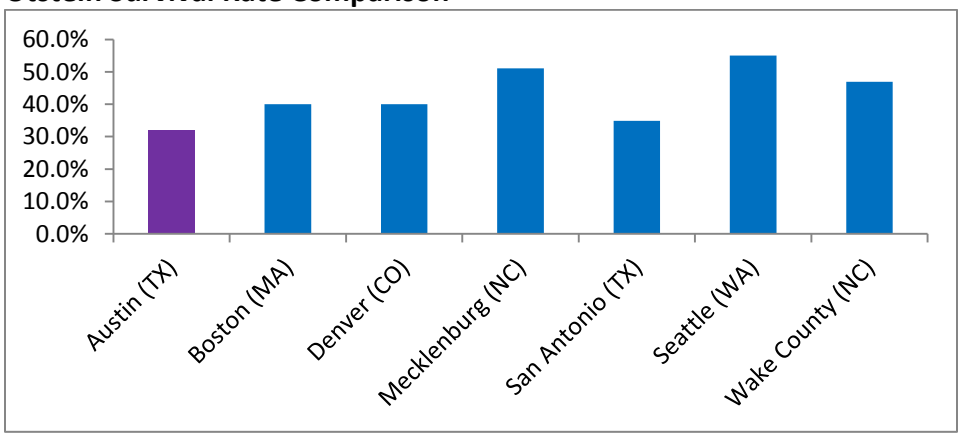
EMS communities provide data to CARES[7] using the Utstein reporting style[8]. While CARES independently validates information provided by EMS communities, reporting of cardiac arrest event information is, nonetheless, self-reported and subject to variability amongst the various providers. Auditors compiled CARES data provided by EMS providers comparable to ATCEMS[9]. ATCEMS' overall survival rate and Utstein survival rate reported to the Cardiac Arrest Registry to Enhance Survival (CARES) for 2012 were 11.7% and 32.1%, respectively. These rates, in comparison to comparable communities, are depicted in the following charts.

Overall Survival Rate Comparison



SOURCE: CARES Data obtained from Medical Directors for various EMS providers, June 2013

Utstein Survival Rate Comparison



SOURCE: CARES Data obtained from Medical Directors for various EMS providers, June 2013

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[7] CARES was established through an agreement between the Center for Disease Control and Prevention and the Department of Emergency Medicine at Emory University. CARES tracks trends in cardiovascular risk factors and diseases, and documents differences in their distribution by age, gender, race/ethnicity, socioeconomic status, and geographic location. This information is shared with public health entities to improve cardiovascular health.

[8] The Utstein Style is a set of guidelines for uniformly collecting and reporting information on cardiac arrest incidents.

[9] Auditors defined the following EMS providers as comparable to ATCEMS: (1) Boston, MA, (2) Denver, CO, (3) Mecklenburg, NC, (4) San Antonio, TX, (5) San Diego, CA, (6) Seattle, WA, and (7) Wake County, NC. Boston did not provide information on their "Overall CARES Survival Rate" and San Diego did not provide information on either CARES metric. Communities were selected based on: ATCEMS Management input, population size served, EMS design model, operating authority, and yearly call volume.