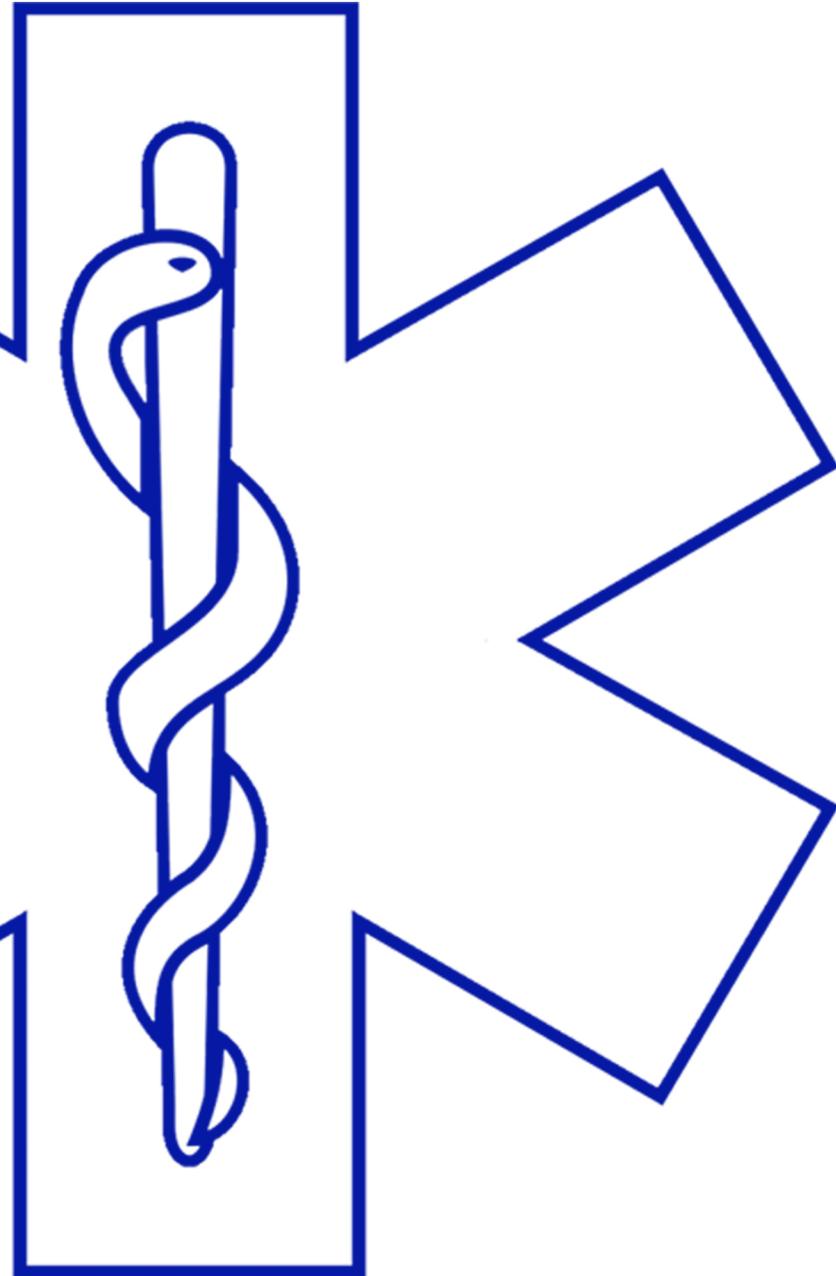


# Chaffee County Colorado



## Emergency Medical & Trauma Services System Consultation

Aug. 3-5, 2015



**COLORADO**  
Health Facilities & Emergency  
Medical Services Division  
Department of Public Health & Environment



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Sept. 21, 2015

Chaffee County  
Board of County Commissioners  
P.O. Box 699  
104 Crestone Avenue  
Salida, CO 81201

Dear Commissioners,

On behalf of the Colorado Department of Public Health and Environment (the department) and the Central Mountains Regional Emergency Medical and Trauma Advisory Council (RETAC), we are attaching the Chaffee County emergency medical and trauma services system consultative review report. Pursuant to your invitation and support of this project, a group of consultants worked under the general coordination of Chaffee County EMS, the RETAC and the department to review the current status of the EMS and trauma system in Chaffee County. The Chaffee County Board of County Commissioners and the Chaffee County emergency services community are to be commended for the dedication and foresight you demonstrated by undertaking this important activity. We hope this report will provide the basis from which the community can move forward to ensure that quality patient care and transportation continue to be provided throughout the county.

The department is pleased to have provided the funding for this project and wishes to thank the Chaffee County EMS and RETAC for their willingness to provide additional resources and support to this effort. Understanding that Colorado statute vests each county with the authority to develop, design and implement local emergency medical services systems, this consultative review is intended to provide insight and information from which the Board of County Commissioners, the healthcare community and local EMS services can make the policy decisions necessary to support the continued development of services to patients throughout your jurisdiction. The report itself has been authored by members of the contracted review team and represents their perspectives and recommendations.

As Chaffee County considers its next steps, if the Colorado Department of Public Health or Environment or the RETAC can be of further assistance, please reach out, and we will look forward to the opportunity to assist any way we can.

Respectfully,

D. Randy Kuykendall, MLS  
Director  
Health Facilities and EMS Division  
Colorado Department of Public Health and Environment



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## Executive Summary

In August 2015, the Colorado Department of Public Health and Environment, along with five EMS and trauma services experts, performed a consultative visit at the request of the Chaffee County Board of Commissioners. The purpose of the visit was to review and evaluate the components of the EMS and trauma system in order to provide recommendations for system improvement and enhancement.

The Chaffee County EMS and trauma system includes Chaffee County Emergency Medical Services, Buena Vista Volunteer Fire Department, Chaffee County Fire Protection District, Salida Fire Department, South Arkansas Fire Protection District, EagleMed, Flight For Life, Chaffee County Search and Rescue (North and South), Chaffee County Communications Center, Monarch Mountain Ski Patrol and Heart of the Rockies Regional Medical Center. American Medical Response is called to provide interfacility transport when requested by Heart of the Rockies Regional Medical Center.

Chaffee County is nestled around four mountain passes: Monarch, Cottonwood, Trout Creek and Poncha, creating an isolated rural environment that poses challenges to the EMS and trauma system. Mutual aid can be 30 to 90 minutes away depending upon weather and resource availability. The pre-visit survey showed that the stakeholders rated the overall effectiveness of the system as above average. It was evident that the community is supportive of the ambulance service and the commissioners are willing to do what it takes to sustain EMS. In addition, the dedication that the community members have to the various emergency services is to be commended and, if directed appropriately, will fuel long term growth and sustainability.

Chaffee County is a well-run EMS service with top of the line personnel and equipment. Long-term sustainability of the service is in question recently since the primary funding sources, user fees and federal PILT funds, have become less reliable. The county is being proactive in looking for more sustainable funding through a small sales tax initiative on the ballot in November 2015. Another challenge of the current model is that a full time paramedic working a regular shift rotation is also serving as EMS director. This diminishes the amount of time available to effectively run the operation. With a more stable funding source, Chaffee County EMS could implement a full time EMS director position, allowing the agency to continue its growth and enhance the services provided to the community. One link missing in the system due to funding constraints is the ability to provide prompt interfacility ground transportation out of the hospital. These services are currently being contracted through a private provider based on the Front Range, which can cause an 8 to 24 hour delay in patient transport. The county emergency services as a whole has many dedicated paid and volunteer service members, but because a multitude of emergency services agencies with disparate levels of resources are spread throughout the county, not all of them tend to work together as well as they might. By creating a cohesive working emergency services unit focused on the good of the community, Chaffee County has the ability to excel as an integrated healthcare system.

This report provides a list of suggested short-, medium- and long-term recommendations for system improvement and enhancement. These suggested recommendations are found within the various sections of the report as well as listed in the appendix at the conclusion of the analysis report. A map of the county with EMS and fire department resource locations is provided in the appendix along with the 2014 Chaffee County EMS response data.

## Introduction and Project Overview



In February 2015, the Board of County Commissioners of Chaffee County requested grant funding from the Colorado Department of Public Health and Environment (department) to provide an assessment and review of the county's emergency medical and trauma services system. The department awarded system improvement funding in July 2015 to support the consultation.

Under Colorado law, the Board of County Commissioners is the ground ambulance licensing authority as defined by C.R.S. § 25-3.5-301 and C.R.S. § 30-11-107(q). The primary EMS agency in Chaffee County is Chaffee County Emergency Medical Services. Fire services in Chaffee County are provided by Buena Vista Volunteer Fire Department, Chaffee County Fire Protection District, Salida Fire Department and South Arkansas Fire Protection District. The sole hospital in the area is the Heart of the Rockies Regional Medical Center, a Level IV trauma center. Dispatch services are provided by the Chaffee County Communication Center. Mutual aid resources come from surrounding counties when requested and American Medical Response provides interfacility transports out of the hospital when requested for serious medical and trauma patients. Air medical resources are provided by EagleMed from their base in Chaffee County with additional air resources provided by Flight For Life when needed. The county commissioners along with the EMS and trauma services stakeholders agreed to participate in this consultation process in order to develop viable, long-term solutions to ensure high-quality EMS services continue to be provided to the citizens and visitors of Chaffee County.

The Emergency Medical Trauma Services Branch of the Health Facilities and Emergency Medical Services Division, pursuant its authority to assist local jurisdictions provided in C.R.S. § 25-3.5-102 and 603 respectively, recruited an emergency medical and trauma services consultative visit team to evaluate the Chaffee County EMS and trauma system and to make recommendations for system improvement. Analysis of the current system involved a pre-visit survey, interviews with primary stakeholders and a review of available system data. The state of the current system was analyzed using elements derived from the original 14 EMS system components contained in the 1996 *EMS Agenda for the Future*, published by the National Highway Traffic Safety Administration, in addition to one Colorado-specific component. These attributes serve as the basis for a number of statewide and regional planning activities and are further referenced in 6 CCR 1015-4, Chapter Four. A list of short-, medium- and long-term recommendations with guidance for implementation is provided in this report for consideration to improve the overall Chaffee County EMS and trauma system, including the pre-hospital treatment, ground ambulance transportation, communication and documentation subsystems addressed in C.R.S. § 25-3.5-101 *et seq.*



A system improvement grant awarded by the department to Chaffee County authorized approximately \$25,000 to conduct this review. The department developed a contractual relationship with Chaffee County EMS to serve as the fiscal agent for the project. Project management assistance was provided by Chaffee County EMS along with Anne Montera, the Central Mountains Regional Emergency Medical and Trauma Advisory Council (RETAC) executive director. All the team members were selected based on their expertise in rural EMS and trauma systems and were approved jointly by Chaffee County EMS and the department.

## Chaffee County Geography and Demographics

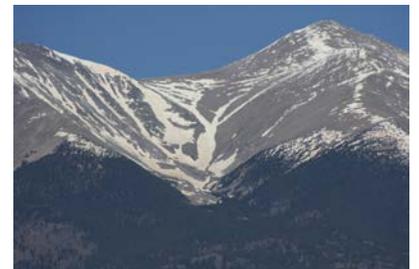


Chaffee County is located on the eastern slope of the Rocky Mountains bordered by Gunnison County on the west, Pitkin County on the northwest, Lake County to the north, Park County to the north east, Fremont County to the south east and Saguache County to the south. The county is 1,013 square miles with the elevation ranging from under 7,000 to over 14,000 feet with 10 peaks over the 14,000 foot mark- more than any other county in the state. The county has an estimated 2014 population of 18,363 persons with a population density of 17.6 persons per square mile.<sup>1</sup> The county saw a boom in population during the decades of 1960s through 1980s and since 2000 has seen

steady growth. The median household income is \$46,504 with a median housing cost of \$262,300.<sup>1</sup> The major communities within the county are the city of Salida, townships of Buena Vista and Poncha Springs with census-designated places of Garfield, Johnson Village, Maysville and Smelertown. The county is the crossroads for three U.S. Highways: 24, 50 and 285. The county is bordered on the west by the Sawatch Range, which marks the Continental Divide, and the Mosquito Range on the east. The Arkansas River flows between these two mountain ranges towards the southeast.

In 1879, the Colorado Legislature created Carbonate County by renaming Lake County but then renamed and split it into two different counties shortly thereafter. The northern portion of Carbonate County became the current Lake County and the southern part became Chaffee County. The name originates from Colorado's first Senator and local investor, Jerome B. Chaffee, and due to its location in the center of the Rocky Mountain Range has the nickname the "Heart of the Rockies." The Ute Indians were the first to inhabit the land followed by explorers, miners, railroad expansion, farmers and ranchers. The town of Buena Vista was established in 1864 to serve the mining camps in Leadville and Chalk Creek Canyon. Buena Vista, Spanish for good view, was known in its early years as a Saturday night town with many lively saloons and entertainment. Today the town is known for its fishing and rafting along the Arkansas River, Colorado's longest river. As the Arkansas River runs south through the county, Salida is also a common destination for visitors seeking many outdoor activities to include fishing, hiking, mountain biking, river rafting, hot springs, skiing, snowboarding and camping around the vast open space found throughout the county. Various four-wheel drive roads can take visitors to ghost towns and abandoned mines during spring and summer months. In the wintertime cross-country skiing and snowshoeing around the Old Monarch Pass, Cottonwood Pass Road and Tin Cup Pass Road attract visitors along with ski and snowboarders hitting the slopes and back country of the Monarch Mountain Resort.

During the winter and spring months above the Arkansas Valley on Mount Shavano rests the famous Angel of Shavano. Legend has it that centuries ago when gods and goddesses inhabited the world one goddess who angered Jupiter was turned into ice and placed on Mt. Shavano until a time of great tragedy hit the land to bring her to tears. When that time came, she melted and filled the dry creeks providing much needed irrigation to the land below. Jupiter released the spell, however, the goddess requested to stay to become an angel of snow and ice to help the people of the Upper Arkansas Valley. To this day her wings can be seen during winter and spring months giving her the name The Snow Angel of Mt. Shavano.<sup>3</sup>



## Emergency Medical and Trauma Service Providers

### Chaffee County Emergency Medical Services



Chaffee County EMS is considered a third service county government ambulance that covers the entire county boundaries of 1,013 square miles. The ambulance service responds to approximately 2,000 requests for service each year out of two stations: Salida and Buena Vista. The funding for the service comes from user fees and federal Payments in Lieu of Taxes (PILT) funds. The service uses both full-time and part-time employees to staff two advanced life support (ALS) ambulances 24 hours seven days a week. In total there are 12

full-time staff plus one administrative person and 14 part-time staff that include 13 paramedics, two EMT-Intermediates and 11 EMTs. The vehicle fleet consists of five Type I ambulances, one of which is designated for wildland fire deployment, and two quick response vehicles equipped to evacuate patients from back country areas inaccessible to an ambulance.

Chaffee County EMS began in 1974 based out of the local mortuary. Volunteers responded to calls from their homes and functioned from the back of a Suburban. In 1987, Chaffee County started operating EMS and began providing coverage to the north and south ends of the county. From 1996-1999 there were three full time employees and three to four part time employees. In 2000, Chaffee County EMS purchased four new ambulances to cover both ends of the county efficiently. In 2002, there were 12 to 13 full time employees. Over the years EMS operated out of numerous temporary locations until a permanent location was built in 2004, which is the current headquarters and Station 1. The new building provided living quarters, training classroom and a bay for the ambulances in addition to housing the Chaffee County Search and Rescue (South). The Buena Vista station has also seen its share of moves over the years and is now located in the same building as a Chaffee County Sheriff's Office substation and Chaffee County Fire Protection District.



### Buena Vista Volunteer Fire Department



The Buena Vista Volunteer Fire Department was originally established in 1881. The service covers 3.44 square miles in the municipal town of Buena Vista with a population of approximately 2,730 persons. Funding for the service comes through a Buena Vista sales tax. The department is a volunteer service with a paid fire chief. There are currently 16 members, six are firefighter I certified with one EMT, one in training to become an EMT, and the remainder certified as emergency first responders. The fire department has two Type 1 fire engine pumpers,

two water tenders and one rescue truck. The service provides BLS first response medical care on EMS responses, firefighting capabilities, hazardous material response and vehicle extrication. Typically the department responds to 130-180 calls annually, however, so far in 2015 they have responded to over 200 requests for service.

### Chaffee County Fire Protection District



Chaffee County Fire Protection District serves about 1,000 square miles with approximately 10,000 year round residents of Chaffee County except for the City of Salida, South Arkansas Fire Protection District and the Town of Buena Vista. The district has approximately 60 active members with 26 being emergency responder certified, eight EMTs and two paramedics. The district responds to approximately 280 requests for service each year out of six stations throughout the county. The district is set up as a Title 32 Special District that is funded through a

3.96 mill levy plus state funds for the Volunteer Firefighter Pension program. The district is capable of handling hazardous material response as well as assisting Chaffee County EMS on traffic crashes, cardiac arrests and other medical aid when requested. The district has 23 fire apparatus and support/command vehicles which includes five Type 1 fire engines, one aerial ladder truck, five brush trucks, three heavy brush trucks, two rescues, five water tenders, two hazardous material trailers and one air utility vehicle. There are five full time employees, four of which have firefighting responsibilities. In total there are 39 active volunteer members of the district.

The history of the department originates back to 1976 when the Northern Chaffee County Fire Protection District was formed. In 1984, the district merged with Poncha Springs Fire Department creating the Chaffee County Fire Protection District.



### EagleMed



EagleMed opened the Salida base at the Harriet Alexander Field in March 2015 to partner with Heart of the Rockies Regional Medical Center to do critical air transports. Since EagleMed has a base in Salida, they are the primary scene air medical resource for Chaffee County. The service uses an Eurocopter A-Star B3E helicopter capable of high altitude flights for use in the rugged mountainous terrain. The crew consists of a pilot, nurse and paramedic. Currently there are 14

employees based out of Salida with four full time nurses, four paramedics, three pilots (a fourth is being hired) and one mechanic.

EagleMed is a Kansas based service with a total of 33 medically equipped rotor wing and fixed wing aircraft throughout the United States and employs approximately 300 staff. Since August 2009, the company has been a subsidiary of Air Medical Group Holdings (AMGH). The private for-profit company began in 1977 and performed its first dedicated patient transport in September of 1981. The service is accredited by the Commission on Accreditation of Medical Transport Services (CAMTS) as critical air medical service and is capable of providing air transport by a fleet of Beechcraft King Air fixed wing or Eurocopter A-Star rotor wing.

## Salida Fire Department



The Salida Fire Department is a municipal fire department funded by the city of Salida that covers an urban area of 2.6 square miles with a population of 5,409.<sup>2</sup> In addition to the municipal coverage, the Salida Fire Department also provides contracted fire and first response EMS services to the South Arkansas Fire Protection District which covers roughly 14 square miles on the outskirts of the city and includes a population of approximately 3,000 persons. Salida Fire Department in 2014 responded to approximately 1,200 requests for service, the lion's share of which were EMS related responses. The

fire department is funded by sales tax, fees for plan review, business inspections and fees from hazardous material incidents on the local highways. The department has 15 active members with 10 being full-time firefighters, one part-time administrative technician and four paid on-call firefighters. All of the firefighters are EMTs with intravenous authorization. Career firefighters work based on a three-shift schedule with three personnel per shift. The department has 11 vehicles in the fleet- two command vehicles, two Type 1 structural fire engine pumpers, one 70 foot aerial platform truck, one medium duty rescue truck, two Type 3 tactical tenders, two Type 6 brush trucks and a hazardous materials trailer.

The fire department was originally formed in 1880 as the Salida Hose Company, a volunteer organization. After a second fire devastated the downtown area in 1902, local business owners donated money to form a paid fire department which eventually became the Salida Fire Department.



## South Arkansas Fire Protection District



South Arkansas Fire Protection is a Title 32 special district run by a board of directors and funded by 3.927 mill levy. The South Arkansas FPD station is attached to the city of Salida Station 11 where there are two brush engines, two water tenders, a hazardous materials trailer and a utility vehicle. The fire station and apparatus are staffed and maintained by the Salida Fire Department through a contractual agreement. The district covers approximately 14 square miles with a population around 3,000 persons.<sup>4</sup>

The district was founded in the 1960's by George W. Koenig due to a fire that occurred outside the Salida city limits. With the assistance of Fire Chief Woody Bennett, outlying areas of the city were annexed to form the district. The district purchased the old Skelly Service Station and remodeled it to fit the needs of the fire department.



### Chaffee County Search and Rescue (North)



Chaffee County Search and Rescue (North) provides backcountry search and rescue in the northern two thirds of Chaffee County. The search and rescue team was established in 1964 and has been operating as a non-profit 501 (c) (3) since 2012. Within the service area are ten 14,000 foot mountain peaks and 700 square miles of public lands. In addition, the search and rescue team provides swift-water rescue for the upper Arkansas River, which is the most boated river in Colorado and has the greatest number of incidents. The team will use sleds behind snowmobiles or ATVs, litters, boat, horse, SUV or snowcat to extricate patients to waiting ambulances or air medical resources. The team is considered a third service government organization with funding coming from private fund raising, donations and some financial support from the sheriff's department. The team has approximately 60 service members, 19 are first responder certified, plus seven EMTs, one intermediate and three paramedics. All service members are 100 percent volunteer.

### Chaffee County Search and Rescue (South)



Chaffee County Search and Rescue Team South is a 501 (c) (3) volunteer agency that is run by a governing board. Funding comes primarily from donations, fundraising, grants, Department of Local Affairs (DOLA) and the sheriff's department. There are 45 active members of whom two are EMTs, one is a paramedic and one is a physician. The service operates two tactical trucks, four ATVs, two motorcycles, two Rokon motorcycles, an Orion trailer, two snowmobiles and a Levitator trailer. The team averages 30 call outs per year providing service to the southern third of the county. The team is currently working on certifications in high and low angle technical rescue and swift water technician.

### Monarch Mountain Ski Patrol



Monarch Mountain Ski Patrol provides first response EMS for Monarch Mountain Ski area. The mountain officially began providing skiing services in 1939, however, skiing the mountains in the area dates back to 1914. The ski area was built by Works Project Administration workers, and once completed was given to the City of Salida.<sup>5</sup> The city of Salida ran the ski area up until 1955 when it was sold to a private party. Since 1955, the ski area has changed hands several times to various private owners and investors. The ski patrol started in 1939

with the opening of the mountain area based out of a small log structure designed to serve guests and occupy the ski patrol personnel.

The ski patrol is funded by the property owner, PowderMonarch, LLC, through private enterprise. The service members consist of 25 persons who are paid. Approximately half the staff is full-time and half are part time. Monarch Cat Skiing consists of five full time guides and two drivers. During the peak season, there are approximately 300 employees working the ski area. All members of the patrol are certified in Outdoor Emergency Care. In total the staff has 10 EMTs, two paramedics and two nurses. The ski patrol will also use a volunteer medical staff made up of 15 doctors, a paramedic and a nurse.

The service has two snowcats and five snowmobiles to rescue injured or trapped skiers and snowboarders. The ski patrol works closely with Chaffee County EMS to provide ALS services and ambulance transport.

### Heart of the Rockies Regional Medical Center



Heart of the Rockies Regional Medical Center was established in 1885 as the Denver & Rio Grande Railroad Hospital for railroad employees. In 1962, the railroad sold the hospital to a group of local community leaders. The hospital operated as a private corporation until 1976, when the Salida Hospital District was formed, and the community members who had provided money in 1962 were reimbursed. In 1989, the hospital's name changed to Heart of the Rockies Regional Medical Center, to better reflect the services and area served. The old hospital underwent many renovations, including two additions. After a fire in 1899, the hospital was rebuilt. During 1924-25, a large, two-story patient wing was added. Another addition and further renovations were made in the early 1980s and again in 1994. On April 1, 2008, the hospital moved into a new state-of-the-art facility on Highway 291, one mile west of the old facility. This 98,688-square-foot, 25-bed hospital will serve the medical needs of the Upper Arkansas Valley for decades to come.<sup>6</sup>

The current day medical center is a Critical Access Hospital with a Level IV trauma center designation. The hospital serves a population of 20,000 people within the Salida Hospital District, which includes all of Chaffee County and parts of Fremont and Saguache County. Being a hospital district; the hospital is run by an elected board of directors. Funding for the hospital is governed by the critical access hospital rules and regulations. Staffing in the emergency department fluctuates depending on the time of the year. The emergency department has a total of 12.3 full time employees that includes nurses and technicians. There is one physician on duty 24 hours a day, seven days a week who staffs the emergency department year round with a second provider, either a mid-level or physician who will provide additional staffing in the summer months from 12 p.m. to 8 p.m. The emergency department is supported by 24 hour radiology, laboratory and respiratory therapy services. Inpatient care is covered by either a hospitalist or the patient's primary care physician. The hospital has two surgeons, two orthopedists, one podiatrist, one ear nose and throat physician along with several other visiting specialties housed in the outpatient clinic. Visiting specialties include cardiology, psychiatry, neurology, oncology gynecology and urology, and they are currently recruiting for doctors in pain management, vascular surgery, gastrointestinal and spine services. The emergency department sees approximately 9,000 patients a year with an average of 170,000 outpatient services provided annually at the facility.



## Chaffee County Communications Center



The Chaffee County Communications Center provides emergency dispatch services for the fire, police, sheriff and EMS agencies in the county. The dispatch center is overseen by the county sheriff's office, which employs 10 full-time dispatchers and a manager. From 6 a.m. to 3 a.m. two dispatchers staff the center on rotating shifts. In total, the dispatch center is responsible for the dispatch services of 24 agencies. All dispatchers are certified by the Colorado Crime Information Center, National Crime Information Center and credentialed in Emergency Medical Dispatch, ICS 100 and ICS 700. In 1999, the dispatch center was remodeled and equipped with Motorola Centracom Elite radio consoles and

"Sleuth" computer aided dispatch system. In 2003, the center moved in to the newly built Chaffee County Detention Center and in 2009 the 9-1-1 operating system was upgraded with Positron Enhanced 9-1-1 software. The center is in the process of converting from VHF and UHF radios to a Digital Trunked Radio System.



## Analysis of Chaffee County EMS System Elements

Prior to and during the consultative visit, key participants from the county-wide EMS response system and local health care facilities were asked to complete a survey rating of the current EMS and trauma services and relationships in the county. In addition, county commissioners and EMS and trauma system stakeholders were interviewed during the county visit. The following sections take into consideration the pre-visit survey, interviews and factual data from various reports.

### Legislation and Regulation

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree									
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count	
The County EMS Resolution is up-to-date	1	1	3	2	1	20	3.13	28	
EMS and Trauma organizations are in compliance with all applicable regulations	0	1	1	8	3	16	4.00	29	
The EMS and Trauma system is accountable to the public for its performance	0	2	3	7	9	7	4.10	28	
							<i>answered question</i>		29
							<i>skipped question</i>		1

#### Structural Overview - Colorado EMS

While the State of Colorado has full regulatory authority regarding the licensing and regulation of hospitals, skilled nursing facilities and most healthcare agencies, EMS statutory authority is divided between state and county levels. The state has sole authority to set forth rules regulating individual EMS provider education, medical direction and practice, while counties are required by state statute to license ground ambulance services and issue ambulance vehicle permits. Air ambulance licenses, however, are issued at the state level.

Counties are additionally authorized to adopt regulations and develop an EMS system framework that meets or surpasses the requirements contained in state regulations. Most counties establish their EMS framework and licensing policies through a resolution or ordinance. Given the complexity of emergency services systems, many county resolutions also formally create local councils to advise the Board of County Commissioners on EMS issues.

#### Chaffee County EMS Resolution

Chaffee County establishes its ground ambulance licensing authority pursuant to C.R.S. 30-11-107 (1) (q), and the Colorado Emergency Medical services Act, C.R.S. 25-3.5-101, et seq., through County Resolution 2006-57. The resolution contains the standard elements seen in similar documents statewide and currently complies with the regulatory mandates imposed by the state.

Although some Chaffee County agencies voluntarily participate on an Emergency Services Council, it is not formally established by resolution. The absence of formal recognition does not encourage the broad participation essential for an integrated emergency medical and trauma services system to

function effectively. Such technical advisory bodies are commonly formed to aid in system oversight, greatly improving interagency coordination, communication and overall functionality. Given the county size, complexity and number of interacting EMS agencies, a formal Emergency Services Council with clearly defined membership would be a significant asset to the county commissioners and all EMS stakeholders.

### Funding Authority

Chaffee County funds EMS and ambulance transport as a county department with patient-generated fee-for-service supplemented by federal PILT (Payment in Lieu of Taxes) funds. A November 2015 sales tax initiative is being proposed specifically to increase funding directly for EMS and the county communications center.

Chaffee County Fire Protection District and South Arkansas Fire Protection District are established taxing districts, and both Salida and Buena Vista Fire Departments are funded directly via their respective municipal budgets. Heart of the Rockies Medical Center is primarily funded through patient-generated revenues as well as a special taxing district.

### County Commissioners

The Chaffee County Board of Commissioners is clearly involved and appreciative of their county-administered EMS program. There is some minor confusion about their statutory authority and requirements, as well as how to assure its EMS program is as high-functioning and cost-efficient as possible given the available resources. Additionally, the county commissioners expressed concern about interagency relationships, noting that improvement would greatly enhance community-wide services. The commissioners also discussed their unease that the current EMS system is overly reliant on the time and dedication of particular individuals, a model that may prove to be unsustainable.

### Agreements

Most counties strive to establish mutual and automatic aid agreements between all agency stakeholders. Such agreements provide both authority and clear expectations to strengthen overall services. Chaffee County currently has several such agreements in place. The Chaffee County fire agencies, along with neighboring fire departments in Custer, Fremont and Lake Counties, appear to have mutual and automatic aid agreements in place. Chaffee County EMS has a current mutual aid agreement with Gunnison EMS to improve services in the Cottonwood Pass and Monarch Pass regions. There is a desire to update all of these agreements and assure both mutual aid and automatic aid needs are well defined. The Chaffee County emergency manager is currently working on a county-wide master mutual aid agreement, as well.

Heart of the Rockies Regional Medical Center currently has an interfacility ambulance transport agreement—mainly focused on payment structure—with American Medical Response for regular interfacility transfers. Chaffee County EMS is called to handle time-sensitive emergent interfacility transfers.



## RETAC

Colorado has 11 Regional Emergency Medical and Trauma Advisory Councils (RETACs) authorized by statute to provide a coordinated approach to emergency medical and trauma care. Each RETAC consists of five or more counties that participate through a local advisory council. Each RETAC council is responsible for creating a regional implementation plan for delivering emergency medical and trauma care, as well as providing assistance to generally improve the quality and coordination of emergency services. Each RETAC has a coordinator who provides support and services to the board and member counties.



Chaffee County is part of the Central Mountains RETAC and actively participates within the council and the regional medical direction program.

## Quality Assurance Protection

Under current Colorado law (C.R.S 25-3.5-904), protections exist to exclude quality management activities from being legally discoverable and offer immunity from civil lawsuit for quality management participants, providing agencies meet a minimum set of quality management standards and act in good faith. To date, none of the Chaffee County agencies have implemented a quality management program that meets the requirements of this statute. The elements of the statute are taken from quality assurance and quality improvement programs used elsewhere in health care. Implementing the guidelines may benefit Chaffee County agencies looking to enhance current quality assurance and quality improvement programs.

## Recommendations

- Formally authorize an Emergency Services Council via county EMS Resolution. This council should be authorized to provide general oversight of ambulance licensing and EMS system quality through advisory capacity to the Board of County Commissioners. Participation should be from at least one representative of all agencies providing any level of emergency medical services in Chaffee County. The Emergency Services Council should provide the Chaffee County commissioners with a report on the current state of the EMS system on an annually or semi-annual basis. The Board of County Commissioners should appoint voting representation from the following agencies:
  - Ambulance service
  - Fire rescue agencies
  - Air medical
  - Search and rescue
  - Communication center
  - Emergency management
  - Hospital
  - Ski patrol
  - An EMS medical director

- Collaborate between the county emergency manager and the Emergency Services Council to update all mutual and automatic aid agreements, as well as assist in the development of a county-wide master agreement.
- Create a strategic plan for county-wide health and emergency medical services. This plan should include EMS delivery, EMS education, community prevention and community education activities. Consider using the Central Mountains RETAC resources to assist.

## System Finance

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
The EMS system in Chaffee County is adequately funded	7	9	8	1	0	3	2.12	28
The trauma system in Chaffee County is adequately funded	3	5	8	1	3	8	2.80	28
The Chaffee County EMS and trauma system is sustainable over the long term	2	6	6	4	0	10	2.67	28
The EMS and trauma system is funded equitably across Chaffee County	4	3	4	3	0	14	2.43	28
Ambulance rates are reasonable	1	3	3	4	1	16	3.08	28
The public is willing to support EMS funding needs	2	1	6	6	2	11	3.29	28
<i>answered question</i>								28
<i>skipped question</i>								2

### Chaffee County EMS

It is often said throughout the EMS industry that “...everyone wants an ambulance when they need it; but, nobody wants to pay for it.” This saying is true when examining below cost payments made to EMS by primary payer sources and patients. As future payments decline EMS agencies are going to have to develop alternative services to generate new revenue streams, secure continued and enhanced support from traditional funding sources or reduce services provided to communities.

The Chaffee County Board of County Commissioners and county administration must be commended for their continued support of Chaffee County EMS. Chaffee County officials not only support the EMS service leadership but also subsidize recurring deficits to sustain EMS operations. However, ongoing budgetary pressures from other county departments jeopardize continued deficit funding of the EMS service. The county commissioners further demonstrate their ongoing commitment to sustain and improve EMS by placing a new sales tax initiative on the November 2015 ballot. The intent is to provide a more consistent and reliable EMS funding source. If successful the sales tax will replace current funding sources and relieve other budgetary pressures by freeing up PILT funds to be used on other county projects.

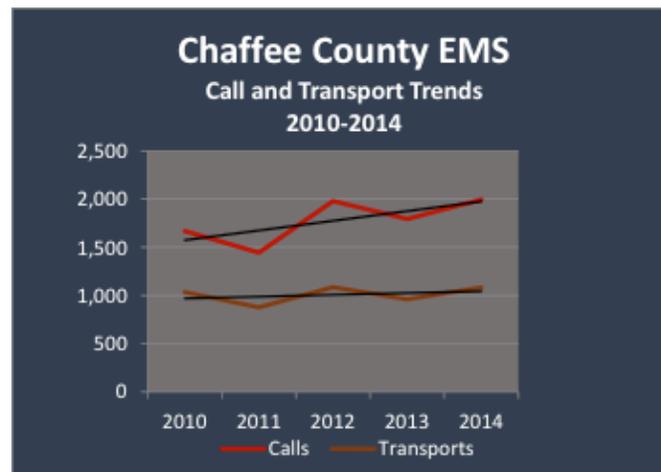
From a public policy perspective EMS is a public good because services provided by EMS are non-excludable and non-rival. EMS services are non-excludable because individuals cannot be excluded, for any reason, from the opportunity to consume or use EMS services. To be non-rival, one person's use of EMS cannot reduce another person's use of the service. In this case EMS services must be provided consistently and reliably, and care provided to one patient must be the same quality as the care provided to another patient. Non-rival aspects of the EMS public good are challenged when existing resources - available ambulances - needed to respond to multiple calls are over extended and are not available to respond to multiple calls occurring at the same time.<sup>7</sup>

Non-excludable aspects of the EMS public good create economic hardships for EMS agencies because services are provided to patients without the expectation to be paid. While every effort is made to collect full payment, many ambulance bills are either unpaid or under paid. Non-excludable public goods such as ambulance services experience a free-rider problem where many patients use EMS services without paying the full cost.<sup>7</sup> The more patients who use EMS without fully paying for it creates the need for supplemental funding, such as subsidies from taxes from local governments to cover EMS agency deficits.

### Call Volume

For a small service Chaffee County EMS is busy. In 2014 Chaffee County EMS responded to 1,994 calls and transported 1,082 patients for a 54 percent transport rate. On average, from 2010 through 2014, both calls and transports increased and 2015 is expected to be the busiest year to date. Although the graph shows annual variances, the overall five-year trend shows calls steadily increasing by six percent per year and transports by three percent. If these trends continue the cost associated with answering the calls and transports will increase as well.

Figure 1



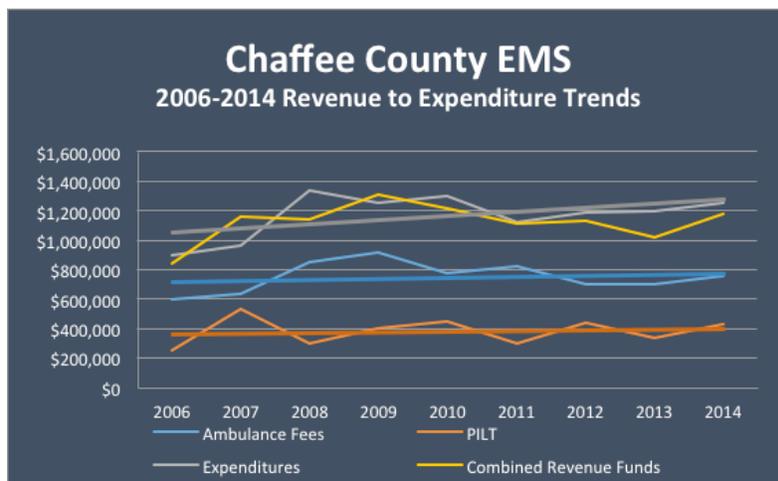
### Financial Trends

The focus of this financial analysis was on a nine-year period from 2006 through 2014 because of their similarities in consistent 13.5 full time equivalent (FTE) utilizations. The revenue to expense trends were analyzed as percentages of annual change with significant high and low outliers removed. Chaffee County EMS is primarily funded by fee-for-service billing activities and federal PILT funds. Additional EMS funding sources include grants, interest and other miscellaneous and intergovernmental

transfer revenue sources. PILT dollars are appropriated annually by the Board of County Commissioners as needed to fund EMS cost deficits. To date, the revenues from all these sources are sustaining EMS operational needs.

As Figure 2 shows, Chaffee County EMS expenditures far exceed revenues generated from billing activities which justify the annual PILT appropriations. Billing activity and PILT revenues combined cover most of the operational costs. Over the same time period revenues from ambulance operations increased on average of one percent per year, allocations from the county’s PILT fund increased 11 percent per year and operational expenses grew three percent per year. Without dedicated PILT funding from the county, services provided by Chaffee County EMS would clearly need to be cut.

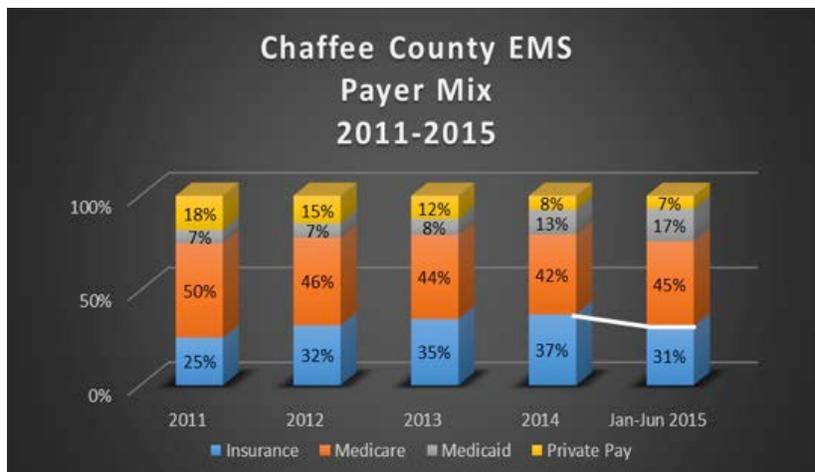
Figure 2



### Ambulance Billing and Payer Mix

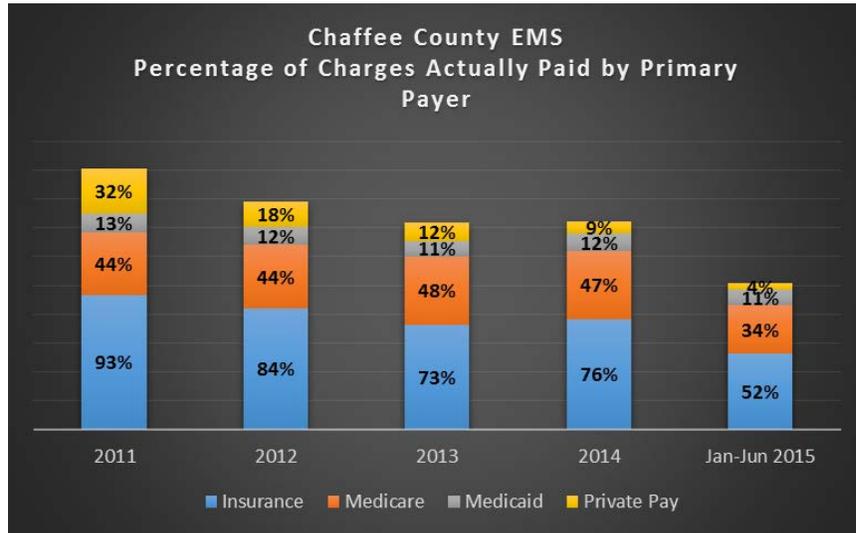
There could be financial trouble looming for Chaffee County EMS in the near future. Beginning in 2014 and continuing into 2015, the ambulance payer mix started to change. Payer mix is defined as “the percentage of patients transported within each major payer category: Medicare, Medicaid, commercial insurance, private pay, and other payers.”<sup>8</sup> Based on the billing documents provided there is a significant change in both the payer mix billed and actual dollars received.

Figure 3



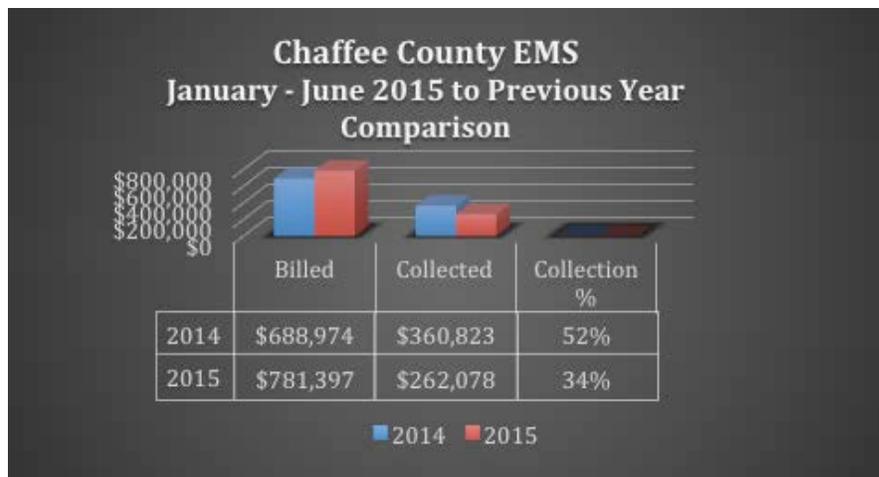
Some significant trends stood out when payer mix data was compared as a percent of total gross billed between 2011 and 2015. The percentage of Medicare did not vary much but the variances among the other payers were more extreme. Other payers such as private pay decreased and Medicaid increased. There was a five percent increase in Medicaid in 2014 and an additional four percent increase so far in 2015. Furthermore, the percentage of commercial insurance climbed steadily each year until it significantly declined in 2015.

Figure 4



When comparing actual amounts collected the percentage of insurance claims actually paid in 2011 (93 percent) seemed high. With many insurance companies limiting allowable payments for ambulance services and the rising popularity and lower cost of high deductible health plans it was expected to be lower. Normally this high payment rate would be good news to most EMS agencies but it's important to note that insurance payments have steadily declined between 9 to 10 percent every year since. Furthermore in 2015 the drop for the first half of the year is a dramatic 24 percent, which is particularly troubling with respect to potential future payment trends.

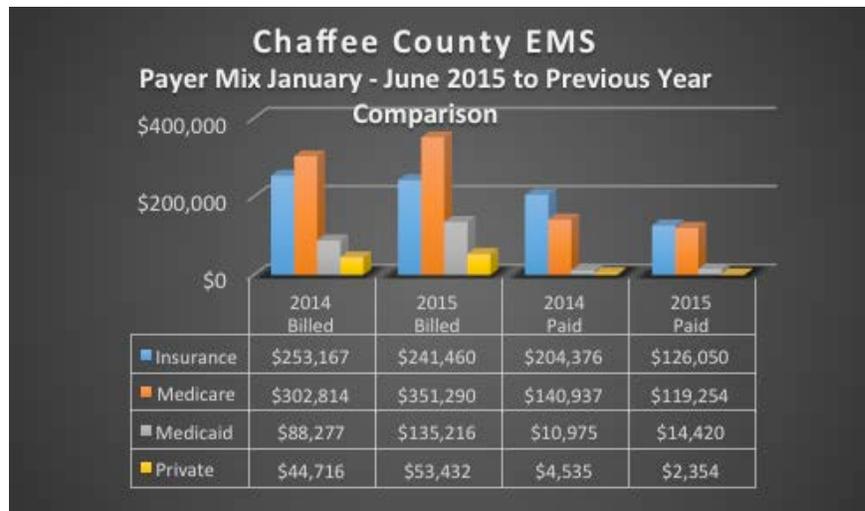
Figure 5



Recognizing that the comparison shown assesses four full years of data compared to one (2015) partial year of data, an analysis of January through June for both 2014 and 2015 was performed and revealed more significant changes.

The data comparison for the first six months of the two years shows Chaffee County EMS 2015 gross billings to be \$92,423 higher than the previous year, yet net collections were \$98,745 less. The 2015 increase in gross billing was understandable due to a reported increase in both calls and transports; however, the significant drop in the actual amounts received is unclear. Payments were then examined for the same time period, and the lower revenue rates were then explained.

Figure 6



Of the \$98,745 increase in 2015 gross billings, \$46,939 went to increases in Medicaid and \$48,473 went to increases in Medicare. Over 98 percent of the \$97,415 combined change gross billed increase is attributed to the lower paying payers of Medicare and Medicaid. The gross percent change for Medicaid alone was 53 percent. Over the same period, gross private pay billing increased by \$8,716 and commercial insurance, declined by \$11,707. Therefore, the increased call volume in 2015 will not result in higher revenues collected from the increased workload. It is possible 2015 budgeted revenues are now overstated.

The Medicare and, more importantly, the Medicaid increases are most likely caused by Medicaid expansion resulting from full implementation of the Patient Protection and Affordable Care Act (ACA). Likewise, the decrease in commercial insurance payments may be tied to more patients switching from private insurance to Medicaid and signing up for higher deductible and co-payment amount plans. With more people qualifying for Medicaid and others choosing higher deductible and co-payment private insurance plans, Chaffee County EMS will most likely experience more decreases in payments from both private pay and commercial insurance in the future.

### Determining Ambulance Rates

According to Evans and Dyar (2010), the recovery of revenue is an important aspect of EMS leadership and probably the most misunderstood.<sup>9</sup> One of the main reasons for this misunderstanding is that many, if not most, people promoted into EMS leadership positions are enlisted from within. As such,

most newly appointed EMS leaders are great clinicians but can lack agency level leadership, operational, financial skills, and/or the time to effectively devote to them.

“Ambulance rates and billing practices should be a balance between the cost of delivering EMS, collection of revenues, and non-service related monies coming into the organization.”<sup>2</sup> To effectively maximize revenues from EMS operations and establish effective ambulance rates the EMS manager must know their cost per transport, understand how to use cost data to establish rates, be well versed in the payment mechanics and structures of third party payer systems and identify other potential sources of revenues if funding from billing activities alone are insufficient to pay EMS operations costs.

Cost per transport is determined by dividing the full cost of the service by the total number of billable transports.<sup>8</sup> (Full costs include cost categories such as labor, medical supplies and equipment, vehicles and fleet maintenance, communications, building and facilities, and administrative cost including insurance, office supplies, licensing, billing and more.)

According to the Chaffee County EMS director, rates charged are determined primarily by surveying the rates charged by other agencies and Chaffee County EMS rates are set according those findings. There did not seem to be any correlation between agency costs to rates charged. According to the 2015 Chaffee County EMS Agency Profile filed with the Colorado Department of Public Health and Environment, current billing rates are as follows:

BLS Emergency:	\$ 795.00
ALS Emergency:	\$ 930.00
ALS Level 2:	\$1,065.00
Mileage Rate:	\$ 26.30

Utilizing the 17.20 average transport mileage distance and the \$930.00 ALS Emergency base rate as shown in the agency profile the average ambulance bill for Chaffee County EMS for this type of transport should be roughly \$1,554.36 (\$930 base rate + \$452 for mileage). Using cost data from the same document the average cost per transport is roughly \$1,085.00 (EMS budget \$1,225,009 / 1,129 transports) showing a cost to bill difference of \$469.36 billed above cost. These amounts were then compared to averages based on the financial and billing documents provided and are shown below.

#### Chaffee County EMS

##### Average Cost Per Transport to Average Ambulance Bill 2011-2014

	2011	2012	2013	2014	Average	% of Cost Payment by Primary Source
Cost/Transport	\$1,289	\$1,103	\$1,250	\$1,167	\$1,202	
Ambulance Bill	\$1,632	\$1,182	\$1,340	\$1,342	\$1,374	
Surplus/(deficit)	\$343	\$79	\$90	\$175	\$172	
Average Payment-All Payers Combined	\$846	\$599	\$654	\$681	\$695	58%
Government/Transport Subsidy	\$443	\$504	\$596	\$486	\$507	42%

As expected the average cost per transport to ambulance bill varies; however, it may be worth noting that the higher the average ambulance bill the higher the average payment (all payers combined). For the purposes of this study it was impossible to determine the average payment by primary payer source because the necessary information to determine these figures was not provided.

There is much conflict within the EMS industry regarding the effectiveness of rate increases. Many EMS leaders would argue that simply raising the rates only increases the amounts of contractual and bad debt write-offs without an appreciable increase in revenues actually received from the rate increases. As a public entity and recipient of supplemental government funding from taxes Chaffee County EMS may, sometime in the future, be scrutinized in terms of revenue maximization. Using consistent and industry accepted practices provide management with better and more consistent tools to establish and defend the rates charged. This is especially true when patients complain about their ambulance bills and when tax averse citizens complain about tax dollars being used to fund EMS activities and resist tax increases. To better ensure that the EMS billing is consistent and maximized to its full capacity the following rate determining formula is proposed as an alternative to its current rate setting strategy.

According to the American Ambulance Association (2008) rate determination should be a function of both cost per transport and effective overall collection percentage.<sup>8</sup> Using the four-year average cost per transport from the table above and the average 52.17 percent collection rate provided on Chaffee County EMS’s 2015 Agency Profile the average ambulance bill is determined by dividing the average cost per transport by the collection rate. In his case the following example is provided:

Average Cost per transport:	\$1,202
Divided by the Average Collection Rate:	52%
<b>Average Ambulance Charge:</b>	<b>\$2,312</b>

This example shows that the average ambulance bill should be around \$2,312 (\$926 higher) instead of the 4 year average \$1,374 bill that is currently billed. The formula can be modified to include capital improvement plan costs and hardship write-off policies can be used to offset the rate increases for those persons demonstrating genuine financial hardships and inability to pay their ambulance bills.

During the interviews conducted with the EMS manager several team members questioned the low average Medicare payment of \$277.88 as published in the Chaffee County Colorado Funding Sources and Background document. At first glance the rate did seem low especially for Chaffee County which is classified in Medicare policy as a super rural county. To verify the stated “average Medicare Payment” the same assumptions as stated in the above referenced document were used being: “...EMS transports a patient requiring Advanced Life Support (ALS) two miles to the hospital, without lights and sirens...” against the American Ambulance Association, 2015 Medicare Ambulance Fee Schedule Rate Calculation and the rates as shown were essentially confirmed.

**Chaffee County & American Ambulance Association Medicare Payment Estimate  
Side by Side Comparison**

	Chaffee Calculation	AAA Calculation
Original Invoice:	\$882.60	\$882.60
Medicare Base Rate Deduction:		-\$333.02
Medicare Mileage Deduction:		- \$21.06
Total Contractual Deduction:	-\$528.17	-\$528.52
Total Medicare Allowable:	\$354.43	\$354.08
<b>Medicare Payment to EMS:</b>	<b>-\$277.88</b>	<b>-\$277.51</b>
Patient Responsibility or Secondary Ins.:	\$76.55	\$76.57
Notes: AAA Calculations includes sequestration 1.6% reduction and 22% Rural Add-on		

Having confirmed the Medicare rate structure and payments currently received by Chaffee County EMS compliance with Medicare rules is the next topic to be addressed. Billing compliance and Health Insurance Portability and Accountability Act (HIPAA) audits must be given the same priority and performed as frequently and routinely as patient care quality and improvement audits.

### Medicare Rule Compliance

Since more ambulance bills are being sent to Medicare payers for processing and payment it is incumbent upon the EMS leader to ensure that Medicare rules are followed. As more claims are sent to Medicare the instances associated with Medicare compliance audits increase as well. Chaffee County EMS must always be prepared to legally defend rates charged, billing processes followed and that the rates paid are appropriate for the EMS agency type.

Chaffee County EMS appears to be attempting to comply with all Medicare and HIPAA rules as best it can under current organizational constraints. However, there seems to be no formal policy that outlines Medicare compliance procedures. It is also unclear as to when the last HIPAA policy review was conducted. Policies pertaining to both Medicare and HIPAA rule compliance should be updated, developed, implemented and followed. Policies and practices should include the appointment of a Medicare and HIPAA Compliance Officer and the formation of a compliance committee that can be comprised of select Chaffee County EMS employees. Compliance standards are applied to claims filed and must include procedures to scrutinize medical necessity statements, identify Medicare over payments, and ensure that accidental up coding of claims is avoided. These audits are required and must be performed to avoid the costly consequences resulting from fines, penalties and refunds paid back to Medicare that may otherwise go overlooked in normal billing processes but may be found in a formal Medicare audits.

### Future Impacts of the Patient Protection and Affordable Care Act (ACA)

There is a lot of speculation on the future impacts of the Affordable Care Act (ACA) on EMS both in terms of operations and funding. The primary focus of the ACA is a fundamental shift away from volume-based healthcare, such as fee for service, to value based healthcare services. The predominant goals of value based medicine as contemplated by the ACA are those stated in the Triple Aim including enhancing patient satisfaction, improving patient outcomes and reducing healthcare costs. As healthcare providers EMS must be preparing to evolve away from volume services and realign future EMS priorities and services along the lines of the value based priorities of the Triple Aim.

Many healthcare systems, providers and payers are preparing for the switch by forming Accountable Care Organizations (ACOs), consolidating services, executing planned organizational mergers, and creating partnerships to enhance patient care services and experiences. ACOs are healthcare organizations that are responsible for the entire care and cost of the care provided to their patients. ACOs will either provide the care directly or contract the care to entities of their choosing. This coordinated care will include routine medical care in physician offices, emergency department



visits, surgeries, hospital admissions and ambulance transports. EMS agencies are going to be pressured to change the services they provide to be more in line with the priorities of the ACO including treating more patients at home instead of transporting them to a hospital. The net effect is that the ACOs will become as much of a customer to EMS in the future, if not more than, the patients themselves. If the ambulance only continues to provide transport services the ACOs will not pay for the transport unless there is clear and identifiable quality benefit associated with the transport.<sup>10</sup> Therefore, soon to be gone are the days where EMS treats and transports a patient to hospital emergency departments, sending a bill to a payer and the payer sends a check. By next year, it is projected that 85 percent of Medicare payments will be tied to value measures and 30 percent of those payments will be paid through the ACOs rather than by Medicare - including payments to EMS. By 2018, the payment estimates grow to 90 percent value-based payments and 50 percent of those payments will be paid through ACOs.<sup>11</sup> The EMS service should start planning to now realign their services to coincide with the new ACO based value initiatives.

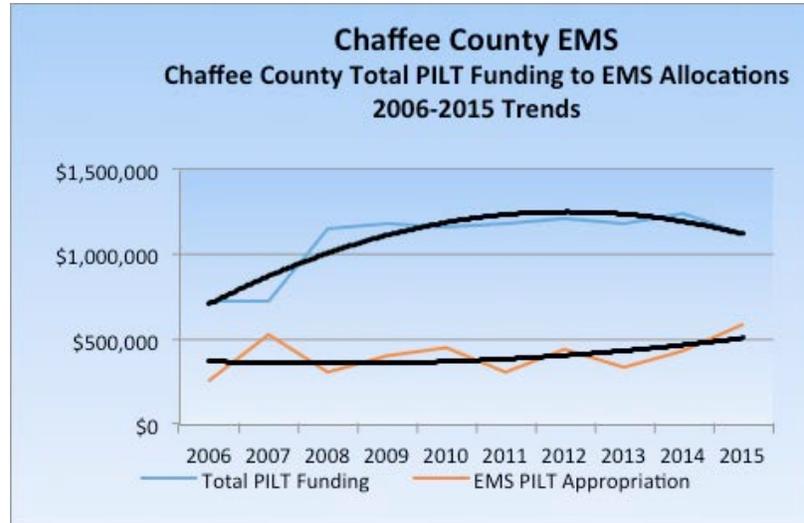
### Payment in Lieu of Taxes (PILT) as an Alternative Revenue Source

Most local government services and activities are financed by either property or sales taxes, or a combination of both. However, many rural counties incorporate significant amounts of federal lands within their boundaries that are exempt from local property taxes. The more federal lands located within any local government jurisdiction reduces the properties eligible for taxation. Instead of authorizing taxation of federal properties Congress has created various payment programs designed to compensate for lost tax revenue. While there are several alternative federal payment strategies that apply to specific federal lands, the most common strategy is Payment in Lieu of Taxes, more commonly known as PILT.<sup>12</sup> PILT funding can be used for any legitimate local government function, but is a primary source for public safety activities such as law enforcement, fire management, search and rescue and EMS.

PILT was first signed into law in 1976 by President Ford, which provided annual payments to counties. In 1994 President Clinton signed legislation that reformed PILT payments to counties correcting disparities that existed between property values and PILT payments at that time. The new legislation used the consumer price index to adjust for population limitations and the per acre dollar amounts. Finally, President George W. Bush signed legislation that included language to modify PILT from a discretionary program requiring annual appropriations to a mandatory five year fully funded entitlement program covering fiscal years 2008-2012. Beginning in 2013 PILT reverted to a discretionary funding line item requiring specific Congressional appropriation ever since.<sup>13</sup> The continuation of PILT funding as an annual appropriation is likely; however, the amount of appropriations made to counties

is anticipated to decline over the next few years. Congressional pressures to reduce federal expenditures will negatively impact future PILT spending.<sup>12</sup> The extent of future cuts to PILT is anyone's guess.

Figure 7



Chaffee County uses its PILT payments to fund many county related activities including paying the deficit costs of the EMS service. Figure 7 demonstrates trends in Chaffee County's total PILT payments to Chaffee County EMS allocations. Since the mandatory allocations ended in 2012, the amount received by the county is declining while allocations to EMS are increasing. Between 2006 and 2014, the county allocations of its PILT to EMS averaged \$381,111 per year. The lowest allocation was \$250,000 in 2006 and the highest was \$530,000 in 2007. In 2015 Chaffee County is budgeting 52 percent of its total PILT funding to EMS totaling \$590,000 which is the highest allocation to date.

As revenues from patient billing decline and EMS operational costs rise, higher allocations of PILT dollars will most likely be needed by Chaffee County EMS in the future. So long as the Chaffee County Commissioners continue to recognize the value and quality of service Chaffee County EMS provides, PILT funding remains as a viable source of EMS supplemental funding. However, competing needs for enhanced funding from other county departments combined with additional declines in total PILT funds received from the federal government in the future may necessitate reductions in funding. It would be prudent for the commissioners to seek more reliable and consistent forms of funding for the EMS service.

### Other Finance Considerations

Other operational considerations that need to be contemplated as part of this assessment include adding a third ambulance, funding sub-station improvements in Buena Vista and funding a dedicated EMS director position.

Chaffee County EMS is in need of staff for a third ambulance, which would most likely be stationed in Salida. The most pressing need related to the third ambulance is to perform interfacility transports

originating from Heart of the Rockies Regional Medical Center. The other need is to have an additional resource available to respond when multiple calls occur within the county.

Currently, Chaffee County EMS cannot reliably provide interfacility transport services because of the increased operating costs and the amount of time on task required to perform them. Under present budget constraints Chaffee County EMS cannot afford to staff and equip an additional resource without supplemental funding. Presently, performing these transports would remove one of only two essential resources from the community for extended periods of time. Chaffee County EMS has proposed operating and funding alternatives to Heart of the Rockies Regional Medical Center administration; however, has yet to decide to adopt the proposed initiatives.

As a consequence, Heart of the Rockies Regional Medical Center continues to rely on a contract with American Medical Response (AMR) to provide this service. Under this agreement AMR dispatches an ambulance to the hospital to perform the transports, and Heart of the Rockies Regional Medical Center has agreed to supplement AMR costs when payment through traditional billing sources is not achieved. The major concern with the current agreement is the patients are subjected to prolonged waits—typically 8-12 hours but occasionally as much as 24 hours—before AMR arrives to complete the transport. While these transports are not emergent, the long waits that that patients experience delays access to essential patient care.

Reliable funding streams should be found to finance a third ambulance to better meet these needs. Since there is a joint need for this third ambulance, there could be a cooperative funding plan agreed upon by Chaffee County EMS and Heart of the Rockies Regional Medical Center to ensure its long-term sustainability. Even if the EMS service is successful with its sales tax initiative it would be inequitable for Chaffee County EMS, and ultimately the tax payer, to exclusively fund a service which is predominately needed by the hospital. Heart of the Rockies Regional Medical Center should collaborate with Chaffee County EMS to develop an equitable funding model that shares the cost of a third ambulance commensurate with the need to mitigate the long patient wait times currently experienced on interfacility transfers and the additional emergency response capability.

Chaffee County EMS should also consider improvements to the ambulance station in Buena Vista. Under the current situation, crews are housed in one building and the ambulances are locked up in another building almost a football field away. Because of the station configuration, response times are prolonged, chances for provider injuries are increased, and the potential for theft of both personal and county property is amplified. Additionally crew frustration is greater and job satisfaction is decreased due to the additional and unnecessary hardships experienced by frequently running from one location to the other.

Finally, Chaffee County EMS should consider funding a dedicated full-time EMS director position. Through interviews with the current EMS director, EMS staff and other public safety and healthcare stakeholders, it is clear that the current EMS director is quite capable of fulfilling the position but needs more time to devote to global



operational and financial issues. Currently the EMS director is filling two frequently competing roles. He is first a full time paramedic with a primary responsibility to answer ambulance calls. He is also an EMS director who focuses on operational activities either between calls or on extra duty time, a practice that is neither cost effective nor efficient.



Current organizational needs such as consistent financial reviews, policy revisions, interagency relations and planning future strategies are lacking under the current arrangements by having a dual rolled director. A full-time EMS director position is also needed to consistently, reliably and efficiently create, implement and enforce policies and procedures, oversee billing activities and monitor the efficacy of additional duties as performed by staff. Changes associated with the ACA alone are going to require more time, attention and effort from the EMS director to ensure that Chaffee County EMS rises to new quality measures and the changes the service will be required to meet in the future in order to be paid.

In 2014, the county had a job analysis study performed by Human Resources Plus, Inc. In that analysis the EMS director position was described as second only to the administration with regards to preparation, supervision and skill. Furthermore, the EMS director was listed as number one in terms of responsibility in terms of being a very important or very serious position with respect to the consequence of error and the freedom to make decisions and impact of those decisions (Human Resources, 2014).

With most other county departments having dedicated leadership, it makes sense that Chaffee County EMS also has a dedicated director. Future budget consideration should include funding for this position.

### Funding Alternatives

As demonstrated above, funding Chaffee County EMS solely through fee for service activities is not a viable alternative. Fee for service along with continued county appropriations from PILT is a viable temporary alternative until a more sustainable funding source can be found. Continuing the PILT funding for the EMS service severely hampers the county's ability to flex to other competing county needs. Additionally, the priorities of future commissioners may not be aligned with those of the current commissioners and their actions may result in reductions to, if not total elimination of, PILT subsidies to EMS.

Other alternatives include consolidating EMS along with the existing municipal fire departments and fire protection districts; forming a separate ambulance district; forming a health service district that provides EMS and other related health services; and keeping the same organizational structure within county government but seeking alternative funding sources such as the proposed sales tax.

### Consolidation with Fire Departments

Consolidating EMS with existing municipal and special district is a viable option to consider in the future. However, recommendations made in a prior study by Emergency Services Consulting International (2012), which included this recommendation, appear to be unpalatable to all the stakeholders involved. While it remains unclear as to how many of those recommendations have been implemented the discussions of consolidation seem to be off the table at this time making this recommendation less desirable.

### Forming a Special District

Forming a special ambulance district or health service district that would encompass all of Chaffee County is another viable consideration. Both options would establish another governmental entity with in the county complete with its own board of directors, authorities, purposes and funding streams. The advantages of the special district options include that the county residents would continue to receive similar - perhaps enhanced -services that they are currently used to and the county would be relieved of all operational and funding responsibilities for EMS. One major advantage of the special district is its ability to levy a property tax of fund its operations. According to the 2015 Chaffee County Summary of Levies and Revenue, a special ambulance district or health service district could generate approximately \$1,428,985 in tax revenue based on the \$357,246,143 total county assessed value on a 4.0 mill levy. An additional advantage of a health service district is that it too may provide EMS and any other "health related function" so long as those functions do not compete with other jurisdictional functions such as those of the hospital. A health services district, like an ambulance district, can impose a property tax but it can also impose sales taxes that are not permitted for ambulance districts.

The downside of forming any one of these special districts is that both are time consuming, expensive and complicated to form. It may also be seen as a "tax competitor" in the future as it competes with other jurisdictions for limited tax dollars to fund its operations. In addition, formation of a special district requires that a needs assessment must be completed, a service plan written, public hearings convened and an election performed.

The formation of a special district to assume the responsibilities of EMS is a viable option in terms of both operations and finance. The time and complexity of determining and forming the special district makes it a less desirable option at the present time; but may be a viable consideration sometime in the future.



### Remaining as a County Department with Enhanced Funding

It appears the most viable option at the moment is to retain EMS operations as a county function and seek alternative funding to offset EMS operating expenses. The advantages to keeping EMS within the county's structure are similar to those of a special district in terms of operations and funding. With Chaffee County EMS continuing to operate under the county, it will remain as the primary provider of emergency medical services for the entire county and will continue to increase the potential to optimize the

efficiencies and economies of scale that one provider will achieve. In terms of funding the county can propose, for voter approval, dedicated public safety and EMS funding initiatives that include both property and sales taxes. The commissioners must ensure that future funding initiatives such as the current sales tax initiative are specific to public safety and EMS enhancements to ensure that these new funds, as they co-mingle with other county funds, do not get reallocated to other departments for other uses.

It is important to realize that EMS funding generated through patient billing activities is not likely to get better in the near future. Instead it is expected to worsen. Establishing a dedicated EMS fund complete with both operational and capital reserve fund accounts will ensure that EMS has the financial flexibility to maintain its current operational capacity while it explores and ultimately implements new programs resulting from the ACA.

### Discussion and Recommendations

Chaffee County EMS is a successful service, and every effort to sustain and enhance it must remain a central priority. EMS is and will continue to be an essential community service and a vital Chaffee County function. Residents and visitors deserve a viable service so long as they are willing to fund it. Chaffee County must take all reasonable actions to ensure that Chaffee County EMS is adequately funded to meet both current demands for service as well as those of the future. Future operational and funding strategic plans must incorporate system enhancements as presented and, at the same time, be flexible to integrate the new quality initiative changes as contemplated in the ACA. While individual provisions of the ACA may be amended or deleted by future federal administrations or Congress, the crux of the ACA is here to stay. The commissioners, county administration and EMS management need to be prepared to make necessary changes.

Under the current funding system EMS is not sustainable operating solely under a fee for service funding model. The commissioners are open to, and work with, county administration and EMS management to ensure that supplemental funding streams are retained or alternative funding mechanisms are presented and approved to ensure long-term sustainability that incorporates essential system enhancements. If the sales tax initiative is approved in November 2015, Chaffee County EMS will meet its need for supplemental funding and the current PILT dollars being spent on EMS can be reallocated to other county priorities.

### Heart of the Rockies Regional Medical Center

Heart of the Rockies Regional Medical Center's vision is to be the health care provider of choice for its region as a world class rural healthcare organization, providing personalized and exceptional health care while maintaining a strong financial position in order to withstand the industry environment of declining reimbursement and increasing costs. The relocation to an exceptional and efficient replacement facility in 2008 strategically positioned Heart of the Rockies RMC in a strong position for the future success; and an expansion of surgical, clinical and support areas in 2012 provided additional facilities required to support these successes.





### Fiscal Impact

Heart of the Rockies Regional Medical Center shows a healthy cash and investment position which increased by 11 percent in 2014 as compared to the 2013 financial audit and a net position (difference in assets and liabilities) which increased by 7 percent between the two years. Gross patient revenues in 2014 totaled approximately \$83.5 million, net operating revenues showed \$44,010,157 and total operating expenses showed \$41,016,720. Volume in most service lines have continued to increase with significant growth experienced to include the emergency department, MRI, CT and laboratory. Emergency room visits increased by 14.1 percent in 2014 with a total of 7,972 patients seen. Payer mix, based on total gross revenue, is 47 percent Medicare, 15 percent Medicaid, 35 percent commercial

insurance and 2 percent private pay. The Critical Access Hospital designation allows the hospital to be reimbursed at cost for services provided to Medicare patients, which is the highest percentage of patients cared for by the Heart of the Rockies Regional Medical Center.

### Services Provided

Heart of the Rockies Regional Medical Center is designated a Level IV trauma center with expanded scope by the Colorado Department of Public Health and Environment. In addition, the facility is federally designated as a critical access hospital offering additional ancillary services not always provided in the rural hospitals such as general and orthopedic surgery available 24/7. Just reviewing a limited number of statistics, it appears that approximately 3 percent of the emergency department volume of 9,000 visits annually, requires transfer to another medical facility directly out of the emergency department. This is in part due to the medical center providing a wide array of ancillary services in addition to the trauma, cardiac and stroke limitations of a rural level IV center. In June 2015, there were 27 interfacility transfers, 16 by helicopter, three by police department and eight through American Medical Response (AMR) ambulance service. Heart of the Rockies Regional Medical Center recently entered into an agreement with EagleMed to be the preferred air medical services provider. The helicopter and crew is stationed in Salida at the airport. It is expected that the number of transfers provided by EagleMed will increase as the relationship between the air medical resource and the various stakeholders grows. During the visit interviews, the team heard some concerns that the company had multiple problems with the start-up of the service and that there were significant delays in the length of time it took from the call to actually being on scene (arrive at an incident scene or transfer out of emergency department) as well as comments about difficulty in loading patients. It was mentioned by EagleMed that they were aware of these concerns by the stakeholders and were working on solutions to decrease the response times.

Following an interview with the hospital administration and upon review of the pre-visit survey, it appears that there are community members who believe the hospital should own and operate the ambulance services. One of the hospital administrators stated that the relationship with Chaffee County EMS was good and that the staff was excellent in covering the 9-1-1 calls. The challenge in the EMS system with the hospital is transporting patients outside of the service area to other hospitals. Heart of the Rockies Regional Medical Center does not feel that it would be in the best interest financially to own and operate the ambulance service, which is especially true for critical access

hospitals because of the reimbursement model. Currently the hospital has an agreement with AMR, a private ambulance service based on the Front Range, to assist with transfers. Under the contract, an ambulance crew comes from as far away as Denver, Colorado Springs or Pueblo and travels to Salida to transfer the patient to another hospital for higher level care, which takes eight or more hours. Under current arrangements, the hospital is the payer of last resort, meaning the hospital will pay AMR for the transfer if the fee is deemed uncollectible from the patient or patient's insurance. Charges to the hospital are based on the current Medicare fee schedule. Another stipulation with the contract is the hospital must also pay for 50 percent of the licensing fee for AMR to operate in Chaffee County. There is a second agreement between the hospital and Chaffee County EMS stating that the EMS service will assist the medical center with transfers that are deemed emergent, defined as transport of a patient who is in imminent threat to life or limb or is requiring emergent procedures not offered at the hospital; and when air services are unable to transport. The medical center will pay a utilization fee to Chaffee County EMS of \$125 per hour when used for an interfacility transfer. Additionally, the medical center financially assists with transfer from the hospital emergency department to the local airport by Chaffee County EMS. The hospital would prefer to send the interfacility transfers that do not require transport by air ambulance through Chaffee County EMS if that were possible; however, they are hesitant to provide a subsidy that would assist Chaffee County EMS to staff a third ambulance for interfacility transfers.

### Recommendations

- Secure and dedicate a sustainable funding source to support EMS operations and other emergency services needs for the long-term and continued service enhancements to maintain the high quality of emergency care.
- Explore and consider joining industry specific associations and organizations that provide membership cost benefits such as coops to reduce EMS related supply and other related costs. With these associations, participate in industry related advocacy groups and associations to promote EMS activities both on the state and federal level, to discover improved efficiencies and enhanced funding opportunities.
- Seek out other sources of grant funding and continue applying for funds from current grant sources.
- Explore and create strategic plans that incorporate short and long-term operational and financial components, and develop capital improvement plans.
- Connect with Colorado Central Collections for potential collection agency revenue recovery services. Evaluate the use of this service offered to local governments by the Colorado Department of Personnel, Division of Finance and Procurement, for collections. This is a state agency that has a greater reach to assist in collecting outstanding EMS bills.
- Appoint a Medicare Compliance and Privacy Officer and associated employee review committees to review accuracy of claims filed and agency compliance with Medicare rules. This compliance officer should review, amend, implement and enforce HIPAA related compliance policies and procedures.

- Enroll Chaffee County EMS into the Colorado Indigent Care Program (CICP) to collect Medicaid type payments from patients in the CICP program which would be billed through Heart of the Rockies Regional Medical Center.
- Explore alternative organizational structures, such as an ambulance or health service district, with dedicated long-term funding and governance focused on enhanced service delivery and quality of care.
- Educate system stakeholders and community members how the hospital is currently participating in the EMS system and the reasons that critical access hospitals traditionally do not own and operate ambulance services. Consider having an outside financial analyst provide data showing the financial implications of the critical access hospital owning and operating the ambulance service.
- Collect and review data on the actual cost of interfacility transfers. Determine the cost effectiveness of providing support for Chaffee County EMS to staff a third ambulance for interfacility transports and peak demand 9-1-1 response versus the cost to hold a patient in the emergency department for hours while waiting for a transfer ambulance to come from the Front Range.
- Develop strong relationships with other health care providers from an administration level, to include Chaffee County EMS, the fire departments, Chaffee County Communication Center, public health, Central Mountains RETAC and the health care coalition. The hospital is required to collaborate with the local health care coalition on several projects to receive Hospital Preparedness Program (HPP) funding, which can in turn be used for planning and exercise training with EMS and trauma system partners.

## Human Resources

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
Our community has adequate numbers of trained EMS providers	0	2	8	12	3	4	3.64	29
Our community has adequate numbers of trained trauma care providers	0	3	11	5	2	8	3.29	29
The number of staffed EMS response units is sufficient to handle the volume of calls	0	3	13	4	3	6	3.30	29
Resiliency training is provided to EMS providers	4	1	3	5	1	15	2.86	29
Leaders in the EMS and trauma system are effective	1	3	3	8	8	6	3.83	29
Adequate numbers of EMS response units are available	0	4	11	6	2	6	3.26	29
EMS providers are held in high regard by the community	0	0	2	8	15	4	4.52	29
People want to work or volunteer for EMS positions	0	1	2	11	5	10	4.05	29
EMS providers have a high turnover rate	2	6	7	6	0	7	2.81	28
<i>answered question</i>								29
<i>skipped question</i>								1

### Chaffee County EMS

A dedicated crew of full and part-time providers staffs the Chaffee County EMS department. The Chaffee County Commissioners, hospital staff and public safety partners all hold them in high regard for their commitment to serve and the level of care they provide.

Two advanced life support ambulances, one in Poncha Springs and one in Buena Vista, are staffed 24/7/365 with paramedics and emergency medical technicians working a 48/96 hour shift schedule. These two ambulances appear sufficient to answer the system's average amount of 9-1-1 requests for service; however, off-duty personnel are routinely called in to staff additional ambulances when multiple incidents take place. It was also widely reported that the system is unable to provide interfacility transports out of the area due to limited resources.

### EMS Director Position

Presently, the director of Chaffee County EMS is a paramedic responsible to work a shift rotation on a 48/96-work schedule. He then routinely works an additional 25 hours per week administratively. The current director is viewed as a competent leader and a tremendous asset to the organization, but there is an overriding concern that he is not afforded adequate time and resources to perform the administrative duties required. While some administrative functions such as quality improvement and training are delegated to other staff, this "part-time director" model does not allow necessary practices such as standard operating procedure development, billing oversight and strategic planning

to be accomplished. There is also the potential for the existing director to suffer from emotional and physical exhaustion (i.e. “burnout”) due to the stresses of this extreme workload.

### Policies and Procedures

While there is uncertainty regarding the department’s future funding and stability, the overall morale of employees is high. The staff has pride in the organization and the services they provide. The 48/96-work schedule is held in high regard by full-time staff and most feel that they are compensated fairly; however, it is unclear to some employees how individual salaries and overtime rates are formulated. Employee facilities are adequate at the Poncha Springs station but not in Buena Vista. Those crew quarters and offices are physically separate from the building where the ambulances and equipment are housed. This arrangement is substandard and adds 1-2 minutes of response time for crews to reach the ambulance, often times in darkness or harsh weather conditions.



It was discussed during the interviews that the existing policies and procedures do not cover various topics like: part-time employee minimum or maximum hours, off-duty EMS providers responding to 9-1-1 scenes in personal vehicle on an all page out and new hire ride clearing and training program sign off. Having written policies and procedures in place provides employees and management with expectations to follow, which may prevent liability concerns down the road as the operation grows.

Although there is no formalized staff orientation policy, new paramedics generally third-ride for an unspecified time, followed by time working with one other ALS provider before being allowed lead status. Certified Emergency Vehicle Operator (CEVO) training is required of all personnel, however, does not include the driving component of the CEVO III program.

### Mission Statement and Values

In reviewing the Chaffee County EMS website and various printed materials, it does not appear that the EMS service has a “Mission,” “Vision,” and “Values” statement. Creating a short and simple mission statement and articulating the vision and values of the agency provides goals that employees should strive to achieve. Chaffee County EMS currently provides exceptional service to the citizens and visitors of Chaffee County and should publicize their dedication to that service.

### Recruitment

Rural agencies throughout the state and across the country find recruitment a challenge for a variety of reasons. Chaffee County EMS is adequately staffed with full time EMS providers and has been able to retain many of the employees for several years, demonstrating the respect the EMS director has established with his crews. One concern mentioned during the interviews is the future staffing and recruiting once full time employees reach the age where they will seek jobs with less physical requirements. Purchasing patient gurney load systems will help limit the physical demands of the EMS provider’s job by decreasing on the job injuries in addition to extending the working years of valuable EMS providers.

## Grow-Your-Own Program

Grow-Your-Own EMS provider programs are highly successful on multiple levels. These programs illustrate how important the EMS system is to the community, develop more relationships within the community and demonstrate the successes of the EMS system. Working with the school district to establish a grow-your-own program for high school students to gain exposure to EMS may help fill the pool for future EMS in the community not only for Chaffee County EMS but also for the fire departments within the county. This type of program takes dedication, planning and coordination between Chaffee County EMS, the local Emergency Services Council, EMS medical directors, the school district and individual high schools to develop a training program for oversight. This instruction would help prepare students for a career in healthcare, fire service, energy development and production or a wide variety of other industries with mandated requirements for work site safety.

A key principle for success is holding the course during the school day as a scheduled class. There must be one person designated as the coordinator who is present each day of class and acts as the lead teacher in order to maintain class integrity.

This type of program could potentially grow new EMS providers for the area and help the future of EMS in Chaffee County.

## Heart of the Rockies Regional Medical Center

Heart of the Rockies Regional Medical Center emergency department employs a total of 12.3 full time equivalents, which includes registered nurses and emergency room technicians. One physician covers the emergency department except during the high volume months in the summer, there is an added mid-level or physician to help with the volume during the hours of noon to 8 p.m. Trauma service personnel stated in the stake holder interviews that the emergency services and trauma program have good administrative support. They noted that they have been involved with several community outreach programs such as fall prevention, bicycle safety and IMPACT testing with the school system. The trauma system support by the trauma nurse coordinator and emergency department medical director is strong and commendable. It is noted that Heart of the Rockies Regional Medical Center was given a 4-star rating by Medicare for the patient experience of care with 71 percent of patients rating the hospital a 9 or 10 (0 being lowest and 10 being highest). The hospital staffing appears to be currently stable, including nursing staff and physician staff with little turnover.

## Recommendations

- Convert the EMS Director to a full-time, 40-hour per week position. This should be considered an additional full-time position in the organization, and not to be utilized for the routine staffing of ambulances.
- Research and implement an appropriate and efficient model for staffing a third ambulance to provide interfacility transport and supplemental 9-1-1 responses. Options may include, but are not limited to, the staffing of a "day car" during historical peak volume times or developing an on-call schedule of additional personnel.
- Develop job descriptions for all positions to include the EMS director, full-time providers, part-time providers, volunteers and ancillary duties such as quality assurance, training, medical direction, public education and prevention.

- Create a “Mission” (what you do), “Vision” (desired end-state) and “Values” (the soul of the organization) Statement for Chaffee County EMS. The focus should be based upon the goals of the agency to help guide decisions about priorities, actions and responsibilities. Mission Statements should be clear, memorable and concise describing the reason the agency exists. Vision Statements should be one sentence describing an inspirational, clear, memorable and concise long-term desire of the agencies service being performed. The Values Statement describes what the agency stands for and the values the agency wants its service members to demonstrate while on-duty and off-duty.
- Update or develop a complete set of policies and procedures for Chaffee County EMS that encompasses all aspects of the organization including employment policies and operational procedures.
- Develop a written, structured orientation program that assures competency at the current certification level and identifies future continuing education needs. Each agency in the county should develop a program consistent with other agencies for continuity purposes.
- Develop a certified vehicle operator training program for all agencies in the county so that all personnel, paid and volunteer, are required to attend both initial and regular renewal classes.
- Provide appropriate facilities for the Buena Vista station that allows for crews to be quartered in the same location as ambulances and equipment. Consider the costs to modify the existing Buena Vista station to include sleeping quarters, kitchen, day room and shower versus purchasing a new facility for the crew.
- Increase the number of qualified EMS providers by developing a trained cohort of EMS providers locally through a Grow Your Own Program. Use a progressive approach that begins with basic CPR/AED training as part of the health curriculum for high school freshman. Then increase the students’ capabilities the following year by adding an introductory first aid component to the program for sophomores. High school juniors would have access to an Emergency Medical Responder (EMR) course and anatomy and physiology class as an elective. The initial EMT course should then be offered as an elective (a qualifying required elective) for high school seniors. Once they reach 18, they can complete the National Registry Exam to be certified as an EMT and graduate with a marketable skill.
- Convey to the community the value of the emergency department staff and EMS providers. This could be through publishing articles in the local newspaper to a celebration activity. Typical weeks to promote pre-hospital and hospital providers are during but not limited to EMS week, fire prevention week, nurses week, etc.
- Promote the partnership between the hospital emergency department and Chaffee County EMS to the community, to include the great benefit of an up-to-date emergency department and hospital with a high functioning EMS system. Heart of the Rockies Regional Medical Center should take the leadership in letting the community know how important both the emergency department and EMS are to the well-being of the community with less emphasis on the losses and cost of the EMS system to include positive data supporting the successes of the partnerships.

## Medical Direction

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
The medical director actively participates in the system	1	5	6	3	3	10	3.11	28
The medical director regularly monitors clinical performance	1	3	5	5	2	12	3.25	28
The medical director actively participates in EMS and trauma activities in the community	1	4	4	5	3	11	3.29	28
The medical director is consulted on EMS and trauma care system issues	0	1	6	5	5	11	3.82	28
<i>answered question</i>								28
<i>skipped question</i>								2

Chaffee County EMS is the primary EMS agency with the three fire departments, search and rescue and ski patrol offering first response assistance. There are five separate medical directors for the various EMS provider agencies in Chaffee County. The agencies throughout the county all have different levels of care and challenges but all voiced a desire for increased medical director involvement, which is not unique to Chaffee County. Medical directors typically have multiple obligations and find that time is one of their most valuable resources. EMS agencies typically are keen on having a higher level of guidance, education and evaluation from the medical director. As discussed more in detail in the *Clinical Care* Section, Chaffee County EMS service members work on protocol adjustments and will submit recommendations for improvements to the medical director for review. Typically all of the Chaffee County EMS quality assurance/quality improvement goes through paramedic review by the training coordinator and if there is a major concern the medical director will review the case and provide feedback back through the training coordinator. The stakeholder interviews revealed the first response agencies used less formal quality assurance/quality improvement processes.

Medical director efforts should focus on the high yield areas to include but not limited to quality assurance, quality improvement, education and protocol development and revisions. These should be regularly scheduled on a monthly or quarterly basis commensurate with agency call volume. EMS in Chaffee County is strong but would benefit significantly with more medical director participation system-wide.

### Regional Medical Direction

Chaffee County and the Central Mountains RETAC have not adopted regional medical direction or regional protocols; however, they have been considered. There is good evidence supporting the value of collaboration and reducing unnecessary variation. This can be a difficult change to make but will likely continue to prove to be a valuable instrument.

## Recommendations

- Increase medical director participation. This should be through quality management processes, education and protocol revisions. A robust EMS system requires active participation by medical direction. Every medical director should review all emergent returns, cardiac, stroke, sepsis and trauma alerts in addition to randomized quarterly or semi-annual checks on chest pain or respiratory call reports.
- Improve physician participation in regional medical direction activities. All agency medical directors should actively participate in the Central Mountains RETAC EMS medical direction project, to strengthen clinical care by collaborating on protocol development and potentially establishing standardized protocols for STEMI, stroke, trauma and air medical utilization.
- Continue discussion and research on regional medical direction and protocols. Work collaboratively with the other medical directors in the region and participate in regional medical direction initiatives through the RETAC to adopt regional specific protocols with area specific addendums. Regional protocols may benefit the area to including but not limited to increasing efficiency of the system as well as decreasing unnecessary/inappropriate variations.

## Clinical Care

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
Capability to provide critical care interfacility transport is available locally	5	3	5	7	3	6	3.00	29
The level of clinical care is consistent across Chaffee County	1	2	7	8	4	7	3.55	29
The quality of EMS is consistent across Chaffee County	0	0	3	8	15	3	4.46	29
The EMS system has good clinical protocols	0	0	2	8	13	6	4.48	29
The EMS protocols are up-to-date	0	0	1	8	13	7	4.55	29
EMS protocols are coordinated between EMS agencies	0	0	3	8	8	10	4.26	29
EMS and trauma care providers are well trained	0	0	5	10	10	4	4.20	29
EMS and trauma care providers are experienced	0	0	4	13	7	5	4.13	29
<i>answered question</i>								29
<i>skipped question</i>								1

Pre-hospital clinical care appears quite robust for a relatively isolated rural location being that there is a strong advanced life support EMS agency in Chaffee County EMS with a combination of career and volunteer fire departments, ski patrol, search and rescue and police providing first responder and BLS care. As an auxiliary resource, there is a new air medical service based in Salida since March 2015, as well as back up air medical resources available nearby. Interfacility transports are largely performed by air medical due to the protracted response time from the interfacility ground ambulance provider based on the Front Range.

## Protocols

The EMS protocols used are based on the Denver Metro Protocols with some modifications for the rural community. The protocols are updated primarily by the Chaffee County EMS providers with passive medical director involvement. Chaffee County EMS has a waiver for rapid sequence intubation, which is documented and reviewed appropriately by the medical director. Being that Chaffee County is a rural agency that from time to time will interact with mutual aid



partners, there are good reasons to consider adoption of regional protocols. During the interviews it appeared that Chaffee County EMS providers were actively seeking evidence-based protocols and would present the idea for a new protocol to the medical director for modification. Regional protocols are typically updated by several medical directors on a regular basis, which would help keep the protocols in Chaffee County evidence-based and area focused. The regional protocols would minimize gaps that one system or medical director might have. If a particular agency has a unique circumstance in their area, the agency can add an addendum for it. Regional protocols are an efficient way to increase the quality of care and reduce unnecessarily inefficient silos within healthcare.

## Quality Assurance/Quality Improvement (QA/QI)

Chaffee County EMS utilizes 100 percent paramedic patient care report review in their quality assurance/quality improvement process. Any report that the paramedic reviewer encounters that “drop out” per their protocols will then go up the chain of command to the medical director. There appears to be an opportunity for improvement in further standardizing clinical quality improvement and medical oversight among all EMS agencies in Chaffee County. The current system would also benefit significantly from the adoption of the requirements for protected EMS quality management activities enacted by Senate Bill 14-162 that passed in the 2014 Colorado legislative session and with medical director involvement in case reviews.

## Alerts/Activations

Heart of the Rockies Regional Medical Center is designated a Level IV trauma center and has a standardized trauma alert protocol. EMS may activate a trauma alert in the field given the protocol criteria.

The EMS protocols have provisions for cardiac alert notification and the interoperability with the emergency department with those alerts appears to work very well. The reperfusion strategy is typically thrombolysis as there is no cardiac catheterization lab available locally. There could be room to develop a protocol for emergent catheterization as American Heart Association recommendations for patients who present to outlying facilities have changed to a 120 minute door to needle time.

The EMS Stroke Alert Protocol also is strong and thrombolysis is performed by the emergency department. One area that the system could consider is collaboration with neurology to establish a protocol that expedites transfer to the stroke referral center. In addition, considering the use of telemedicine tools to allow remote neurologist evaluation may speed up the stroke care window.

Chaffee County EMS should be commended for having a sepsis alert protocol since many EMS systems throughout Colorado do not. Patient care reports and data regarding the performance of all alerts should be obtained and evaluated between the hospital and EMS medical direction for quality assurance management.

### Concerns/Gaps

There is a substantial gap in the clinical care of Chaffee County with respect to interfacility transfers. There is significant concern about the timeliness of transfers voiced from many stakeholders. There is also significant concern about the overuse of helicopter transports due delayed ground ambulance capabilities. Ambulance transfers only occurred 41 percent (104/251 total transfers) of the time from Heart of the Rockies Regional Medical Center during 2014. There were 117 helicopter transfers and 30 fixed wing transfers during 2014. EagleMed, the locally-based air medical service, is an excellent resource for the community, especially given the isolated rural geographical area. Air transport should be utilized appropriately in a tiered EMS system given that it is a costly mode of transport that poses significant risks to the patient, staff and community. Based on the stakeholder interviews, Chaffee County EMS appears to use air medical resources appropriately in the pre-hospital setting.



Given the high utilization rate of helicopter transports from the hospital, every effort should be made to develop a healthy ground transport system. The current 6 to 24 hour wait time for an interfacility transport by ground ambulance is quite significant. Morbidity and mortality of the patient in the emergency department has been demonstrated to have a significant increase at the 6 hour mark and continues to increase the greater the time spent without proper disposition. This statistic provides strong rationale to transfer even non-emergent patients to definitive care expeditiously. Expeditious transport must always be tempered with appropriate resource utilization. Chaffee County must address its dependence on non-emergent air medical transports in order to provide a total system integration.

The other critical gap in clinical care is extended response times when there are multiple calls. Currently, if there are two calls in one area the second crew will respond. If there was a dedicated field supervisor or director position, the possibility of a quick response vehicle to make the initial patient contact would provide decreased wait time for advanced life support, especially in the areas where first response services might be delayed or not respond. When there is a third call in the system, wait times can easily be over 30 minutes for an ambulance due to the time it takes to muster a crew from off-duty personnel or for a busy ambulance to clear from one of the other calls. In the stakeholder interviews, it appears that multiple calls simultaneously happen somewhat frequently.

Another gap in Chaffee County's clinical care is the paucity of data/metrics that are obtained to describe the clinical care. This is addressed further in the *Evaluation* section of this report.

The occasional use of a fire apparatus, police car or other non ambulance vehicles for patient transport to the hospital was raised as a concern during the stakeholder interviews. However, without

concrete information or data, it is unknown how often this occurs but this practice should be avoided if possible.

There does appear to be a potential high yield leverage point that would address multiple gaps. It is possible that adding a third ambulance crew could substantially improve response times, provide a ground transport service and reduce non-ambulance scene transfers. There are obviously several hurdles that would need to be overcome to accomplish this, but given the ability to solve several critical gaps in EMS focusing efforts on this is likely to provide considerable benefit. By adding a third ambulance to the system such as a peak load unit scheduled for 12 hours during the busy part of the day might be a viable option to demonstrate the value of the additional resource.

## Recommendations

- In collaboration with Heart of the Rockies Regional Medical Center, secure the resources necessary for Chaffee County EMS to become the primary interfacility transport agency. The extended wait times for interfacility transports are the most significant issue with clinical care. This can help secure the resources necessary for Chaffee County EMS to effectively manage peak demands for service. Consider options such as 12-hour daily staffing based on high-volume periods, a paramedic quick response unit to initiate care and supported by a third transport unit or scheduled on-call crews.
- Obtain and evaluate data regarding STEMI, stroke and sepsis alerts. Perform quarterly or semi-annual reviews with the hospital, field providers and medical director to discuss what worked, what did not work, final disposition and potential options to improve the level of service system wide.
- Consider implementing county-wide trainings with all agencies, including both EMS and fire. This may increase the collaboration in the county to work on interagency communication and interpersonal relationships. Utilize electronic aids such as WebEx to minimize travel and out-of-service time for active response units.
- Consider developing agency quality assurance programs that meet or exceed C.R.S. 25-3.5-904 to take full advantage of those protections, as well as improve the quality assurance to the highest possible standards. This could be accomplished by assigning the task to the agency medical director who has responsibility for the oversight of clinical care.
- Work with all stakeholders to develop a clear protocol for the activation of medical helicopters to incidents within Chaffee County, as well as a clear, written definition for the appropriate use of air medical resources for interfacility patient transports.

## Education Systems

Please rate the following on a scale of 1 - 5. 5 = Strongly Agree 1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
Leadership training is available for EMS administrators, managers and supervisors	1	6	2	8	2	10	3.21	29
Leadership training is available for hospital administrators, managers and supervisors	1	1	1	5	2	19	3.60	29
EMS and trauma care agencies provide continuing medical education for their employees or volunteers	1	1	2	11	6	8	3.95	29
<i>answered question</i>								29
<i>skipped question</i>								1

As EMS has continued to evolve as a higher-functioning component of the healthcare system, the demands on primary and continuing education have continued to increase. Rural communities have long struggled with all components of EMS education. Significant obstacles include limited budgets, long travel distances and lack of staff coverage to accommodate education. The time and financial commitment to obtain advanced level certification is challenging in most rural areas, which also makes it difficult to attract providers currently holding advanced certifications.

EMS education in Chaffee County clearly suffers to some extent from its isolation, in addition to a lack of funding for education. However, the continuing education needs are buoyed by an extraordinary commitment to not only maintain EMS certifications, but to provide outstanding clinical care in spite numerous challenges. The main provider of primary EMS education is Colorado Mountain College, although other institutions are used. Being that Chaffee County is recognized as an EMS Education Group by the Colorado Department of Public Health and Environment, most of the EMS continuing education is managed in-house by Chaffee County EMS and the various fire agencies. The county emergency manager is the administrator for the Education Group, and maintains a database of training and attendance.

### Chaffee County EMS

Chaffee County operates a full advanced life support (ALS) ambulance service. There is support for initial EMS Provider training up to and including Paramedic level certification. The EMS service has sent several members to paramedic training, reportedly with good results. Nearly all continuing education is conducted internally by the EMS service. Three staff members are certified trainers, and in January 2015, the EMS service added a training coordinator position that receives an annual stipend in exchange for six to eight hours per week additional time applied to the position.

Some examples of internal training currently occurring are:

- Monthly call reviews
- On-line EMS video review
- Occasional joint training with neighboring agencies
- Annual EKG training

The EMS director is currently exploring a program of quarterly training and required competencies, although such a program is not yet instituted. One individual is currently designated as the Quality Assurance Coordinator, but education is not yet driven by the quality assurance process. It was mentioned during the interviews that EMS provider refresher continuing education classes are not offered since it was said the providers should know the basics and the focus is on enhancing the skill levels, not reviewing primary EMS education topics. Refresher training is very valuable as it covers topics that tend to be forgotten due to low frequency use.



Although not a frequently used resource in education currently, the medical director will provide call reviews and other education when requested, and is familiar with individual clinical performance through emergency department interaction and patient transfer of care. The medical director currently holds a waiver for rapid sequence intubation and meets the requirements for maintenance of that waiver.

There are currently no requirements or opportunities for management or leadership level training. It was mentioned during the interviews that it is the desire of the director position to attend management and leadership training classes, but due to the current structure of the operation, it is difficult to find the time off to travel to classes or conferences.

### Salida Fire Department

Salida Fire has a requirement that all personnel hold EMT certifications and are thus committed to both primary and continuing education at that level. The agency will provide a vehicle for travel; however, initial training is the financial responsibility of the individual.

Salida Fire strives to train with Chaffee County EMS, yet call volume and other needs make this task difficult. The most success with regular combined training occurs in the winter months when volume decreases. The medical director will assist with critical call reviews when necessary, but this is not yet accomplished on a regular schedule.

### Chaffee County Fire Protection District

Although they provide a minimal response on EMS, this agency is committed to funding continuing education for its members with EMT certification and Colorado Firefighter I and II. Chaffee County FPD has explored funding EMT initial training, but with limited results as anecdotally the new EMTs rarely stay long after obtaining certification.

Representatives in this agency feel strongly they would benefit greatly from increasing joint trainings with Chaffee County EMS and Buena Vista Fire.

### Buena Vista Fire Department

Given 90 percent of the calls in this service area are for EMS, and wait times for EMS response are a growing concern during the summer, the Buena Vista Fire Department is in favor of increasing first response EMS training and capabilities. There is also a clear desire to focus more on standardizing training and equipment with their neighboring agency, Chaffee County Fire Protection District.

### Heart of the Rockies Regional Medical Center

Heart of the Rockies Regional Medical Center has a clinical education coordinator and provides the standard in-house education expected in a facility for its size and service level. EMS personnel are informally invited and occasionally attend continuing education opportunities. At this time, the medical center does not perform a scheduled or routine call review with EMS crews like a morbidity and mortality (M&M) case review to discuss how the system as a whole worked together to provide pre-hospital and hospital care on specific high acuity cases. Only Colorado Mountain College has a formal clinical education agreement; however, the medical center appears willing to establish an agreement with local EMS and develop a formalized clinical rotation program.

### Monarch Mountain Ski Patrol

This ski area has a fairly robust EMS program that integrates well with local EMS and medical transport. They employ several ALS level providers, and have a volunteer program that attracts physicians, registered nurses and paramedics in exchange for season ski passes. It is estimated that two-thirds of the ski patrol staff also work in other EMS agencies where continuing education needs are met. At a minimum, all ski patrol personnel must hold Outdoor Emergency Care (OEC) which is a commonly used National Ski Patrol certification. Prior to the start of each ski season, Monarch holds a two-day refresher, often using Chaffee County EMS personnel as instructors. Monarch conducts regular reviews of all advanced care, such as pain management, advanced airway and other calls considered critical.

### Chaffee County Emergency Management

The emergency manager is a key resource in the overall EMS education system in Chaffee County. This position acts as the program director for the state-recognized Education Group, maintains a database of all training and attendance, and currently conducts required skills check-offs. The emergency manager also sets up various exercises, all-hazards training and maintains an EMS training calendar.



### Colorado Resource for EMS and Trauma Education (CREATE)

Chaffee County EMS is the only agency in the area currently applying for CREATE grant funds. The EMS service has sent several students to paramedic education courses with good success using CREATE. During the interviews, a few of the fire agencies were interested in pursuing using the CREATE grant process to fund EMS education and training.

## Recommendations

- Develop a local EMS Education Committee with the following representation to regularly conduct needs assessments and collaboratively address education challenges. The committee should work to improve coordination of training offerings in rural areas to maximize cost efficiencies, avoid duplication of efforts and increase communication, trust and agency cooperation.
  - Ambulance service
  - Fire Rescue agencies
  - Air medical
  - Search and rescue
  - Communication center
  - Emergency management
  - Hospital
- Provide leadership and EMS management training for the Chaffee County EMS director and supervisors. First response agencies should pursue similar education specific to their respective disciplines. This training is available throughout Colorado in various formats. The CREATE grant process is an excellent opportunity to provide financial assistance assist to provide and promote this training for the staff.
- Continue to improve partnerships with training centers such as Colorado Mountain College and other educational facilities to provide local EMT courses, as well as Advanced EMT courses and continuing education including EMS provider refresher training.
- Evaluate how grant funds may assist with initial training and continuing education needs in the county. The EMS Education Committee can assist the various EMS and fire agencies in the county use the CREATE grant process to provide more affordable primary and continuing education training.
- Fully engage the Chaffee County EMS medical director in a quality assurance/quality improvement driven continuing education program. This could be accomplished by creating a job description detailing specific expectations.
- Partner with Heart of the Rockies Regional Medical Center, EagleMed and Flight For Life as an education resource and develop a clinical education agreement. Consider implementing operating room and emergency department rotations for paramedics and intermediates to obtain consistent intubation experience as part of skill maintenance for their rapid sequence intubation (RSI) waiver along with other low frequency high acuity skill sets. Consider using the medical center to help all EMS personnel gain experience in vital competencies, such as adult/pediatric assessments and venous access and use the air medical resources for higher level paramedic and EMT training.
- Consider scheduling a monthly or quarterly case review session, a Morbidity and Mortality review for example, evaluating one or more critical medical or trauma case. In collaboration with Heart of the Rockies Regional Medical Center, Chaffee County Communication Center and

the various pre-hospital providers in the county, an emergency department physician or the medical director can present the case from dispatch through hospital discharge reviewing the EMS patient care report, emergency department patient chart and the final discharge outcome focusing on the methods of patient treatment. In addition to case reviews, an hour of continuing education can be provided focusing on a topic for the month/quarter that correlates to the cases discussed.

- Consider using online educational offerings for all EMS and fire agencies in the county. High quality online continuing education can be contracted through several national providers and can fill gaps in needed continuing education. In addition, look at the use of distance, as well as hybrid (part online and part live instruction) learning models to reduce student travel time while obtaining valuable direct instructor contact for students.
- Ensure that specialized training is provided for agency managers and supervisors. Most likely this will need to be accomplished with funding and travel commitment. The National Fire Academy is one source for high quality, partially funded EMS management training. Other opportunities include EMS leadership conferences, the National Rural EMS Conference and the American Ambulance Association Ambulance Service Manager program. CREATE grants along with scholarships can help fund this training. In addition, Department of Homeland Security offers free training (travel and food expenses all free) for fire, EMS and law enforcement personnel. These free trainings are a great resource for management down to field level first responders.

## Public Access

Please rate the following on a scale of 1 - 5.5 = Strongly Agree 1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
The public can easily access EMS services	0	0	5	5	16	3	4.42	29
Emergency medical instructions are provided to callers when dialing 9-1-1	0	0	2	7	10	10	4.42	29
Interfacility ambulance transport is readily available when needed	9	5	5	3	3	3	2.44	28
The public can access 911 in all areas of Chaffee County	1	2	7	6	7	6	3.70	29
There is good access to EMS in all areas of Chaffee County	0	2	11	7	7	2	3.70	29
There are enough response units to provide a quick response to every call	1	6	10	5	3	4	3.12	29
<i>answered question</i>								29
<i>skipped question</i>								1

The universal 9-1-1 emergency access number is available in all areas of Chaffee County, ringing into a dispatch center operated by the Chaffee County Sheriff’s Office. Chaffee County, like most

communities throughout Colorado and the United States, has seen a large reduction in the use of land-line telephones. Cellular service access throughout the populated areas of the county is good though there are many areas in the county where cellular coverage is spotty or non-existent. It was also reported that cellular towers become overwhelmed during the peak of the tourism season, particularly when large community events are conducted.

The dispatch center's 9-1-1 public safety answering point equipment is nearing end-of-life status and components for the system are no longer manufactured. While the system continues to be serviced under an existing maintenance contract, the need for replacement is critical. CodeRED is the primary means for public notification of potential or impending hazards and, while all land-lines within the county are automatically registered, a large portion of cellular lines are not registered with the system. This could pose a public safety risk if an imminent hazardous threat approaches the community and those not signed up for the service are in harm's way. The County Sheriff does advertise this service on the website with easy to follow instructions. One helpful idea to increase the awareness of the service is to place marketing brochures throughout the community in businesses and schools advertising the CodeRED system and how to sign up.

The dispatch center utilizes the EMD of Colorado Emergency Medical Dispatch program. Dispatchers are trained and certified to this standard and the center maintains quality assurance processes. Agencies report that high quality pre-arrival instructions are given to callers and that patient updates are relayed to providers; however, some providers expressed concern with the frequency, type and timing of the updates given.

### Recommendations

- Continue to work with the Emergency Telephone Service Authority on its efforts to upgrade the public safety answering point equipment.
- Collaborate with the Emergency Telephone Service Authority, the Office of Emergency Management, and local public safety agencies to develop a campaign to increase the portion of cellular telephones registered with the CodeRED system.
- Form a working group composed of representatives from the communications center and EMS response agencies to develop and maintain policies identifying functional expectations for the frequency, type and timing of pre-arrival updates of patient condition.

## Communications

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
Local cell phone coverage is adequate	7	8	8	3	0	3	2.27	29
EMS and trauma care organizations have good access to broadband internet service	2	5	8	5	1	8	2.90	29
Public safety agencies have an effective radio system	0	2	7	9	4	7	3.68	29
Fire and EMS have the ability to communicate over radio frequencies	0	2	6	4	10	7	4.00	29
Adjoining areas for mutual aid have the ability to communicate with local EMS and fire agencies over the radio	0	2	8	5	6	8	3.71	29
<i>answered question</i>								29
<i>skipped question</i>								1

The Chaffee County Sheriff's Office provides dispatch services for all of the agencies surveyed. The communications center maintains 24/7/365 coverage with two staffed consoles and has the ability to readily staff a third console for large-scale events or surges in volume. The center also maintains capabilities for mobile dispatch services in a communications trailer and can relocate to the Emergency Operations Center in the event of catastrophic failure in the communications center. The center is staffed and supervised by well-trained and experienced personnel. Computer aided dispatch software is utilized for the tracking of all field units; however, this system is only linked with local law enforcement agency's record management systems. The center's radio consoles are out dated and will be unable to connect to the statewide 800 MHz Digital Trunked Radio System when future upgrades to that system are implemented.

Field personnel primarily utilize the statewide 800 MHz Digital Trunked Radio System for dispatch, coordination, interagency communication and tactical operations. VHF systems are in place for paging, search and rescue operations in remote areas, and for ground-to-air communication with air ambulance providers. EMS personnel communicate with hospital and medical direction by radio or telephone though neither source is recorded. Interoperable communications between local law enforcement agencies, EMS and Salida Fire Department appear to work well; however, many agencies reported that Chaffee County Fire Protection District personnel are unable or unwilling to switch to an assigned or common channel when requested. In discussions with the communications center supervisor and staff, it was mentioned that there are no policies or procedures in place specifying when to contact outside agencies for mutual aid when the EMS system is saturated with requests for service. Working with Chaffee County EMS to develop functional operating procedures for activation of mutual aid resources might be beneficial to decrease response times and the need to find alternate means for patient transport to the hospital when all EMS transport resources are in use.

## Recommendations

- Secure funding to upgrade the communication center radio consoles and develop a capital replacement plan that includes public safety answering point, console and radio replacement on a routine basis.
- Develop an Interoperable Communications Plan to be adopted and utilized by all agencies. This planning should be coordinated by the Emergency Manager and address the needs of all participants.
- Work with Chaffee County EMS and emergency management to develop a functional operating procedure for EMS system saturation. Develop triggers for personnel callbacks, mutual aid requests, usage of air medical resources and other contingency plans.

## Information Systems

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
Ambulance services collect and upload electronic patient care data to the state system	0	0	1	1	6	21	4.63	29
System performance data is regularly collected and analyzed	0	0	2	6	0	21	3.75	29
The ambulance and hospital electronic health records are integrated	7	1	3	0	0	18	1.64	29
Information technology needs are being met within the EMS and trauma care system	2	1	8	0	0	18	2.55	29
<i>answered question</i>								29
<i>skipped question</i>								1

The Chaffee County EMS system is generally using current technology for patient care reporting and data collection. The majority of agencies throughout the county use electronic patient care report (ePCR) systems. A few of the fire service agencies still use paper onscene but will transfer the information to an electronic system like FIREHOUSE Software after they return to the station. The county has variable access to reliable broadband Internet with connectivity being more robust in the more populous areas and sporadic to no access in the more rural areas. Chaffee County EMS uses the High Plains ePCR system for patient transportation documentation and is current on the data submissions to the Colorado Department of Public Health and Environment. The service uses all relevant functions of the software including the quality assurance/quality improvement (QA/QI) feature to send patient care reports through the quality improvement officer and medical director if needed. During the onsite interview with Chaffee County EMS staff, it was mentioned that EMS run data and provider report cards are easily accessible, but are not being used due to the perception that the “low” volume of high acuity patients and procedures do not accurately assess the agency or individual provider. As EMS progresses into a more technological and evidence based practice, it is imperative to

review all available data to look for various trends not only for quality management but also as a possible marketing tool to demonstrate the value EMS has to the community.

### ePCR Interoperability

Patient care reports are typically provided to Heart of the Rockies Regional Medical Center upon request for trauma patients only as part of the Level IV trauma review process for state designation. Currently Chaffee County EMS does not submit patient care reports beyond what is requested for trauma patients or necessary for patient medical records. First response fire agencies do not have the ability to share patient care information electronically between EMS software but are able to provide a handwritten copy of the patient care report for patient handoff to the EMS transport crew.

### On-line Medical Direction and Incoming Patient Reports

Communications between field units and the hospital emergency department are typically accomplished via mobile phone directly to an established “biophone” line with ready access to emergency physicians for consultation and orders. It was universally noted that telephone communications between field units and the hospital emergency department are not recorded and, therefore, provide no ability for follow-up quality or compliance review.

### Advancing Technology

Chaffee County EMS does not have mobile data terminals (MDTs) in their ambulances but do receive text messages from dispatch on their personal cellular devices with the address and incident number. Since the text messages are reliant upon commercial cellular telephone services, many times the text messages are dropped due to the number of devices linked to the cellular tower in the area. Having MDTs in emergency vehicles allow crews to receive valuable call information like agency unit status, address, incident number, pertinent medical information, previous 9-1-1 history requests on residence and potential hazards, call time information (dispatch, en route, on scene, clear scene, arrive destination) and the ability to message crews back and forth without having to relay private critical information over the airwaves. In addition, MDTs have the ability to include mapping software for GPS capabilities. This comes in handy for difficult-to-locate persons on cellular devices who may not know their location but have a link to longitude and latitude position location. In mass casualty incident (MCI) situations or when a field supervisor is first on scene, the supervisor can track where the emergency vehicles are located and estimate the arrival time of the responding crews if response vehicles are equipped with automatic vehicle location (AVL) technology.

### EMS Website

Chaffee County EMS has a single web page within the county’s website. The web page contains basic information such as an overview of the service, a link to the 2012 Agency Evaluation and Feasibility Study, how to access the 9-1-1 system for an ambulance, directions for billing inquiries and steps to request an ambulance for a standby event. Providing a more robust EMS website with a calendar of EMS events and trainings, photos of crews and agency resources links to open job postings, frequently asked questions for billing, accessing 9-1-1, links to register with CodeRED, and ordering a standby event ambulance can help market the EMS service better to gain community support and aid in recruitment efforts.



## Recommendations

- Implement a recorded phone line to capture communications between field providers and medical direction. This information is highly valuable for quality improvement activities and risk management for agencies and medical directors.
- Collect and analyze EMS run data and provider report cards, and incorporate those findings in the quality management process. Regardless of the frequency that a skill is performed by a provider or the agency, it is still important to track any trends to focus on areas of improvement as well as looking at what the service excels at. This can help focus EMS continuing education classes or skills review sessions.
- Consider sharing Chaffee County EMS ePCRs with Heart of the Rockies Regional Medical Center for quality measures and continuity of care. EMS provides a valuable pre-hospital service where advanced life support measures are performed and should be thoroughly documented in a patient's medical record for continuity of care.
- Update the Chaffee County EMS website. In today's technological climate, website communication is a valuable marketing tool. Although Chaffee County EMS is a public service, marketing the department would have many benefits. Recruitment efforts could be added through job postings. Many agencies post a company calendar to communicate events and meetings. Some utilize it for schedule planning and time off requests. It can be utilized for community polls and surveys of the service as well as help with public education and injury or disease prevention information for the community.
- Consider seeking various grant opportunities through the Colorado Department of Public Health and Environment or Department of Homeland Security/FEMA to place mobile data terminals in emergency response vehicles. MDTs are a valuable tool for address verification, access to pertinent medical information, previous location history and hazards, communication between responding crews, records of call times for report writing and patient contact, and mapping or using GPS location tools.

## Public Education

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
The public understands and supports the local EMS and trauma care system	2	5	9	5	2	6	3.00	29
Regular efforts are made to inform the public about EMS and trauma care	3	4	8	5	2	7	2.95	29
Regular efforts are made to inform policy makers about EMS and trauma care	0	4	6	8	2	9	3.40	29
<i>answered question</i>								29
<i>skipped question</i>								1

In most communities, the general public has a very limited understanding of EMS. Yet many EMS providers expect the public to know when and when not to use the EMS system, how to provide basic care before EMS arrival, and why EMS programs may come to them for funding. Progressive EMS programs not only provide fast, appropriate and high quality care, they also enable their customers to be a stronger part of the EMS community through innovative public education initiatives. Public education often overlaps with prevention activities, as well, providing EMS with additional opportunities to be a more active community partner.

### CPR and AED Community Education

Systems development funding through the Central Mountains RETAC is commonly used to fund public education in Chaffee County. Community CPR/AED and first aid classes are held regularly and several Chaffee County EMS members are instructors. There is no charge for these classes for government agencies and school employees. All law enforcement personnel have CPR and first aid training, and Chaffee County Sheriff deputies carry basic trauma kits. Classes are currently held at “cost” only for community members, making it more readily affordable.

Although the staff feels they could be more active in public education, Chaffee County EMS appears to participate significantly in the current efforts to use RETAC funds toward public education. Several EMS service members are active CPR instructors and the organization appears to be the central clearing house for CPR, AED and first aid training community wide. The program is somewhat informal, in spite of the activity. Future community collaboration and program development would likely be very effective and include other elements of public education, as well. A proposed tax initiative to support EMS should increase public education about the current EMS program and financial needs, at least for a short period of time. There is a great opportunity to continue building on that community spotlight on the program, regardless of the success of the tax initiative.

### Buena Vista Fire Department

Buena Vista Fire Department is active with CPR/AED training for city employees and there appears to be a good opportunity to expand and include community classes as well. All public works employees have training and would make good targeted users for an expanded AED program.

### Chaffee County Fire Protection District

Chaffee County Fire Protection District participates in public outreach through flyers and radio announcements. During fire prevention week, the district opens up their stations for tours and fire prevention education. The district does have a few CPR instructors and will from time to time provide CPR and AED training for community members. Even though there are no schools within the district boundaries, the agency will go into the schools to educate on fire prevention efforts.



### Salida Fire Department

The Salida Fire Department currently has three CPR instructors. The agency is present in the schools doing both education and prevention activities. The fire chief writes quarterly safety articles published locally. The department also conducts regular open houses, gives tours and interacts with the public during fire prevention week.

### Heart of the Rockies Regional Medical Center

Heart of the Rockies Regional Medical Center has an active, formalized public education program which is currently the responsibility of the marketing director. Among the many activities are frequent "Health beat" topics in the local newspaper and other news-related education opportunities. The presence of an organized program is a great opportunity to take a lead role in a community-wide needs assessment and collaborate with EMS stakeholders to develop and execute a solid, on-going public education plan.

### Recommendations

- Acknowledge public education as a critical activity. All EMS stakeholders should collaborate with other community resources to determine needs and explore methods to fund and execute public education initiatives. Consider working with Heart of the Rockies Regional Medical Center and Chaffee County public health to develop a solid community-wide public education plan.
- Create a Public Education Coordinator at Chaffee County EMS. Consider combining the responsibilities for the position with prevention activities. Consider establishing public education coordinators at all fire, EMS and public health agencies, or providing this service through interagency partnerships, as well. This position should review the agency public education plan and modify to address several elements, including clinical education, program marketing, system access awareness and prevention. This position should also routinely evaluate the effectiveness of the public education program and identify new opportunities.
- Develop public education programs that address the needs of all members of the community. This includes programs targeted toward school-age children, adults, senior citizens, and other members of the community with special needs.

- Continue work to promote the following clinical skills in the community:
  - Community CPR, AED and basic first aid training
  - CPR, AED and basic first aid for school employees, coaches and law enforcement personnel
  - Early CPR, AED and basic first aid for students at the high school level
- Public education coordinators should partner with the Emergency Services Council to promote EMS system awareness. Continue building on the community’s increased knowledge about the EMS system gained through the 2015 tax initiative efforts and engage in continuous efforts to educate the public. Increasing the content on the website to include, but not limited to, frequently asked questions, services provided by EMS, photos of crews, equipment and other resources. A great time to engage the public is during the National EMS Week with newspaper articles and pancake breakfasts or barbeques.

## Prevention

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree									
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count	
An analysis of local injury and illness data is performed regularly	2	0	1	4	3	19	3.60	29	
Prevention programs are developed based on local needs	2	0	4	7	1	15	3.36	29	
Prevention programs are regularly offered to the community	2	1	5	6	1	14	3.20	29	
								<i>answered question</i>	29
								<i>skipped question</i>	1

As an integral part of the healthcare system, EMS has a responsibility to engage in community prevention activities. Moreover, the public often responds very positively to initiatives by first responder organizations. Not only do prevention activities provide proven opportunities to reduce human morbidity and mortality, it is another chance to interact with the members of the public in a positive setting. In most cases, prevention intersects well with public education efforts.

In December 2014, Central Mountains RETAC released a comprehensive prevention needs assessment covering the six county region (Chaffee, Eagle, Lake, Park, Pitkin, and Summit). The assessment reviewed current activities, utilized primary and secondary data, looked at injury causes and stratified data by factors such as age groups, and residency. The assessment provides an excellent framework for current and future activities.

Most agencies are currently involved in some community prevention activity. Personnel time and funding are sufficient challenges that deter more comprehensive programs. Some of the highlights of current activities include:

- Salida Fire Department is currently active with prevention activities in the schools and holds an annual open house during Fire Prevention Week, and the fire chief writes a quarterly article for the local news paper on a safety topic.

- Heart of the Rockies Medical Center is active in prevention in a number of programs. Some examples include the “Healthbeat” articles for the paper, helmet safety initiatives, head trauma awareness for coaches, elderly fall prevention and a community wellness program.
- Chaffee County EMS partnered with public health to provide community flu shots in 2014 and plans to continue with a similar program annually.
- Chaffee County Fire Protection District provides house and mitigation assessments, smoke detector checks and installations, along with various other community prevention outreach projects.
- The Central Mountains RETAC Prevention Coalition in a grant partnership with Colorado Department of Transportation has been very successful with the Teen Seatbelt Challenge Program.

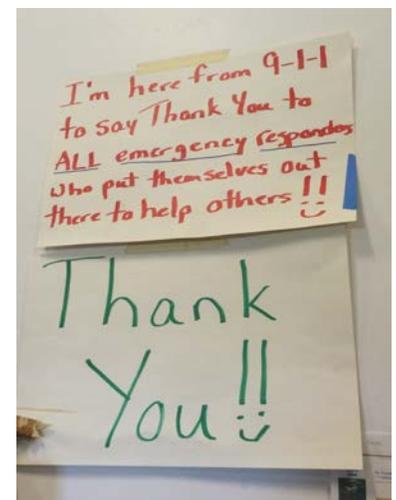
### Public Access Automated External Defibrillator (AED) Program

Most sudden cardiac arrests result from ventricular fibrillation. This is a rapid, unsynchronized heart rhythm resulting in very limited cardiac output. The heart must be “defibrillated” quickly, since research has shown the chance of surviving drops by 7 to 10 percent for every minute a normal heartbeat is not restored. Quality CPR may help prolong a victim's chance of survival, but actual resuscitation requires the restoration of an organized heart rhythm and effective pumping action accomplished only with a defibrillator. An automated external defibrillator (AED) is a lightweight, portable device that delivers an electric shock through the chest to the heart. AEDs automatically assess the victim's heart rhythm and determine whether defibrillation is needed, thus can be used safely, appropriately and effectively by anyone. In fact, AED training is now a mandatory component of CPR certification.

Although Chaffee County has a significant number of AEDs in the community, no unified program exists to manage, maintain and provide training for the AEDs county-wide. AEDs are currently located in the City of Salida and City of Buena Vista buildings, Chaffee County buildings and schools. Law enforcement units are not carrying AEDs, although all officers receive CPR/AED training. There appears to be willingness for law enforcement to carry AEDs, if such a program was funded.

### Child Safety Seats

Injuries suffered in a motor vehicle traffic collisions are the leading cause of death among children in the United States.<sup>14</sup> Numerous studies including a 2010 National Highway Traffic Safety Administration Study *Children Injured in Motor Vehicle Traffic Crashes* conclude that use of child safety seats is effective. Presently the Colorado Department of Transportation website lists Heart of the Rockies Regional Medical Center and Chaffee County Public Health as the only locations for certified car seat inspections and installation assistance. Other options could reasonably exist with some agency commitment to this vital prevention program.



## Recommendations

- Make a commitment to engage in community-wide, multidisciplinary illness and injury prevention activities. Prevention should be recognized as not only a method to improve the health and safety of the community, but as an avenue to connect with the community in a mutually beneficial manner. Create a Prevention Coordinator position at Chaffee County EMS with clear expectations to develop the program. Consider combining the position with Public Education activities.
- Engage EMS, fire departments, public health, schools and other stakeholders to develop an achievable prevention plan using the 2014 Regional Prevention Risk Assessment with assistance from Central Mountains RETAC.
- Consider unifying existing AEDs into a structured program that strengthens the AED system and may qualify for numerous AED grant opportunities. There are several possible “homes” for the program, including the EMS service, public health and the recommended Emergency Services Council. Work to assure the AEDs are maintained, staff members in buildings with AEDs are trained as “targeted users,” and appropriate locations have current emergency response plans. Make obtaining AEDs for all law enforcement vehicles a priority. Also work to integrate AED locations and targeted user response into the dispatch system.
- Increase the number of car seat technicians in the community. In addition to existing programs, agencies that should consider car seat programs include Chaffee County EMS and both municipal fire departments.

## Mass Casualty

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree									
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count	
MCI exercises are performed at least once a year	4	2	4	5	4	10	3.16	29	
EMS and trauma agencies participate in annual MCI exercises	4	1	5	4	4	11	3.17	29	
EMS agencies and facilities have written mass casualty response plans	0	0	4	8	4	13	4.00	29	
EMS and trauma care leaders are aware of local and state emergency management efforts and programs	0	1	4	6	8	10	4.11	29	
								<i>answered question</i>	29
								<i>skipped question</i>	1

The Chaffee County Office of Emergency Management has the lead role in planning for all hazards, including mass casualty incident response. Chaffee County, through its emergency manager and EMS director, participated in the development of the Pikes Peak Metropolitan Medical Response System Multi-Casualty Incident Response Plan. While the plan has not been incorporated into the County Emergency Operations Plan, it has been distributed in stand-alone format to all applicable agencies within the county. Agencies surveyed indicate that personnel are aware the plans exist, its contents, and how they function within the plan.

Live drills and tabletop exercises occur on a limited basis and the drills have not been sized to require county-wide, multi-agency participation. It was mentioned during the interviews that some of the agencies do not participate as actively as others do, and that many times the agency representatives do not bring back information discussed at the exercise to the appropriate ranks for agency wide dissemination. Also during the stakeholder interviews it was mentioned that active shooter training through law enforcement agencies occur semi annually to annually with participation from the Chaffee County EMS tactical EMS members. For county-wide MCI plans to be effective, full agency participation is needed. This serves a twofold cause: 1) it gets agencies working together which builds relationships and trust in each other's abilities, and 2) if and when an MCI occurs, agencies will work together more smoothly and lines of communication will be easier, which in turn provides better care to those affected by the event. Of the agencies surveyed, most recall the last county-wide drill to have taken place over five years ago. However, it was discussed in the interviews that the emergency manager does plan drills and invites the various county agencies to participate more frequently than that.

## Recommendations

- Incorporate the Multi-Casualty Incident Response Plan into the County Emergency Operations Plan.
- Develop a comprehensive Training and Exercise Plan (TEP) for the entire county for the next three to five years. This would allow the emergency manager to request state assistance to provide training within the county and increase the efficiency of exercise planning by designing exercises to meet the needs of multiple agencies.

## Evaluation

Please rate the following on a scale of 1 - 5.5 = Strongly Agree1 = Strongly Disagree									
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count	
Each EMS agency has a defined and ongoing quality improvement program	0	0	3	7	7	12	4.24	29	
Quality improvement findings are integrated into the EMS and trauma care system	0	0	3	7	4	15	4.07	29	
Quality improvement activities are coordinated and communicated between services	3	2	1	7	2	14	3.20	29	
								<i>answered question</i>	29
								<i>skipped question</i>	1

During the stakeholder interviews and evaluating the pre-visit survey, it appears Chaffee County EMS has minimal and informal methods of evaluation in place. Evaluation is a key process that assesses the quality of a system or product. Without evaluation there is no way to determine if the system is achieving its goals and mission. Many EMS systems develop some form of evaluation to gauge the performance level of the agency in reaching its service level vision. Traditionally response times have

been a primary metric for EMS to measure how effectively a service is delivering patient care. While response times are an important component of patient care delivery, they are not the only part that should be evaluated. The relationship between response times and quality outcomes is complex. Most response time criteria are measured off of neurological intactness post return of spontaneous circulation based on various studies performed meaning that for cardiac arrest patients, studies have shown that at the 9 minute response time goal, there is a 10 percent patient survival rate walking out of the hospital neurologically intact.<sup>15</sup> EMS systems should be evaluated on their key outcomes and how they actually affect patient's lives in addition to response time goals. A good evaluation system can be compared to a dashboard in a car: one can easily look at it and tell what is going on. Modifications can then be made, steering the system towards its goal. Having an effective evaluation system in place also facilitates resource allocation to determine if there are adequate numbers of resources or if a particular resource needs to be added or decreased.

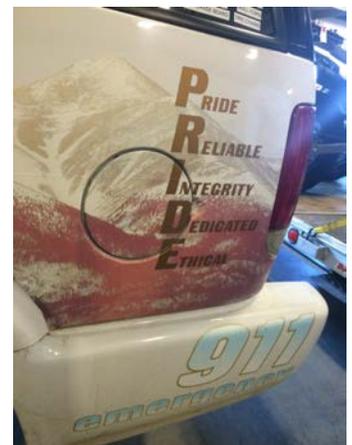
### Response Time Performance Measures

Looking at Chaffee County as a whole, it is a difficult task to develop response time criteria given the vast differences in population density, call volume and road access across the county. Performance standards are a challenge in rural communities; however, steps can be taken to evaluate the response effectiveness. All the agencies within the county do an excellent job serving their respective communities and should be commended on the dedication they have for the service. Establishing reasonable response goals for the various response areas should be considered and evaluated on an annual basis to demonstrate the effectiveness of the services they provide to the community.

Performance standards vary throughout the nation based upon the needs of each individual community. The standard throughout the nation is based upon these performance standards<sup>15</sup>:

1. Respond to 90 percent of urban calls in less than 9 minutes
2. Respond to 90 percent of rural calls within 15 minutes
3. Respond to 90 percent of wilderness calls within 30 minutes

The American Heart Association and National Fire Protection Association (NFPA) 1710 standard set lower response time goals for urban environments at four minutes for BLS first response and eight minutes for ALS response. The above response times are a general guideline based upon national industry standards and should be evaluated and adjusted based upon existing county response data and reasonable expectations provided by Chaffee County EMS management. The response times should be self-reported and self-evaluated. Responses in remote areas that are difficult to access and mutual aid responses out of the county should not be factored into the response time analysis. Safety considerations should also be made for inclement weather periods and crews should not justify increasing speed or taking risks to meet a response time goal. It is also important to note that the overall response time should be evaluated based upon the dispatch time to the onscene time for responding units to properly demonstrate how long it takes for crews to arrive onscene once dispatched. Another consideration in evaluating response times is separating out emergent versus non-emergent responses. Higher priority requests for service should have a different



response time goal as opposed to low acuity requests. For example higher acuity responses requiring an emergent response might be 8 or 9 minutes where a non-emergent low acuity response might be 15-minutes for a more urban environment compared to a 15-minute emergent rural response goal with a 20-minute non-emergent response goal.

### Patient Care Data Reporting

The role of evaluation of data in the big picture of EMS is crucial. There is often the thought of “what value does my data have when the numbers are so small?” Or, rephrased, datasets with a small number or numbers are not statistically significant. Even statistically insignificant data has value. If an agency ignores data one may miss an opportunity to evaluate procedures whether frequent or infrequent. The second concept missed with this thinking is that the data maybe small and statistically insignificant yet when combined with other system’s data on a regional, state, national or international scale it becomes significant and powerful. Chaffee County data is relevant to determine if what is being performed makes a difference and improvements to provide the highest level of patient care and satisfaction can be made.

### Recommendations

- Perform mandatory quality assurance and quality improvement evaluations of STEMI, stroke, sepsis and critical trauma patients. As previously mentioned, collaborate with all agencies and organizations involved to review the patient care reports for proper assessment, treatment and transport from 9-1-1 call through final patient disposition. These case reviews can be performed in conjunction with the regular Morbidity and Mortality reviews conducted by the hospital.
- Review agency quality management programs to ensure they reflect the most current research, best practices and thoroughly assess system and individual performance. Update all quality management programs to incorporate the components required to invoke the protections enacted by the Colorado legislature in 2014.
- Evaluate the response time performance for the various Chaffee County EMS agencies. Evaluate response data to include but not limited to dispatch to en route time, en route to arrival time, dispatch to arrival time and GIS plotting of call locations. Pay attention to any trends in areas where calls are increasing year after year, especially in areas where development is likely to increase calls for service.
- Evaluate the need to set performance standards. Performance standards should be developed based upon reasonable expectations geographically throughout the county to ensure citizens and visitors receive reasonable access to EMS care. Standards should be set up based upon a specific percentile to mitigate the effect of challenges inherent to emergency responses in rural and frontier areas. If performance standards are to be applied, the response zones and time standards should be evaluated on an annual basis to ensure the criteria is reasonable, attainable and EMS care is being delivered with increased positive outcomes. The recommended Emergency Services Council should be responsible for proposing the performance goals and advising the elected officials.

- Consider establishing a regional medical directors advisory group to formalize evaluation techniques at a regional level. This group can also evaluate regional protocols based on best practices from rural EMS medicine.
- Create a reliable, efficient system to provide a dashboard view of the EMS system focused on positive patient outcome. The dashboard should be self-reporting and assessing with the capability to modify resources and trainings based upon evaluating annual data.

## Integration of Health Services

System Integration Please rate the following on a scale of 1 - 5. 5 = Strongly Agree 1 = Strongly Disagree								
Answer Options	1	2	3	4	5	Don't Know	Rating Average	Response Count
The Hospital and EMS agency work well together	1	1	5	12	6	4	3.84	29
EMS is well connected to the overall healthcare system	0	2	5	8	8	6	3.96	29
EMS and fire agencies work well together	1	5	4	8	8	3	3.65	29
All participants in the EMS and trauma care system understand their role	1	1	6	9	7	5	3.83	29
<i>answered question</i>								29
<i>skipped question</i>								1

The concept of effective system integration includes a myriad of persons, organizations and processes that bring together the individual sub-components of a system into a coordinated group effort that functions together as one. It includes a network of organizations working together as partners to optimize resource utilization to achieve optimal outcomes. It's comprised of individuals who agree and are committed to provide a continuum of coordinated services for a common purpose. All of the organizations and persons must agree to be held personally, organizationally, functionally and fiscally accountable to not only each other, but to the communities and populations served as well.

Generally all of the entities in Chaffee County are competent, respected and functionally work together. That said, elements of system fragmentation still exist that create on-going barriers that reduce true integration and inclusion of all the stakeholders. These barriers, either real or perceived, reduce the likelihood of effective communication, cooperation and coordination of activities. When conflicts arise it is imperative that methods be put in place that quickly identify and positively facilitate timely resolution of conflicts and problems as they arise. Realistic and faithful commitments made by all stakeholders that promote inclusion, participation, cooperation, communication and conflict resolution are essential components for ultimate success or failure of the system.

Coordination of local system-wide activities along with the creation of linkages among the various agencies can be done through the activities of the local Emergency Services Council. As a group, the council is, or should be, the central body where activities are planned, discussed, coordinated and communicated. It is also the most efficient place where conflict resolution is encouraged and

problems are solved. True effectiveness of the council is enhanced by a genuine willingness to participate, faithful attendance by all stakeholders, open and honest discussions, dialogue of relevant topics, effective communications and timely follow-through on assigned projects. When participation is lacking from one or more entities, the effectiveness of the council is reduced and the potential for an emergency response system failure is increased.

An analogy of the purpose, function and even benefits of the Emergency Services Council is like that of a wheel. The rim of the wheel represents all of the processes, partnerships, communications, agreements and other system enhancements that arise from the collective effort. The rim is the most important part of the wheel because it represents that part of the wheel that connects and bonds the agencies together. The tire represents the outcomes produced out of the cooperative and collective effort - all of which can be modified, enhanced, inflated or deflated, and even replaced as needs change and new challenges arise. Inclusion, respect, representation, participation, cooperation and patients are the most important parts of integration.

The Chaffee County emergency system functions quite well. It is composed of dedicated medical, firefighting, rescue, law enforcement and support personnel who are both paid and volunteer, who will ultimately work together when duty calls. When all components of the system come together they accomplish remarkable things.

On a day-to-day basis first response to most medical and trauma emergencies is provided by fire agencies, Chaffee County EMS and in many cases, law enforcement. The fire agencies are equipped, staffed and trained to provide basic medical care and provide specialized rescue and extrication services. Chaffee County EMS provides the crux of the field medical care and transports patients mainly to Heart of the Rockies Regional Medical Center. When situations arise that require additional specialized or other technical rescue services both North and South Search and Rescue Teams and Monarch Mountain Ski Patrol are called upon for their unique skills and expertise. EagleMed, the newest member of the Chaffee County emergency response team, flies in to provide critical, time sensitive care and air transportation to regional specialized care centers. Heart of the Rockies Regional Medical Center is in the core of the system because it is the primary destination in the area for medical care, the center of regional medical direction and home of the regional medical network. Behind the scenes is the Chaffee County Communications Center, Office of Emergency Management, Central Mountain RETAC and the governing county and municipal governments that are working to plan, coordinate and provide logistical support that sustains overall operations and entities.

However, just in other systems, processes do not function as smoothly when collaboration between agencies decreases. When this occurs the system is in need of realignment. During the interviews various stakeholders advised members of the consultative visit team of instances where interagency rivalries got in the way of effective working relationships. In some cases it was perceived that some personnel from some entities would purposefully antagonize, belittle and under value the contributions made by another. Some stakeholders were frustrated by the lack of participation by other entities in regional planning events and meetings such as the Emergency Services Council. There were



even some cases of jurisdictional boundary disputes where some entities regularly responded into another jurisdiction area seemingly without regard to negative impacts, emotions and frustrations created by these actions. There were other frustrations of the lack of consistent medical oversight and participation provided by the various agency medical directors. Consistently, the consultative team was advised that more participation by the hospital was not only wanted, but also welcomed and needed.

Among the key primary medical care providers (Chaffee County EMS and Heart of the Rockies Regional Medical Center) there appeared to be room for opportunities to learn more about the potential changes caused by the Patient Protection and Affordable Care Act (ACA). In some cases there was an unclear mindset that the ACA will have any negative impact on Chaffee County EMS and Heart of the Rockies Regional Medical Center at all. Failure to explore and minimally prepare for a new integrated and value oriented healthcare system in the future could have financial and operational consequences. EMS, healthcare and legislative related publications are full of ACA related documentation, perspectives and the need for change.

In a recent article for *State Legislatures Magazine* Michelle Ansell (2015) states:

“The Rural Assistance Center, part of the U.S. Department of Health and Human Services’ Rural Initiative, reports that rural Americans suffer from higher rates of chronic illnesses and worse health overall than city dwellers. They are less likely to have employer-provided health care coverage, or to be covered by Medicaid even if they qualify for it. They seek treatment in hospital emergency rooms and call 911 for non-emergency situations—a costly practice. Nearly 80 percent of adults who visited emergency departments did so because they didn’t have access to other providers, according to a 2012 report on emergency room use from the Centers for Disease Control and Prevention.”

Change is inevitable especially in the rural healthcare setting. Chaffee County will continue to grow and the healthcare system will continue to change and the needs associated with both growth and change will require flexible cooperative efforts by all entities involved to facilitate these new needs. The Chaffee County emergency response system should be prepared for and have the supportive systems in place that will facilitate the future changes that the needs of the community will experience collectively.

## Recommendations

- Create a more effective means to promptly resolve interagency conflicts that enhances trust among agencies and promotes open and honest information sharing. This can be augmented through collaboration with the recommended Emergency Services Council.
- Encourage enhanced EMS medical director participation in the agencies they oversee. Focus on consistent medical practice by and between agencies according to provider levels and tailored to ALS/BLS agency type. Encourage medical director participation in Central Mountains RETAC regional medical direction planning, orientation and best practice events. Medical director participation in such events will raise their awareness to their individual responsibilities and liabilities when serving as EMS medical directors.

- Create and initiate a community medical needs assessment focusing on identifying patient care related healthcare gaps. Chaffee County EMS and Heart of the Rockies Regional Medical Center can work collaboratively with other healthcare providers to assess the current healthcare needs and identify gaps where patients experience 'barriers' to receiving needed healthcare services. It can also include how patients may be currently inappropriately utilizing current healthcare services such as relying on the emergency department for primary care services.
- Identify new and innovative means for delivering healthcare services in the county where all healthcare professional are engaged, to provide alternative healthcare services.
- Consider implementing innovative community based healthcare programs that meet future healthcare and financial needs of patients residing within Chaffee County. Programs must be designed to include all healthcare providers and meet the quality and funding provisions as envisioned and required by the ACA. Programs implemented must align with priorities of the Triple Aim where patient outcomes are improved, healthcare costs are reduced and patient satisfaction is increased.

## Summary

In your opinion, how effective is the overall local EMS and hospital system in meeting the needs of the community (1 means does not meet community needs at all and 10 means meets all community needs completely)?												
Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
Rating	0	0	0	0	7	2	5	13	2	0	7.03	29
<i>answered question</i>											29	
<i>skipped question</i>											1	

The pre-visit survey does an adequate job assessing the effectiveness of the emergency medical and trauma system in Chaffee County. The survey rates the overall EMS and hospital system as above average- scoring just above a "7" on a 1 to 10 scale. For a rural community, Chaffee County has a significant number of highly trained and skilled full-time paid EMS providers. For a geographically isolated community, it is extremely hard to employ paramedic level providers, but Chaffee County EMS seems to have sufficient numbers and does a great job of retaining all levels of providers. Looking into the future, Chaffee County EMS should establish priorities and goals in order to sustain services long-term. To highlight a few recommended goals would be to establish a dedicated EMS director position to oversee the overall operation, create a sustainable funding source like the proposed sales tax initiative on the 2015 November ballot, focus on billing and accounts receivable to ensure maximum user fees are collected, establish a third ambulance in the system potentially in partnership with the hospital for interfacility transports and back-up 9-1-1 response for system saturation periods, and recruiting programs to ensure the high level of EMS providers are available. Working together as a system instead of in silos will be a crucial task as the health care system changes over the next several years to ensure Chaffee County provides the highest level of health care to its citizens and visitors as well as ensure the ability to receive adequate reimbursements for user fees charged. One way to encourage system integration is to train together via mass casualty drills, monthly or quarterly case reviews through the hospital and frequent interagency medical continuing education training. Finally, establishing a solid agency and regional quality management programs focused on evidence based medicine and regional/area specific protocols will keep Chaffee County pre-hospital response agency providers current and highly skilled.

## Summary of Recommendations

### County Government Recommendations

#### Short-term (1 to 2 years)

- Formally authorize an Emergency Services Council via county EMS Resolution. This council should be authorized to provide general oversight of ambulance licensing and EMS system quality through advisory capacity to the Board of County Commissioners. Participation should be from at least one representative of all agencies providing any level of emergency medical services in Chaffee County. The EMS Council should provide the Chaffee County commissioners with a report on the current state of the EMS system on an annually or semi-annual basis. The Board of County Commissioners should appoint voting representation from the following agencies:
  - Ambulance service
  - Fire Rescue agencies
  - Air medical resource
  - Search and rescue
  - Communication center
  - Emergency management
  - Hospital
  - Ski patrol
  - One active EMS medical director
- Create a more effective means to promptly resolve interagency conflicts that enhances trust among agencies and promotes open and honest information sharing. This can be augmented through collaboration with the recommended Emergency Services Council.
- Collaborate between the county emergency manager and the Emergency Services Council to update all mutual and automatic aid agreements, as well as assist in the development of a county-wide master agreement.
- Consider developing agency quality assurance programs that meet or exceed C.R.S. 25-3.5-904 to take full advantage of those protections, as well as improve the quality assurance to the highest possible standards. This could be accomplished by assigning the task to the agency medical director who has responsibility for the oversight of clinical care.
- Secure funding to upgrade the communication center radio consoles and develop a capital replacement plan that includes public safety answering point, console and radio replacement on a routine basis.

### Medium-term (3 to 5 years)

- Create a strategic plan for county-wide health and emergency medical services. This plan should include EMS delivery, EMS education, community prevention and community education activities. Consider using the Central Mountains RETAC resources to assist.
- Work with all stakeholders to develop a clear protocol for the activation of medical helicopters to incidents within Chaffee County, as well as a clear, written definition for the appropriate use of air medical resources for interfacility patient transports.
- Improve physician participation in regional medical direction activities. All agency medical directors should actively participate in the Central Mountains RETAC EMS medical direction project, to strengthen clinical care by collaborating on protocol development and potentially establishing standardized protocols for STEMI, stroke, trauma and air medical utilization.
- Incorporate the Multi-Casualty Incident Response Plan into the County Emergency Operations Plan.
- Develop a comprehensive Training and Exercise Plan (TEP) for the entire county for the next three to five years. This would allow the emergency manager to request state assistance to provide training within the county and increase the efficiency of exercise planning by designing exercises to meet the needs of multiple agencies.

## Chaffee County Ambulance Recommendations

### Short-term (1 to 2 years)

- Secure and dedicate a sustainable funding source to support EMS operations and other emergency services needs for the long-term and continued service enhancements to maintain the high quality of emergency care.
- Convert the EMS Director to a full-time, 40-hour per week position. This should be considered an additional full-time position in the organization, and not to be utilized for the routine staffing of ambulances.
- Increase medical director participation. This should be through quality management processes, education and protocol revisions. A robust EMS system requires active participation by medical direction. Every medical director should review all emergent returns, cardiac, stroke, sepsis and trauma alerts in addition to randomized quarterly or semi-annual checks on chest pain or respiratory call reports.
- Evaluate and implement more consistent agency related best practices into the fee structure and price setting processes. EMS fees for service should be evaluated and increased. In addition, evaluate effectiveness of current billing and collection processes and contractors for cost and revenue recovery.
- Seek out other sources of grant funding and continue applying for funds from current grant sources.
- Research and implement an appropriate and efficient model for staffing a third ambulance to provide interfacility transport and supplemental 9-1-1 responses. Options may include, but are not limited to, the staffing of a “day car” during historical peak volume times or developing an on-call schedule of additional personnel.
- Provide leadership and EMS management training for the Chaffee County EMS director and supervisors. First response agencies should pursue similar education specific to their respective disciplines. This training is available throughout Colorado in various formats. The CREATE grant process is an excellent opportunity to provide financial assistance assist to provide and promote this training for the staff.
- Create a “Mission” (what you do), “Vision” (desired end-state) and “Values” (the soul of the organization) Statement for Chaffee County EMS. The focus should be based upon the goals of the agency to help guide decisions about priorities, actions and responsibilities. Mission Statements should be clear, memorable and concise describing the reason the agency exists. Vision Statements should be one sentence describing an inspirational, clear, memorable and concise long-term desire of the agencies service being performed. The Values Statement describes what the agency stands for and the values the agency wants its service members

to demonstrate while on-duty and off-duty.

- Update the Chaffee County EMS website. In today’s technological climate, website communication is a valuable marketing tool. Although Chaffee County EMS is a public service, marketing the department would have many benefits. Recruitment efforts could be added through job postings. Many agencies post a company calendar to communicate events and meetings. Some utilize it for schedule planning and time off requests. It can be utilized for community polls and surveys of the service as well as help with public education and injury or disease prevention information for the community.
- Obtain and evaluate data regarding STEMI, stroke and sepsis alerts. Perform quarterly or semi-annual reviews with the hospital, field providers and medical director to discuss what worked, what did not work, final disposition and potential options to improve the level of service system wide.
- Perform mandatory quality assurance and quality improvement evaluations of STEMI, stroke, sepsis and critical trauma patients. As previously mentioned, collaborate with all agencies and organizations involved to review the patient care reports for proper assessment, treatment and transport from 9-1-1 call through final patient disposition. These case reviews can be performed in conjunction with the regular Morbidity and Mortality reviews conducted by the hospital.
- Explore and consider joining industry specific associations and organizations that provide membership cost benefits such as coops to reduce EMS related supply and other related costs. With these associations, participate in industry related advocacy groups and associations to promote EMS activities both on the state and federal level, to discover improved efficiencies and enhanced funding opportunities.

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### Medium-term (3 to 5 years)

- Provide appropriate facilities for the Buena Vista station that allows for crews to be quartered in the same location as ambulances and equipment. Consider the costs to modify the existing Buena Vista station to include sleeping quarters, kitchen, day room and shower versus purchasing a new facility for the crew.
- Explore and create strategic plans that incorporate short and long-term operational and financial components, and develop capital improvement plans.
- Connect with Colorado Central Collections for potential collection agency revenue recovery services. Evaluate the use of this service offered to local governments by the Colorado Department of Personnel, Division of Finance and Procurement, for collections. This is a state agency that has a greater reach to assist in collecting outstanding EMS bills.

- Appoint a Medicare Compliance and Privacy Officer and associated employee review committees to review accuracy of claims filed and agency compliance with Medicare rules. This compliance officer should review, amend, implement and enforce HIPAA related compliance policies and procedures.
- Enroll Chaffee County EMS into the Colorado Indigent Care Program (CICP) to collect Medicaid type payments from patients in the CICP program which would be billed through Heart of the Rockies Regional Medical Center.
- Continue discussion and research on regional medical direction and protocols. Work collaboratively with the other medical directors in the region and participate in regional medical direction initiatives through the RETAC to adopt regional specific protocols with area specific addendums.
- Develop job descriptions for all positions to include the EMS director, full-time providers, part-time providers, volunteers and ancillary duties such as quality assurance, training, medical direction, public education and prevention.
- Update or develop a complete set of policies and procedures for Chaffee County EMS that encompasses all aspects of the organization including employment policies and operational procedures.
- Adapt agency quality programs to comply with the Colorado State Quality Management program requirements. This should net some benefits, such as more robust quality assurance/quality improvement programs that meet or exceed minimum standards, as well as protections to exclude quality management activities from being legally discoverable and immunity from civil lawsuits for quality management participants.
- Collect and analyze EMS run data and provider report cards, and incorporate those findings in the quality management process. Regardless of the frequency that a skill is performed by a provider or the agency, it is still important to track any trends to focus on areas of improvement as well as looking at what the service excels at. This can help focus EMS continuing education classes or skills review sessions.
- In collaboration with Heart of the Rockies Regional Medical Center, secure the resources necessary for Chaffee County EMS to become the primary interfacility transport agency. The extended wait times for interfacility transports are the most significant issue with clinical care. This can help secure the resources necessary for Chaffee County EMS to effectively manage peak demands for service. Consider options such as 12-hour daily staffing based on high-volume periods, a paramedic quick response unit to initiate care and supported by a third transport unit or scheduled on-call crews.
- Consider sharing Chaffee County EMS ePCRs with Heart of the Rockies Regional Medical Center for quality measures and continuity of care. EMS provides a valuable pre-hospital

service where advanced life support measures are performed and should be thoroughly documented in a patient's medical record for continuity of care.

- Consider seeking various grant opportunities through the Colorado Department of Public Health and Environment or Department of Homeland Security/FEMA to place mobile data terminals in emergency response vehicles. MDTs are a valuable tool for address verification, access to pertinent medical information, previous location history and hazards, communication between responding crews, records of call times for report writing and patient contact, and mapping or using GPS location tools.

### Long-term (5 years)

- Explore alternative organizational structures, such as an ambulance or health service district, with dedicated long-term funding and governance focused on enhanced service delivery and quality of care.

- Develop strong relationships with other health care providers from an administration level, to include Chaffee County EMS, the fire departments, Chaffee County Communication Center, public health, Central Mountains RETAC and the health care coalition. The hospital is required to collaborate with the local health care coalition on several projects to receive Hospital Preparedness Program (HPP) funding, which can in turn be used for planning and exercise training with EMS and trauma system partners.

- Increase the number of qualified EMS providers by developing a trained cohort of EMS providers locally through a Grow Your Own Program. Use a progressive approach that begins with basic CPR/AED training as part of the health curriculum for high school freshman. Then increase the students' capabilities the following year by adding an introductory first aid component to the program for sophomores. High school juniors would have access to an Emergency Medical Responder (EMR) course and anatomy and physiology class as an elective. The initial EMT course should then be offered as an elective (a qualifying required elective) for high school seniors. Once they reach 18, they can complete the National Registry Exam to be certified as an EMT and graduate with a marketable skill.

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## Heart of the Rockies Recommendations

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### Short-term (1 to 2 years)

- Consider scheduling a monthly or quarterly case review session, a Morbidity and Mortality review for example, evaluating one or more critical medical or trauma case. In collaboration with Heart of the Rockies Regional Medical Center, Chaffee County Communication Center and the various pre-hospital providers in the county, an emergency department physician or the medical director can present the case from dispatch through hospital discharge reviewing the EMS patient care report, emergency department patient chart and the final discharge outcome focusing on the methods of patient treatment. In addition to case reviews, an hour of continuing education can be provided focusing on a topic for the month/quarter that correlates to the cases discussed.
- Collect and review data on the actual cost of interfacility transfers. Determine the cost effectiveness of providing support for Chaffee County EMS to staff a third ambulance for interfacility transports and peak demand 9-1-1 response versus the cost to hold a patient in the emergency department for hours while waiting for a transfer ambulance to come from the Front Range.
- Implement a recorded phone line to capture communications between field providers and medical direction. This information is highly valuable for quality improvement activities and risk management for agencies and medical directors.

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### Medium-term (3 to 5 years)

- Educate system stakeholders and community members how the hospital is currently participating in the EMS system and the reasons that critical access hospitals traditionally do not own and operate ambulance services. Consider having an outside financial analyst provide data showing the financial implications of the critical access hospital owning and operating the ambulance service.
  - Promote the partnership between the hospital emergency department and Chaffee County EMS to the community, to include the great benefit of an up-to-date emergency department and hospital with a high functioning EMS system. Heart of the Rockies Regional Medical Center should take the leadership in letting the community know how important both the emergency department and EMS are to the well-being of the community with less emphasis on the losses and cost of the EMS system to include positive data supporting the successes of the partnerships.
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## EMS and Trauma System-Wide Recommendations

### Short-term (1 to 2 years)

- Convey to the community the value of the emergency department staff and EMS providers. This could be through publishing articles in the local newspaper to a celebration activity. Typical weeks to promote pre-hospital and hospital providers are during but not limited to EMS week, fire prevention week, nurses week, etc.
- Develop a written, structured orientation program that assures competency at the current certification level and identifies future continuing education needs. Each agency in the county should develop a program consistent with other agencies for continuity purposes.
- Ensure that specialized training is provided for agency managers and supervisors. Most likely this will need to be accomplished with funding and travel commitment. The National Fire Academy is one source for high quality, partially funded EMS management training. Other opportunities include EMS leadership conferences, the National Rural EMS Conference and the American Ambulance Association Ambulance Service Manager program. CREATE grants along with scholarships can help fund this training. In addition, Department of Homeland Security offers free training (travel and food expenses all free) for fire, EMS and law enforcement personnel. These free trainings are a great resource for management down to field level first responders.
- Continue to work with the Emergency Telephone Service Authority on its efforts to upgrade the public safety answering point equipment.
- Form a working group composed of representatives from the communications center and EMS response agencies to develop and maintain policies identifying functional expectations for the frequency, type and timing of pre-arrival updates of patient condition.
- Work (Chaffee County Communication Center) with Chaffee County EMS and emergency management to develop a functional operating procedure for EMS system saturation. Develop triggers for personnel callbacks, mutual aid requests, usage of air medical resources and other contingency plans.
- Evaluate the response time performance for the various Chaffee County EMS agencies. Evaluate response data to include but not limited to dispatch to en route time, en route to arrival time, dispatch to arrival time and GIS plotting of call locations. Pay attention to any trends in areas where calls are increasing year after year, especially in areas where development is likely to increase calls for service.

## Medium-term (3 to 5 years)

- Consider implementing county-wide trainings with all agencies, including both EMS and fire. This may increase the collaboration in the county to work on interagency communication and interpersonal relationships. Utilize electronic aides such as WebEx to minimize travel and out-of-service time for active response units.
- Review agency quality management programs to ensure they reflect the most current research, best practices and thoroughly assess system and individual performance. Update all quality management programs to incorporate the components required to invoke the protections enacted by the Colorado legislature in 2014.
- Develop a certified vehicle operator training program for all agencies in the county so that all personnel, paid and volunteer, are required to attend both initial and regular renewal classes.
- Evaluate the need to set performance standards. Performance standards should be developed based upon reasonable expectations geographically throughout the county to ensure citizens and visitors receive reasonable access to EMS care. Standards should be set up based upon a specific percentile to mitigate the effect of challenges inherent to emergency responses in rural and frontier areas. If performance standards are to be applied, the response zones and time standards should be evaluated on an annual basis to ensure the criteria is reasonable, attainable and EMS care is being delivered with increased positive outcomes. The recommended Emergency Services Council should be responsible for proposing the performance goals and advising the elected officials.
- Collaborate with the Emergency Telephone Service Authority, the Office of Emergency Management, and local public safety agencies to develop a campaign to increase the portion of cellular telephones registered with the CodeRED system.
- Develop an Interoperable Communications Plan to be adopted and utilized by all agencies. This planning should be coordinated by the Emergency Manager and address the needs of all participants.
- Consider establishing a regional medical directors advisory group to formalize evaluation techniques at a regional level. This group can also evaluate regional protocols based on best practices from rural EMS medicine.
- Create and initiate a community medical needs assessment focusing on identifying patient care related healthcare gaps. Chaffee County EMS and Heart of the Rockies Regional Medical Center can work collaboratively with other healthcare providers to assess the current healthcare needs and identify gaps where patients experience 'barriers' to receiving needed healthcare services. It can also include how patients may be currently inappropriately utilizing current healthcare services such as relying on the emergency department for primary care services.

- Identify new and innovative means for delivering healthcare services in the county where all healthcare professional are engaged, including the potential for community paramedics, to provide alternative healthcare services.

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### Long-term (5 years)

- Create a reliable, efficient system to provide a dashboard view of the EMS system focused on positive patient outcome. The dashboard should be self-reporting and assessing with the capability to modify resources and trainings based upon evaluating annual data.
  - Consider implementing innovative community based healthcare programs that meet future healthcare and financial needs of patients residing within Chaffee County. Programs must be designed to include all healthcare providers and meet the quality and funding provisions as envisioned and required by the ACA. Programs implemented must align with priorities of the Triple Aim where patient outcomes are improved, healthcare costs are reduced and patient satisfaction is increased.
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## Education Recommendations

### Short-term (1 to 2 years)

- Develop a local EMS Education Committee with the following representation to regularly conduct needs assessments and collaboratively address education challenges. The committee should work to improve coordination of training offerings in rural areas to maximize cost efficiencies, avoid duplication of efforts and increase communication, trust and agency cooperation.
  - Ambulance service
  - Fire Rescue agencies
  - Air medical
  - Search and rescue
  - Communication center
  - Emergency management
  - Hospital
- Continue to improve partnerships with training centers such as Colorado Mountain College and other educational facilities to provide local EMT courses, as well as Advanced EMT courses and continuing education including EMS provider refresher training.
- Evaluate how grant funds may assist with initial training and continuing education needs in the county. The EMS Education Committee can assist the various EMS and fire agencies in the county use the CREATE grant process to provide more affordable primary and continuing education training.
- Fully engage the Chaffee County EMS medical director in a quality assurance/quality improvement driven continuing education program. This could be accomplished by creating a job description detailing specific expectations.
- Acknowledge public education as a critical activity. All EMS stakeholders should collaborate with other community resources to determine needs and explore methods to fund and execute public education initiatives. Consider working with Heart of the Rockies Regional Medical Center and Chaffee County public health to develop a solid community-wide public education plan.

## Medium-term (3 to 5 years)

- Partner with Heart of the Rockies Regional Medical Center, EagleMed and Flight For Life as an education resource and develop a clinical education agreement. Consider implementing operating room and emergency department rotations for paramedics and intermediates to obtain consistent intubation experience as part of skill maintenance for their rapid sequence intubation (RSI) waiver along with other low frequency high acuity skill sets. Consider using the medical center to help all EMS personnel gain experience in vital competencies, such as adult/pediatric assessments and venous access and use the air medical resources for higher level paramedic and EMT training.
- Create a Public Education Coordinator at Chaffee County EMS. Consider combining the responsibilities for the position with prevention activities. Consider establishing public education coordinators at all fire
- Develop public education programs that address the needs of all members of the community. This includes programs targeted toward school-age children, adults, senior citizens, and other members of the community with special needs.
- Continue work to promote the following clinical skills in the community:
  - Community CPR, AED and basic first aid training
  - CPR, AED and basic first aid for school employees, coaches and law enforcement personnel
  - Early CPR, AED and basic first aid for students at the high school level
- Public education coordinators should partner with the Emergency Services Council to promote EMS system awareness. Continue building on the community's increased knowledge about the EMS system gained through the 2015 tax initiative efforts and engage in continuous efforts to educate the public. Increasing the content on the website to include, but not limited to, frequently asked questions, services provided by EMS, photos of crews, equipment and other resources. A great time to engage the public is during the National EMS Week with newspaper articles and pancake breakfasts or barbeques.
- Make a commitment to engage in community-wide, multidisciplinary illness and injury prevention activities. Prevention should be recognized as not only a method to improve the health and safety of the community, but as an avenue to connect with the community in a mutually beneficial manner.
- Engage EMS, fire departments, public health, schools and other stakeholders to develop an achievable prevention plan using the 2014 Regional Prevention Risk Assessment with assistance from Central Mountains RETAC.

- Consider unifying existing AEDs into a structured program that strengthens the AED system and may qualify for numerous AED grant opportunities. There are several possible “homes” for the program, including the EMS service, public health and the recommended Emergency Services Council. Work to assure the AEDs are maintained, staff members in buildings with AEDs are trained as “targeted users,” and appropriate locations have current emergency response plans. Make obtaining AEDs for all law enforcement vehicles a priority. Also work to integrate AED locations and targeted user response into the dispatch system.
- Increase the number of car seat technicians in the community. In addition to existing programs, agencies that should consider car seat programs include Chaffee County EMS and both municipal fire departments.

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### Long-term (5 years)

- Consider using online educational offerings for all EMS and fire agencies in the county. High quality online continuing education can be contracted through several national providers and can fill gaps in needed continuing education. In addition, look at the use of distance, as well as hybrid (part online and part live instruction) learning models to reduce student travel time while obtaining valuable direct instructor contact for students.

## Appendix A Chaffee County EMS Statistics 2014

*These statistics are based upon what was reported to the state for NEMSIS reporting*

### Response Request

Response Request	# of Times	% of Times
911 Response (Scene)	1988	99.70%
Interfacility Transfer (Scheduled)	3	0.15%
Mutual Aid	2	0.10%
Unknown	1	0.05%
<b>Total</b>	<b>1994</b>	<b>100%</b>

### Request for Service Time Frames

Time Period	Sunday	Monday	Tuesday	Wed	Thurs	Friday	Saturday	Total	Percent
0000 - 0300	29	23	14	14	16	24	15	135	6.77%
0300 - 0600	14	13	14	12	13	11	21	98	4.91%
0600 - 0900	30	26	22	22	40	19	34	193	9.68%
0900 - 1200	48	58	27	51	53	52	47	336	16.85%
1200 - 1500	48	53	53	49	54	68	68	393	19.71%
1500 - 1800	40	66	46	53	50	47	47	349	17.50%
1800 - 2100	38	36	36	30	45	59	51	295	14.79%
2100 - 2400	28	30	20	32	20	25	39	194	9.73%
Unknown	0	0	1	0	0	0	0	1	0.05%
<b>Total</b>	<b>275</b>	<b>305</b>	<b>233</b>	<b>263</b>	<b>291</b>	<b>305</b>	<b>322</b>	<b>1994</b>	<b>100%</b>

### Run Times

Enroute (Responding - Unit Notified Dispatched)		
Minutes	# of Runs	% of Runs
0 - 1	1169	58.63%
2 - 3	631	31.64%
4 - 5	110	5.52%
> 5	55	2.76%
Unknown	29	1.45%
<b>Total</b>	<b>1994</b>	<b>100%</b>

Response Time (Enroute - Arrive Scene)		
Minutes	# of Runs	% of Runs
0 - 5	845	42.38%
6 - 10	628	31.49%
11 - 14	171	8.58%
> 15	258	12.94%
Unknown	92	4.61%
<b>Total</b>	<b>1994</b>	<b>100%</b>

Transport Time (Depart Scene - Arrive Hospital)		
Minutes	# of Runs	% of Runs
0 - 5	174	8.73%
6 - 10	287	14.39%
11 - 14	78	3.91%
> 15	555	27.83%
unknown	900	45.14%
<b>Total</b>	<b>1994</b>	<b>100%</b>

Average Run Times	
Enroute	0:01:54
To Scene	0:10:17
At Scene	0:25:53
To Destination	0:20:57
Back in Service	0:12:22
<b>Total</b>	<b>1:11:23</b>

## Response Mode

Response Mode to Scene	# of Times	% of Times
Initial Lights and Sirens, Downgraded to No Lights or Sirens	26	1.30%
Initial No Lights or Sirens, Upgraded to Lights and Sirens	8	0.40%
Lights and Sirens	1377	69.06%
No Lights and Sirens	582	29.19%
Unknown	1	0.05%
<b>Total</b>	<b>1994</b>	<b>100%</b>

## Transport Mode

Transport Mode from Scene	# of Times	% of Times
Initial Lights and Sirens, Downgraded to No Lights or Sirens	1	0.05%
Initial No Lights or Sirens, Upgraded to Lights and Sirens	9	0.45%
Lights and Sirens	106	5.32%
No Lights or Sirens	1001	50.20%
Not Applicable	858	43.03%
Not Recorded	18	0.90%
Unknown	1	0.05%
<b>Total</b>	<b>1994</b>	<b>100%</b>

## Disposition

Response Disposition	# of Times	% of Times
Dead at Scene	17	0.85%
No Patient Found	670	33.60%
No Treatment Required	48	2.41%
Patient Refused Care	124	6.22%
Treated and Released	6	0.30%
Treated, Transferred Care	42	2.11%
Treated, Transported by EMS	1082	54.26%
Treated, Transported by Law Enforcement	2	0.10%
Treated, Transported by Private Vehicle	2	0.10%
Unknown	1	0.05%
<b>Total</b>	<b>1994</b>	<b>100%</b>

## Appendix B

### List of Stakeholder Agencies Interviewed

**Buena Vista Volunteer Fire Department**

**County Administrator**

**County Commissioners**

**County Emergency Manager**

**Chaffee County Communication Center**

**Chaffee County Emergency Medical Services**

**Chaffee County Search and Rescue (North and South)**

**Chaffee County Fire Protection District**

**EagleMed**

**Flight for Life**

**Gunnison Valley Hospital EMS**

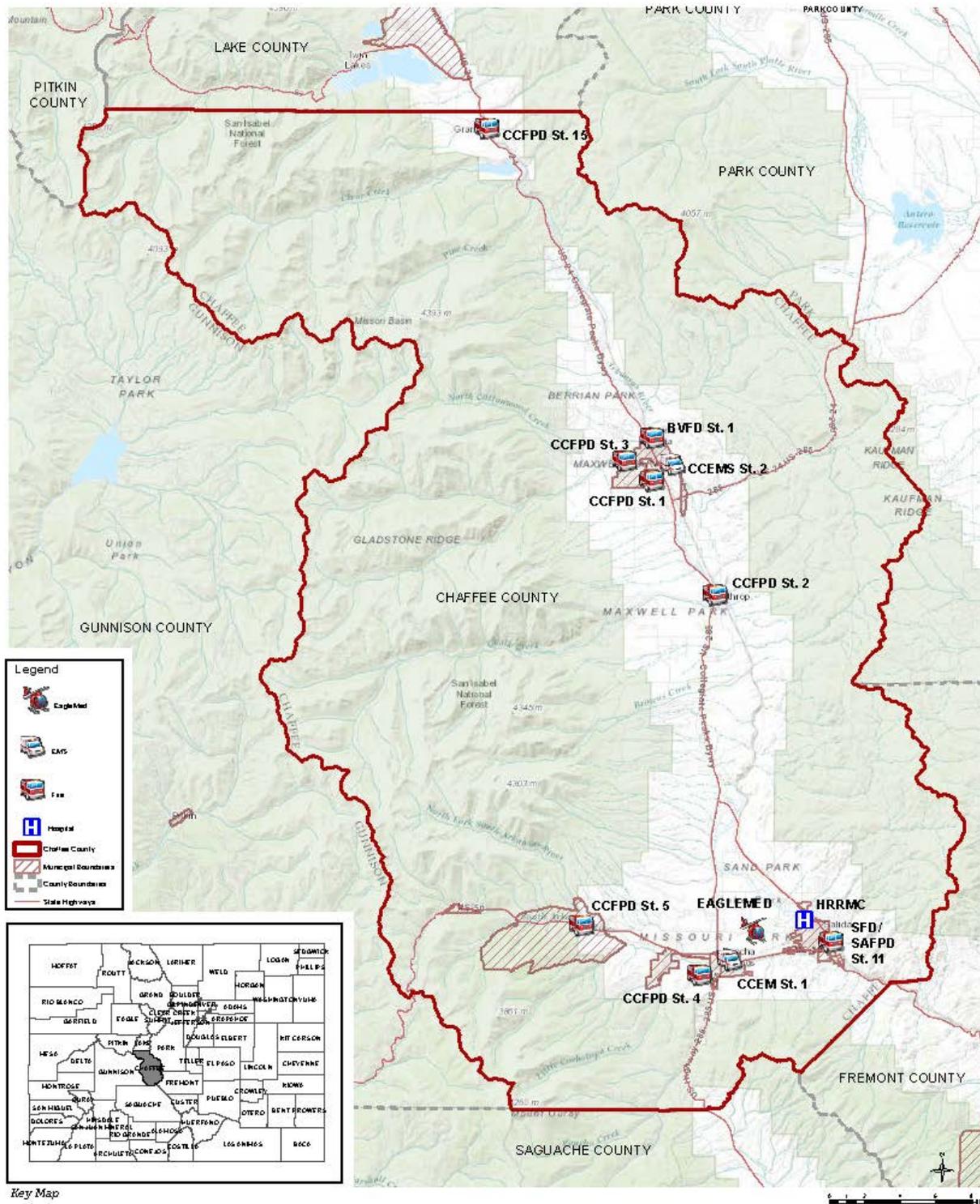
**Heart of the Rockies Regional Medical Center**

**Monarch Mountain Ski Patrol**

**Salida Fire Department**

**South Arkansas Fire Protection District**

# Appendix C Chaffee County Service Map



## Emergency Medical Services and Health Facilities

Chaffee County, Colorado

August, 2015



## Appendix D

### Consultative Visit Team Biographical Information

#### Timothy Dienst, MPA, NR-Paramedic

Tim has been 'chasing' fire trucks and ambulances for 39 years beginning when he first joined the Cripple Creek Volunteer Fire Department as a junior firefighter in 1976. Since then he has worked for many private and public EMS agencies serving in capacities as an EMT, paramedic, field training instructor, supervisor, operations manager; and now, as the Chief Executive Officer for Ute Pass Regional Health Service District in Woodland Park. He attended the University of Colorado in Colorado Springs earning both of his Bachelors of Arts in geology, geography and energy science (1982) and his Masters of Public Administration (2014). As an EMS advocate, Tim is very active in promoting EMS issues in many local, state and national forums to enhance EMS operations and improve financial sustainability. Locally he serves as Secretary/Treasurer for the Teller County Emergency Services Council, Chair of the sub-committee for Long-term Strategic Planning for the El Paso County Emergency Services Agency and is Vice Chair of the Plains to Peaks RETAC. He is an active participant in state EMS activities where he serves alongside many other EMS leaders as the President of the Colorado EMS Chiefs, Managers and Directors group - a subsidiary of the Emergency Medical Services Association of Colorado. Nationally, he has traveled several times to Washington D.C. to be a strong advocate for the Field EMS Modernization and Innovation Act (EMS Field Bill) which is envisioned to transform EMS into a quality based innovative and patient-centered system that will increase quality, enhance patient outcomes, improve coordination, and reduce costs. Most recently, Tim was appointed by the President of the Colorado State Senate to serve as the EMS representative on the Medicaid Rate Review Advisory Committee.

#### Arlene Harms

Arlene started her career at Melissa Memorial Hospital in Holyoke, Colo. as a medical technologist over 25 years ago. She continued to work in the clinical arena in lab, cardiac rehabilitation and quality improvement until 2000, at which time she became administrator of Melissa Memorial Hospital. She also worked as an EMT-Intermediate for the Phillips County Ambulance Service and managed it during her tenure at Melissa Memorial Hospital. In 2007, she moved to Alamosa where she has been employed by Rio Grande Hospital as chief executive officer. She is active as an instructor in ACLS and PALS.

#### Tad Rowan, Paramedic

Tad Rowan is currently the Fire Chief of the Montrose Fire Protection District (MFPD), a mid-sized fire and EMS department that serves an area of 1,100 square miles in Western Colorado. Tad has over 25 years of experience in rural and urban EMS, beginning his career as an EMT and volunteer firefighter in 1989. He became an EMT-Intermediate in 1992, and completed his Paramedic certification in 1994 while working as the Operations Manager for a private ambulance service. In 1999, he was hired as the EMS Division Chief for the MFPD where he was responsible for the implementation of ALS and transport



From left to right: Arlene Harms, Tim Dienst, Matt Concialdi, Anne Montera, Scott Sholes, Tad Rowan, Eric Schmidt, Matt Skwiot

services for the district. He was promoted to Deputy Chief of Operations in 2004 and served in that capacity until selected for the Fire Chief's position in 2011. Tad remains active in EMS and fire education, systems development, and State and Federal grant review processes. He also serves on the board of directors for the Colorado State Fire Chiefs Association and the Colorado Public Safety Communications Sub-Committee.

### **Scott Sholes, BA, Paramedic**

Scott began his EMS career as an EMT with the pre-hospital program at Mercy Medical Center in Durango, Colorado in 1979. He has been active in both ground and aeromedical service as a paramedic. Currently Scott is the EMS Chief for Durango Fire & Rescue, coordinating and advancing the EMS program. He is actively involved at the regional, state and national levels in EMS, and is particularly passionate about promoting a safety culture. In 2009 he was selected to serve on the NAEMT Safety Course Committee developing the new certification course in EMS safety. His current service includes: Chair of the La Plata County Emergency Services Council; Board Member of the Southwest Regional Emergency and Trauma Advisory Council; President of the Emergency Medical Services Association of Colorado; Vice President of the Colorado EMS Chiefs, Managers and Directors Association; President of Heart Safe La Plata.

### **Matt Skwiot, M.D.**

Dr. Skwiot is currently a practicing Emergency Medicine Physician at Grand River Hospital in Rifle, Colo. where he is the chief of the Department of Emergency Medicine. He is the medical director for Colorado River Fire Rescue in Rifle, New Castle and Silt. In addition he is the medical director for Garfield County Search and Rescue. Dr. Skwiot is currently working on completing his Master's Degree in Health Care Administration at Saint Joseph's College of Maine. Dr. Skwiot began his medical career as an EMT-B for the Western State College Mountain Rescue Team. He attended medical school at St. Matthew's University School of Medicine. During this time in Belize, C.A. where, with other medical students, he developed an Emergency Response Team in a third-world environment. He completed his clinical rotations in Chicago where he spent significant time working in urban underserved hospitals focusing on emergency medicine. He completed the Mountain Area Health Education Center Rural Family Medicine Residency in Hendersonville, NC with a focus on Rural Emergency/Acute Care. He went on to complete the Premier Healthcare Emergency Medicine Fellowship in Dayton, Ohio and Saint Rita's Hospital in Lima, Ohio He is Board Certified in Family Medicine.

## **The Department Representatives**

### **Matt Concialdi, MS, NR-Paramedic**

Matt Concialdi is the EMS system development coordinator at the Colorado Department of Public Health and Environment, Emergency Medical and Trauma Services Branch. In addition, Matt staffs the State Emergency Medical and Trauma Services Advisory Council's Safety Committee and is the co-chair on the Safety and Security Committee for the department. Matt served as the project manager, partial writer and editor for this consultative visit. He has led previous EMS assessment projects in Cheyenne County, Moffat County, Custer County, Ouray County and Montrose County. Matt is a NREMT-Paramedic who started his EMS career in 2001 working in the EMS system of Orange County, Calif. He holds a Master's Degree in Emergency Services Administration along with degrees in Emergency Management, Fire Technology Medical Services Officer, Communications- Radio/TV/Film and Paramedic. In 2011, he

moved to Colorado and began working in the City of Aurora EMS system. He has spent most of his career as a field training officer training both EMTs and Paramedics as well as worked as a dispatcher in an emergency and non-emergency ambulance communication center. Matt has additional experience in EMS education as a primary instructor and clinical skills specialist. He is certified in Incident Response to Terrorist Bombing, FitResponder and First Response Resiliency instruction. In 2012 Matt became a member of CO-2 Disaster Medical Assistance Team, a federal response team through the Health and Human Services Division of the Department of Homeland Security. In 2013 he received the Excellence in Patient Care (EPIC) coin award through HealthOne and was a recipient of the Phoenix Lifesaving Award from the City of Aurora Fire Department. He also owns his own CPR/First Aid and emergency preparedness business serving the Denver Metro area.

#### **Eric Schmidt, RN, BSN, MBA, Intermediate**

Eric is a Colorado native and began his career in emergency services 30 years ago as a volunteer firefighter in Copper Mountain. He has provided EMS consulting services and technical assistance to local governments in Colorado through his firm, EMS Services, since 1992. He is currently the funding section manager at the Colorado Department of Public Health and Environment, Emergency Medical and Trauma Services Branch. Prior to that he contracted with the Northwest RETAC to serve as coordinator and provided ambulance inspection services for ten counties. Eric's consulting services are supported by a broad array of experiences in emergency medical and trauma services. He was a trauma nurse for Penrose Hospital, a Level II trauma center in Colorado Springs. Before that, Eric served as the EMS Officer for El Paso County where his duties included contract administration of a high performance ambulance agreement for the El Paso County Emergency Services Agency, administration of the county's ambulance licensing program and EMS system coordination. He has also served as the manager for a hospital district that operated an ambulance service and built a community clinic and emergency center during his tenure, directed the EMS training program for Colorado Northwestern Community College, administered federal pass-through grants as a program manager for the Colorado Department of Transportation, collected pre-hospital data for system analysis as an information system specialist at the Colorado Department of Public Health and Environment, and held paid and volunteer positions as an EMT at several rural EMS agencies. He earned Bachelor of Science degrees in Nursing, Business Administration and Mechanical Engineering from the University of Colorado, and a Master of Business Administration from the University of Oregon. Eric currently holds a Colorado Registered Nurse license, Colorado EMT-Intermediate certification and a technician level Amateur Radio license from the Federal Communications Commission.

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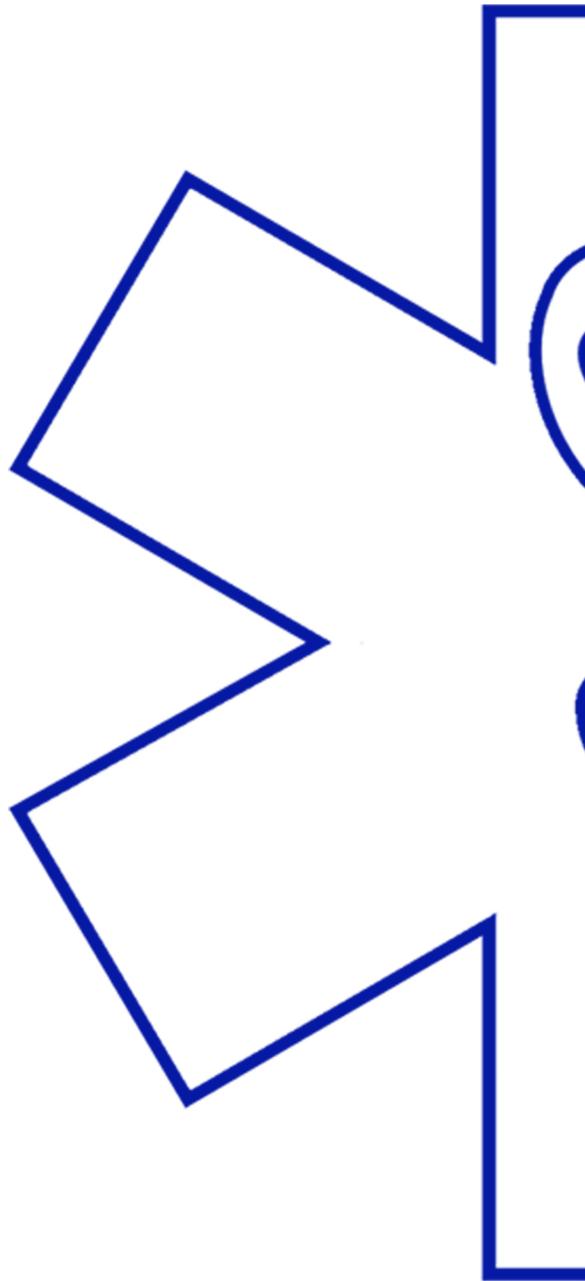
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