Emergency Medical and Trauma Services System Consultative Visit

Cheyenne County, Colorado

Feb. 17-18, 2014

Funded by: Colorado Department of Public Health and Environment

STATE OF COLORADO

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Colorado Department
of Public Health
and Environment

April 29, 2014

Cheyenne County
Board of County Commissioners
51 South 1st
Cheyenne Wells, CO 80810

Dear Commissioners,

On behalf of the Colorado Department of Public Health and Environment (the department) and the Plains to Peaks Regional Emergency Medical and Trauma Advisory Council (RETAC), we are attaching the Cheyenne 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 both the RETAC and the Colorado Department of Public Health and Environment to review the current status of the EMS and trauma system in Cheyenne County. The Cheyenne County Board of County Commissioners and the Cheyenne 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 RETAC for its 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 development of improved 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. Understanding that the department has limited regulatory authority regarding services that provide prehospital care and transportation, this report nonetheless represents our commitment to work with local governments to ensure quality health care for all Coloradans.

As Cheyenne County considers its next steps, if our office 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 February 2014, the Colorado Department of Public Health and Environment, along with six EMS and trauma services system experts, performed a consultative visit at the request of the Cheyenne County Board of Commissioners. The purpose of the consultative 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 Cheyenne County EMS and trauma system includes Keefe Memorial Hospital, Prairie View Clinic, Cheyenne County Ambulance Service, Cheyenne County Sheriff's Department Communications Center, #1 Fire Protection District and West Cheyenne Fire Protection District. The team's overall impression was that doctors, nurses and EMS providers in the county are providing adequate levels of care. The pre-visit survey (See Appendix B) showed that the stakeholders rated the overall effectiveness of the system as somewhat above average, and it was clear throughout the visit that, although the community is happy with the care and services provided, they are concerned about their ability to sustain that care.

Being a frontier community presents challenges; however, based on the feedback provided by the pre-visit survey and stakeholder interviews, it was clear that the community wants to do what it takes to sustain their emergency services. The following report is a snap shot of the current system along with suggested recommendations for system improvement.

Of major concern is that the hospital is currently experiencing a financial crisis that could impact its ability to remain open. Stakeholders believe that it is in the county's best interest to continue to operate a hospital and EMS system locally. However, in order to ensure the survivability of Keefe Memorial Hospital, the hospital must quickly revise its billing system to maximize collections. After that, the hospital board must make a strategic decision about which care model provides the necessary services while being financially stable.

The model chosen will have a direct impact on the ambulance service and may offer opportunities for the service to expand its scope of practice from Basic Life Support to Advanced Life Support. In order to enhance the EMS capabilities, recruitment of new providers will be essential.

In this report, the team presents a series of recommendations that should help increase services and help the system remain viable. Short-, medium- and long-term recommendations include:

- Enhance hospital coding and billing processes
- Apply for the 340B Drug Pricing Program for both the hospital and clinic
- Determine the most sustainable care model for the hospital
- Recruit and train new EMS providers
- Expand the county ambulance service to provide advanced life support services
- Take advantage of the CREATE education grant program to supplement local funding and send interested existing nurses or EMTs through paramedic school
- Seek partnerships within the region
- Utilize emergency medical priority dispatch system for emergency medical dispatching processes
- Develop written mass casualty plans and perform either tabletop or full scale drills on an annual basis

Introduction and Project Overview

In February 2013, the Board of County Commissioners of Cheyenne County requested grant funding from the Colorado Department of Public Health and Environment (the department) to provide an assessment and review of the county's emergency medical and trauma system. The department awarded system improvement funding in July 2013 to support the consultation.

Under Colorado law, the Cheyenne County Board of County Commissioners is the ground ambulance licensing authority as defined by C.R.S. § 25-3.5-301. The county also operates Cheyenne County Ambulance Service, the sole ambulance provider under the authority defined in C.R.S. § 30-11-107(q), and owns Keefe Memorial Hospital, the only hospital within the county. Both Keefe Memorial Hospital and the ambulance service actively participated in this consultative visit.

The Emergency Medical and Trauma Services Branch, pursuant to declaration and 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 Cheyenne County EMS and trauma system in order to make recommendations for system improvement. Analysis of the current system involved interviews with all primary stakeholders within the current system and included a review of available system data. The state of the current system was analyzed using topics derived from the original 14 EMS attributes contained in the 1996 *EMS Agenda for the Future*, published by the National Highway Traffic Safety Administration, and a Colorado-specific attribute. 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 are provided in this report for possible ways to improve the overall Cheyenne County EMS and trauma system, including the treatment, transportation, communication and documentation subsystems addressed in C.R.S. § 25-3.5-101 *et seq*. A theoretical innovative vision is also included to describe what health care in Cheyenne County could look like in the future.

The system improvement grant authorized approximately $20,000 to conduct the review. The department developed a contractual relationship with the Plains to Peaks RETAC to serve as the fiscal agent for the project. The system development coordinators at the department provided project management for the consultative visit. All the team members were selected jointly by the RETAC and the department and were approved based on their expertise in rural EMS and trauma systems. In addition to these team members, the Plains to Peaks RETAC coordinator, Kim Schallenberger, was instrumental in the success and support of the project team.

Cheyenne County Geography and Demographics

Cheyenne County, Colorado is located on the central eastern plains bordering Kansas. The county was created in 1889 from portions of Elbert and Bent Counties. The county encompasses 1,782 square miles and, according to the 2010 census, approximately 1,830 citizens reside within its jurisdiction. The population trend continues to decline with a 17.7 percent decrease since 2000. The topography is mainly flat with some rolling hills and dry creek beds. The highest elevation is located in the northwest corner of the county on the Bledsoe Ranch, which is 5,222 feet above sea level.

The county's name originated from what is today the county seat, Cheyenne Wells. Cheyenne comes from the Cheyenne Indians and is said to be a Sioux name, Shairena, meaning "people of alien speech."[1] Cheyenne County is surrounded by Kit Carson County, Lincoln County, Kiowa County, Wallace County (Kansas) and Greeley County (Kansas). In a frontier county such as Cheyenne, an urban center is sometimes defined as a cluster of homes with a post office.[2] Using that definition, there are four urban centers within Cheyenne County. The towns include Arapahoe, Cheyenne Wells, Kit Carson and Wild Horse. Cheyenne Wells houses 846 residents, 46 percent of the county's population.

In 1859 when gold was discovered on Cherry Creek, the Smoky Hill Trail was promoted as the most direct route to Denver. The trail split five miles north of Cheyenne Wells, formerly known as "Old Wells," into north and south forks. The north fork went from Old Wells through several stations, eventually leading to Denver. The south fork ran through Dubois Station, then redirected northwest through Grady Station and rejoined the north fork near Hugo. Due to the treacherous nature of the trail, it was coined "Starvation Trail." Since the trail ran through Native American hunting territory, military forts were established to protect the travelers. Eventually, by 1870, the Kansas Pacific Railway followed this trail from Denver through Kansas.[3]

The present day major highway though Cheyenne County is U.S. Highway 287, which enters the southern border, exits by the western border and is federally designated as the "Ports-to-Plains Corridor." Due to its location, the highway sees semi-trailer freight traffic originating in the ports of Texas traveling through to the Canadian border. The Colorado Department of Transportation data indicates that semi-trailers account for more than half of the total traffic in some segments of the highway. Due to heavy freight traffic, the two-lane highway is known to impact emergency services due to historically high rates of motor vehicle collisions.[2] The federally designated "High Plains Highway," U.S. Highway 385, travels through the county's eastern area and carries significant amounts of freight traffic as well. U.S. Highway 40, CO Highway 59 and CO Highway 94, along with numerous county maintained roads, carry much of the heavy industrial traffic associated with agriculture and energy production.[2]

Cheyenne County's economy is driven by agricultural production, government services and energy production. The county is a major producer of oil and gas. In the next few years, there are plans for wind farm development along the northern border of the county.

Emergency Medical and Trauma Service Providers

Cheyenne County Sheriff's Office Communications Center

The Cheyenne County Sheriff's Office serves as the Public Safety Answering Point and provides emergency communication services to its officers, Cheyenne County Ambulance Service, #1 Fire Protection District and West Cheyenne Fire Protection District.

Prior to 9-1-1 being activated in the county, community members called the sheriff's office directly. If a medical emergency was reported, the dispatcher would call the available EMS providers by telephone to respond. In the mid 1980s, 9-1-1 was activated as the primary number for all emergencies. Today, when a medical call for help comes in, the dispatchers use a VHF paging system to notify available EMS providers to respond. In 2011, the communications center upgraded the radio and computer systems by installing an 800 MHz digital trunked radio system with a MCC 7500 console. In addition, they have a GL Level X program to track live weather from three different locations around the county. In July 2013, the 9-1-1 answering system was upgraded to a Viper system with PowerPhone capability. At that time, Code Red was initiated as the reverse 9-1-1 system to warn citizens of potential natural and manmade threats to the county. The computer-aided dispatching software tracks all vehicles including sheriff, EMS and fire. The center will be implementing the 9-1-1 Advisor software to aid in resource management in July 2014. The communications center is currently in the process of certifying personnel and implementing the emergency medical dispatching process for all medical aid calls using the Association of Public-Safety Communications Officials International system. The communications center is staffed with one dispatcher 24 hours a day with a supervisor during daytime hours Monday through Friday.

Cheyenne County Ambulance Service

In 1965, the county took over the EMS service from Brentlinger Mortuary. The solo ambulance was originally housed in a county building and later moved to a fire station in Cheyenne Wells. The early ambulances were station wagons equipped with little more than a cot and oxygen designed to "load and go" with a patient. Cheyenne County Ambulance Service began providing Basic Life Support care with volunteer EMTs after the first class was held in the county in 1972. Sue Kern, the most recent ambulance service director, was one of the graduates from the original EMT class. The ambulance service kept pace with increased demand for services by training additional EMTs and adding ambulances to the fleet. In 2003, an ambulance station was built in Cheyenne Wells, and a few years later a second station was added in Kit Carson. Cheyenne County Ambulance Service has about 10 EMS providers and currently operates four Type I ambulances. All four ambulances are stationed in dedicated ambulance quarters with two units in Cheyenne Wells and two units in Kit Carson. EMS providers are notified via pager and text message and all carry a portable 800 MHz handheld radio.

Call volume fluctuates from 130-175 requests for service per year between 9-1-1 responses and interfacility transfers. The ambulance service responded to 130 requests for service in 2013, in which 90 patients were transported to a hospital or nursing facility. Cheyenne County

Ambulance Service is the only licensed ambulance provider in the county and serves both 9-1-1 and interfacility requests.

Emergency medical technicians are compensated on a pay-per-call basis at the rate of $12.50 per hour. Cheyenne County pays the cost of initial training for new EMTs and the continuing education required for EMS providers to maintain their certifications.

Cheyenne County Ambulance Service is structured as a third service government model funded by patient fees, government subsidies and grants. Patient billing and collection activities are performed in-house. The configuration is performing well as demonstrated by the 87 percent collection rate on net billings in 2012. Government subsidies primarily originate from two sources. First, Cheyenne County has set aside 0.07 mills of the 18.16 mill general levy to support ambulance operations. The levy has been consistent for many years and generates about $11,000 per year in revenue, although it is subject to change at the discretion of the Board of County Commissioners. The second source of subsidy comes from the region. The region has allowed the counties to direct the expenditure of the $15,000 received per county since the inception of the region. Cheyenne County has traditionally used these funds to supplement ambulance operations. The ambulance service showed a $25,885 surplus in 2012 with total revenues of $110,823 and expenses of $84,938.[4] For 2014, $126,916 is budgeted for expenditures, including $40,000 for capital outlay.[5]

Cheyenne County Ambulance Service received the Ambulance Service of the Year award from the Emergency Medical Services Association of Colorado in 2012.

#1 Fire Protection District

The #1 Fire Protection District (formerly Cheyenne Wells Fire Department) covers a total of 930 square miles and serves a population of approximately 900. The district has 30 volunteers who respond to an average of 80 requests for service per year. The district is funded primarily by a 1.25 mill levy that generates annual revenue of $126,484.[4] The firefighters are strictly volunteer, but they are eligible for a Fire and Police Pension Association pension after 20 years of service, age 50 and 720 hours of training.

The district is dispatched with Cheyenne County Ambulance Service on all traffic crashes to provide extrication services and scene safety, but responds to other types of calls upon request to assist the ambulance crew as needed. The district also provides hazardous materials capabilities in conjunction with West Cheyenne Fire Protection District. The district fleet includes three fast attack type 6 trucks, one brush truck, one pumper and two tenders (2,200 and 3,000 gallon) for mobile water supply. In addition, it operates a structural equipment supply truck for all structure fires. All fire apparatus have pump and roll capability specifically to fight the frequent grass and brush fires that occur in the open prairies and agricultural land that comprises most of the area. Two district vehicles are equipped with Basic Life Support kits with oxygen administration capabilities for assistance on emergency medical calls.

In 1923, a charter was passed creating the Cheyenne Wells Fire Department. The town elected to create a fire protection district in 1958, forming the #1 Fire Protection District. The pride of the district is the fact that it can have apparatus rolling out the door in less than four minutes and has an average response time, from notification to on scene, of four minutes for structure fires.

West Cheyenne Fire Protection District

The West Cheyenne Fire Protection District was formed in 1983 from its predecessor, Kit Carson Volunteer Fire Department. The district is funded through a 1.5 mill levy that generates more than $80,000 in annual revenue.[4] There are 20 volunteer members who cover a total of 1,000 square miles and a population of 325. The district receives between 50 and 60 requests for service with the majority being traffic crashes.

The district is dispatched with Cheyenne County Ambulance Service on all traffic crashes to provide extrication services and scene safety and also responds to other types of calls upon request to assist the ambulance crew. The district provides HAZMAT capabilities in conjunction with the #1 Fire Protection District. The district apparatus fleet includes three fast attack type 6 trucks, two pumpers and a 4,500 gallon tender for mobile water supply. All fire apparatus have pump and roll capability specifically to fight the frequent grass and brush fires that occur in the open prairies and agricultural land that comprise most of the area. Two district vehicles are equipped with Basic Life Support kits with oxygen administration capabilities for assistance on emergency medical calls, plus a full array of extrication equipment including air bags. The district actively trains with the ambulance service specifically for packaging patients during trauma extrication situations.

Keefe Memorial Hospital

Keefe Memorial Hospital is a licensed 25-bed general hospital and designated level IV trauma center in Cheyenne Wells. Services include emergency, acute, swing bed skilled and non-skilled care, an observation unit, imaging, laboratory and pharmacy services. There are approximately 45 staff members, including one full time physician, one locum tenens physician and one mid-level practitioner. The emergency room sees approximately 650 patients per year. Operational expenses are $4.7 million with gross revenue of $3.6 million. In addition to prospective payment system reimbursement, the hospital generates a public hospital fund through a 5 mill tax levy bringing in revenue of $475,196.[4]

Attached to the hospital is Prairie View Clinic, a rural health clinic that provides primary care and coordinates a variety of periodic specialty clinics. Besides the Cheyenne Wells location, there is a satellite office in Kit Carson.

The history of the hospital dates back to the early 1930s when the original medical facility was an old boarding house that was converted to a small

hospital serving the people of Cheyenne County. In 1947, the hospital became the St. Joseph Hospital of the Plains. Due to the growing need for a new medical facility in the early 1960s, The Sisters of St. Joseph, in collaboration with community funding and a federal grant, opened a new St. Joseph Hospital of the Plains at the current location. The new building was dedicated in 1963. In 1987, The Sisters of St. Joseph gifted the hospital to the county; the name was then changed to Cheyenne County Hospital. In 1993, the hospital was re-named Keefe Memorial Hospital in recognition of nearly half a century of dedication to Cheyenne County health care by Dr. Jerome Keefe.

Analysis of Cheyenne County EMS System Elements

Prior to and during the consultative team visiting the county, key participants from the countywide EMS response system and local healthcare facilities were asked to complete a survey rating their current assessment of the EMS and trauma services and relationships in the county. In addition, the county commissioners, 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

The state of Colorado has the sole authority to regulate hospitals, nursing homes and most healthcare agencies providing services in the areas under its jurisdiction. Counties, however, are required by statute to license ambulance services and issue ambulance vehicle permits. Counties are also 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. Many county resolutions also formally create local councils to advise the Board of County Commissioners on EMS issues.

The current Cheyenne County Ambulance resolution was adopted in 2006. The resolution contains the standard elements seen in similar documents statewide and complies with the regulatory mandates imposed by the state. A small number of items require updating predominately due to changes in terminology and regulatory changes that happen over time. The Cheyenne County resolution does not establish a local EMS Council, which, due to the size of the community, does not create a significant impediment to communication and coordination between the county commissioners and local EMS stakeholders. The county commissioners have only one way to address problems with a licensed ambulance service provider – through revocation or suspension of a license. Again, this is not problematic because the only ambulance provider currently operating in Cheyenne County is under the control of the county commissioners themselves. If the system evolves into a regional model and other ambulance service providers begin to operate in the county, the commissioners may want to consider adding quality parameters and other enforcement expectations into the EMS resolution.

System Finance

Emergency medical and trauma services in Cheyenne County are financed by a variety of revenue sources. Patient fees fund the majority of ambulance service operations, but subsidies from other government sources comprise a significant portion of each year's revenues. A sizable fund balance is available in reserve to address capital purchases, although these expenditures are frequently supplemented by grant funding. The ambulance service has a remarkably austere operating budget, which is primarily due to the pay-per-call staffing model. The current financial statements do not have a category to recognize the value of the hours EMS providers spend training and being on call. Ambulance rates are on par with prevailing rates in the area, and collections are generally consistent with expectations for the given payer mix. The current level of ambulance funding provides for basic, essential services.

Future revenue requirements for Cheyenne County Ambulance are uncertain at this juncture. Those requirements are dependent on the specific adaptations implemented to respond to changes in the healthcare and regulatory environments. Some operational changes will be accompanied by increased revenue streams. For example, if the ambulance service upgrades to Advanced Life Support, it may charge higher rates for the enhanced level of care. This change may also increase the volume of billable calls due to the greater array of patients that can be treated under the expanded scope of care. It may be possible to develop other revenue sources if the ambulance service evolves into a community paramedicine agency. Medicare and other payers can pay directly for home care visits. Tertiary referral centers may be willing to contract for follow-up care on patients released back to their homes in the area to reduce the rate of readmissions. A financial reason for facilities to limit readmissions is that patients readmitted within 30 days are not eligible for reimbursement. Prevention and public education activities could be funded through grants or contractual arrangements with public health or fire service organizations.

Keefe Memorial Hospital is funded by patient fees and a tax subsidy. Hospital charges generally appear to be lower than those at other facilities in the area, and collections currently lag far behind expectations. Keefe Memorial Hospital has elected to be reimbursed on a prospective payment system rate designated for sole community provider hospitals. This rate differs from the cost-based reimbursement designated for critical access hospitals that applies to the other facilities in the area. Cheyenne County collects a dedicated levy of five mills for the hospital. Proceeds from the levy were initially restricted to pay for capital items, but the restriction has been lifted, and the tax subsidy can now be used for operations as well. Revenues from the subsidy are essential for continued hospital operation. The hospital has a minimal fund balance and is consuming its capital assets.

Keefe Memorial Hospital has experienced significant financial challenges in the past several years while providing services in a frontier area. As a result, the hospital requested two separate analyses to review the strategic, financial and revenue cycle management of the organization. The first was conducted on Jan. 9, 2013, by Tommy Barnhart on behalf of the Colorado Rural Health Center. It focused on the financial feasibility of converting Keefe Memorial Hospital to a critical access hospital resulting in the ability to bill on a cost basis. The second, by Eide Bailly, LLP, was conducted in August 2013 and was a more comprehensive fiscal review. Each report generated multiple recommendations. Due to the timing of the reports and the financial information that was available when each report was written, there is a difference between the two reports on the financial value of becoming a critical access hospital. The team recommends that the present CEO and the board review both reports closely.

Neither of the above referenced reports mentions yet another option – that of expanding the clinic's role to be the sole healthcare facility in the county. Prairie View Clinic is currently a federally-certified provider-based rural health clinic. Being provider-based requires the clinic to be an integral and subordinate part of a hospital, skilled nursing facility or home health agency.[6] The board must consider the financial impact of at least the following scenarios:

- Converting to a critical access hospital while retaining the rural health clinic,

- Converting the hospital and rural health clinic to a community clinic and community emergency center, or
- Closing the hospital and retaining the rural health clinic.

One of the main problems with the last scenario is the fact that the rural health clinic would then lose its provider-based status. As a federally-certified provider-based rural health clinic, it is currently cost-reimbursed for Medicare and Medicaid patients at a higher encounter rate reimbursement than a free standing federally-certified rural health clinic and significantly higher than a non-cost reimbursed clinic.

Another option that needs to be examined by the board is the potential of offering home health services. A rural health clinic can offer visiting nursing services if located in an area that has a shortage of home health agencies, which is deemed as such by the Centers for Medicare and Medicaid Services. There was an indication that the clinic has already been granted the designation as a home health shortage area, but the physicians were not ordering home health visits that the nursing staff could perform. As a rural health clinic, the clinic could start providing visiting nursing services that could increase revenues. Administration should determine which setting, hospital versus rural health clinic, would be more advantageous financially to provide visiting nursing service.

One cost saving measure that the hospital and rural health clinic could participate in is the 340B Discount Drug Program. The 340B Drug Pricing Program requires drug manufacturers to provide outpatient drugs at significantly reduced prices.[7] A requirement to have the 340B program is to be a critical access hospital or sole community provider hospital that treats indigent and Medicaid patients. In addition, the hospital would need to have a disproportionate share adjustment percent equal to or greater than 8 percent in the most recent Medicare cost report.[7] This program results in significant savings on all drugs used in the outpatient settings. Administration should seek out the assistance of the Colorado Rural Health Center or Eide Bailly consultants to look at eligibility and registration for this program. This would also allow a partnership with local pharmacies that could result in additional revenues.

A side note regarding finance: during several interviews, it was brought up that the length of time for hospital billing processes caused dissatisfaction and was potentially responsible for outmigration of community members seeking other health care options. The hospital has already sought out consultants to assist with implementing billing improvements and proper coding practices.

Another possibility for increasing the financial stability of the system would be an increased mill levy. The average property tax burden in Cheyenne County is on par with other rural counties in eastern Colorado, but it is relatively low compared to the rest of the state. The levy varies across the county based on the overlaying tax jurisdictions. The aggregate mill levy on property in the town of Cheyenne Wells is about twice that of the unincorporated areas. The possibility of increased taxes to fund services was mentioned in several forums. Local political leaders expressed that the electorate has almost always been supportive of health services when fiscal questions were placed on the ballot.

However, increasing property taxes to fund the ambulance service or hospital operations has an additional layer of complexity in Cheyenne County. The hospital district that was established to fund the nursing home already has the authority to provide these services. Any effort to provide ambulance service or operate a hospital through a special district will require cooperation with the existing jurisdiction in accordance with state laws. Support for an increase in the levy imposed by the county for the hospital is tempered further because the limits on the maximum allowable mill levy restrict the amount of proceeds. It is important to note that the majority of property value is owned by businesses based outside the county and much of an increased property tax burden would be borne by those that live outside the county.

Human Resources

Several hospital staff members have worked at the facility for a number of years, and the community is fortunate to have retained such dedicated, talented core staff members. Retaining an adequate pool of nursing staff is one area where there appears to be staffing challenges. It was brought to the attention of the team that the facility, due to hospital licensing requirements, must have a registered nurse for inpatient care and another registered nurse for staffing the emergency department. Frequently, it is difficult to fill the staffing requirement for two registered nurses on duty around the clock without relying on nurses working overtime. Consistently relying on full time staff to work overtime is not a long term solution to the problem and can lead to dissatisfaction and burn out of the current nursing staff. The average daily hospital census and low volume of patients seen in the emergency room do not support the need for two registered nurses to be on duty, other than to meet the licensing requirement. If the facility chooses to make a licensing change to a critical access hospital, there would be no requirement to maintain separate nurses for inpatient and emergency room coverage, unless the volume of patients support the need for two nurses.

In addition to relying on overtime for staffing, other areas of staff dissatisfaction were brought to the team's attention. These included low morale of staff members, the uncertainty or fear of losing jobs if the hospital were to close or convert to only clinic services and the existence of some policies and procedures that prevent nursing staff from using their skills to their full potential. Using a locum physician can be costly and contribute to system inefficiencies. There were several comments that physicians did not complete charts timely or properly code the visit level or diagnoses correctly. In addition, there were several comments concerning the electronic health record system being problematic for the staff. Moving forward, these issues should be addressed in order to improve staff efficiency and morale.

The hospital administration needs to regain the trust of the staff and provide leadership development opportunities. There are small seed grants available through the Colorado Rural Health Center that could be used to purchase items that could improve employee satisfaction. In addition, there are programs through the Colorado Rural Health Center for board governance development. With a new board and a new CEO starting out in 2014, these webinars might be very helpful for the future growth of the hospital. Larger hospitals might be willing to share team building materials or quality improvement programs free or at a reduced price.

The ambulance service in Cheyenne County is currently staffed on a pay-per-call basis supplemented by a limited paid part-time ambulance director. It was expressed to the team that the service is short of providers, creating some difficulties at times staffing an ambulance,

specifically for interfacility calls. Several long-time members of the service have retired and, due to the lack of adequate numbers of pay-per-call EMS providers, those who do participate are getting "burned out." When some of the providers are sick or out of town, the available number of providers is potentially inadequate to cover the service. It was apparent that there is not an on-call schedule for 9-1-1 or interfacility responses. There are fewer providers on the eastern side of the county, which has become a challenge for the western responders to cover. It was mentioned that many of the providers will drive quite a distance to get to the ambulance station in order to respond to medical calls. Once a call comes in, the responding EMS providers need to coordinate over their 800 MHz radio which station is the closest, then respond to and rendezvous from that point. This will cut down response times in the event that one provider is waiting for another provider driving across the county. There also seems to be some discouragement over the difficulty in recruiting EMS providers. The fire departments are well staffed both by personnel and equipment; however, it was expressed multiple times that the majority of the fire personnel do not want to become EMS personnel and take on the additional training and continuing education requirements for certification upkeep. They are more than willing to assist anytime they are requested for driving or assistance, but they do not want to be responsible for patient care.

As the hospital decides its future direction, there is a potential for an expansion of EMS in the county. Since nurses have foundational medical training that surpasses the scope of an EMT, nurses can be cross-trained as an EMT in order to respond on the ambulance. In addition, the nurses who are interested in EMS work can be sent through a nurse to paramedic bridge program. These programs would require the nurse to go out of the county for some of the education; however, this training has a quick turn-around and can be done within two or three months. The nurses can apply through the Colorado Resource for EMS and Trauma Education (CREATE) grant process to partially fund their paramedic training. The nurse to paramedic bridge course is a quick way to bring paramedics into the county by utilizing existing personnel who are already trained as ALS providers and who already live within the county borders.

Medical Direction

The medical direction for Cheyenne County Ambulance Service most recently has been under Dr. David Ross, the EMS medical director at Penrose-St Francis Health Services in Colorado Springs. Dr. Ross has been the EMS medical director for a large number of the EMS agencies in the five counties of the Plains to Peaks RETAC, including Cheyenne, El Paso, Kit Carson, Lincoln and Teller Counties.

The EMS medical direction within the Plains to Peaks RETAC is currently undergoing major change, as Dr. Ross has resigned from his position with Penrose. All indications are that the changes will be positive and that agencies within the RETAC will continue to have EMS medical direction provided. Penrose-St. Francis Health System and/or Memorial Hospital-University of Colorado Health System will be the organizations providing medical direction to most of the rural facilities in the region.

EMS medical direction provided by Dr. Ross has been compliant with the department's rules pertaining to emergency medical services (6 CCR 1015-3, Chapter Two). The new medical director will be required to follow the same rules to ensure that he/she meets the required duties of an EMS medical director.

Currently the ambulance service utilizes a county-specific version of the El Paso County EMS protocols, and this practice will likely continue. The pre-visit survey (see Appendix B) indicates that nearly one-third of the ambulance service providers are not aware of their protocols, suggesting the need for some additional education from the medical director regarding all EMS providers' responsibility for protocol compliance, as well as compliance with Colorado EMS regulations.

The results of the survey also suggest that there is an opportunity for improvement in the ambulance service's medical direction. Only 50 percent of the respondents felt that their current medical director is actively involved. Although nearly 60 percent of the respondents felt that quality improvement reviews are performed, only 42 percent of the respondents felt that the medical director regularly monitors clinical performance. EMS quality improvement reviews are discussed in the *Evaluation* section of this report, indicating there is good case review performed but that a failure in loop closure may have led to this gap between the actual case review and the provider perception.

There appear to be several reasons the medical director is not fully involved with ambulance service medical oversight and quality improvement processes. One major reason is distance. Cheyenne Wells is 138 miles and a 2.5 hour drive from Colorado Springs. This extreme distance makes regular visits difficult. The other major reason appears to be that the current medical director is responsible for numerous agencies throughout a five county region, which, in addition to his responsibilities in the emergency department, may have him stretched too thin. This type of arrangement for medical direction of agencies in outlying rural areas, although not uncommon, may not be the best arrangement for these agencies. The primary physician at Keefe Memorial Hospital, Dr. Christine Connolly expressed some interest in becoming more involved with EMS medical oversight. The urban centers providing the medical direction should either increase the resources necessary to provide more thorough medical oversight or develop a cooperative medical direction and oversight relationship with the local physicians.

Clinical Care

Cheyenne County Ambulance is a Basic Life Support (BLS) service. There are no EMT-Intermediate or paramedic providers to deliver Advanced Life Support (ALS) within the county. Overall, the perception of the Keefe Memorial Hospital staff is that the EMS providers provide an acceptable level of BLS care.

Like all small community hospitals, Keefe Memorial Hospital has limits to the level of care it can provide, and some patients require transport to tertiary referral centers on the Front Range. Patients requiring only BLS care during transfer, until recently, were transported solely by the Cheyenne County Ambulance Service EMS providers. Critical patients requiring immediate treatment are transported by critical care air medical providers when weather conditions permit. However, when an air medical transport is not available, the hospital must supplement the

ambulance crew with a nurse or physician in order to provide the level of care necessary to safely transfer the patient.

It is not unusual for an interfacility transport to the Front Range to take six hours or more. With the limited number of EMS providers, this strains the ability of the system to respond on 9-1-1 requests. It also stresses the hospital if a nurse or physician must be away from the facility for an extended period of time. The hospital had the perception that it could handle critical care interfacility transports, but it appears the hospital staff, with the exception of the director of nursing, did not have additional training specific to the provision of advanced care in a mobile environment.

In order to provide an alternative to using hospital nurses or physicians to staff ALS transfers, Cheyenne County Ambulance Service has recently established a mutual aid agreement for interfacility transports with an ALS ambulance service in Limon, Colorado. All ALS transports are referred to the mutual aid provider, and BLS calls are referred if Cheyenne County Ambulance Service crews are not available. However, it takes about 90 minutes for the ambulance from Limon to reach the hospital in Cheyenne Wells. Although outsourcing the ALS transports is an option for the county, a better option would be for Cheyenne County Ambulance to have its own ALS providers. Typically in rural areas, this consists of either EMT-Intermediates or paramedics. Historically, recruiting and keeping ALS level providers in rural or frontier areas of Colorado is difficult. However, an option that is currently being considered around the United States to address this problem is the community paramedic model. The community paramedic model could provide an ALS option for 9-1-1 responses, staff the hospital, provide ALS interfacility transports and provide community home health visits.

Education Systems

As is common to most rural areas of the state, access to EMS education is limited within Cheyenne County. Rural services with pay-per-call or volunteer EMS providers, limited budgets and long travel distances face significant obstacles to obtaining quality initial and ongoing EMS education on a regular basis. Initial EMT training is generally offered by a community college or hospital training center that makes use of local instructors. Training for Advanced EMT, EMT-Intermediate or paramedic certification requires traveling to locations outside of the county.

There are a number of significant impediments to conducting initial EMT training in Cheyenne County. The initial EMT training course requires significant commitment from students, and there are numerous logistical problems that impede attendance. In addition, work in EMS requires people with a unique combination of dedication to community service, ability to work independently or function as a member of a team, verbal and written communication skills, aptitude for close personal contact, capacity to deal with body fluids and a degree of physical strength and agility. Another impediment is the limited pool of qualified candidates. According to the U.S. Census Bureau estimates for 2012, more than 42 percent of the population in the county is under 18 or over 65. The eligible cohort is diminished further when educational and language requirements are considered. Individual characteristics, such as the ability to meet the time commitment and having an aptitude for EMS, further restrict the number of suitable

candidates. Although there is no gold standard for prescreening applicants to predict a high probability of success with the initial EMT class, a number of agencies have had success with using the Health Occupation Basic Entrance Test (HOBET) as a screening tool. Other agencies have been just as successful with a rigorous interview process, imposing service prerequisites or requiring sponsorship by a current member.

Initial EMT class instruction is labor-intensive and requires expensive training aids. Certain numbers of students are necessary to make it feasible. It is not cost effective for the county to conduct a class that will only add one or two EMTs to the ambulance roster. Also, in order to hold an EMT class, the current EMS providers, who serve as instructors, must take further time out of their personal schedules to teach the potential new recruits. Instructors have noted how frustrating it can be to provide hundreds of hours in the classroom only to have the students fail to complete the testing and certification requirements.

The availability of EMS management training is limited as well, and the ambulance service relies on management training obtained through other work experience. No formal management education programs were noted within the local EMS system. Considering the technical, regulatory and financial complexities of EMS, it is imperative that EMS leaders also receive appropriate specialized EMS leadership training. Currently, little effort is being applied to EMS management education or continuing education, and limited resources are available to develop future leaders for succession planning purposes. Additional emphasis in this area would be a prudent course of action for the local EMS organizations.

It was discussed that regular EMS continuing education is offered locally on a monthly basis in Cheyenne County. The continuing education program is a cooperative effort with the healthcare system that provides EMS medical direction. Outreach instructors supplement local training resources, but have been somewhat inconsistent and unreliable. The ambulance service makes a concerted effort to offer continuing education in-house and fund the cost for EMTs to travel and attend training offered elsewhere. This is important because the ambulance service relies heavily upon state and regional conferences for medical continuing education. Both the fire departments and ambulance service expressed that they get together yearly to complete training on packaging patients, spinal immobilization and other relevant topics. Cheyenne County agencies widely reported they were aware of how to access the Colorado Resource for EMS and Trauma Education (CREATE) program for assistance to fund tuition, books, fees and appropriate travel for EMS and trauma-related education to stretch the dollars in their training budgets.

Public Access

According to the National Emergency Number Association records, the universal 9-1-1 emergency access number is currently available in all portions of Cheyenne County. 9-1-1 calls for assistance are answered by the Public Safety Answering Point located at the Cheyenne County Sheriff's Office. It was not clear that consistent medical pre-arrival instructions were available from the dispatch center as they are currently in the process of receiving the training. Pre-arrival medical instructions are also often referred to as Emergency Medical Dispatch or EMD services. EMD is a valuable tool, especially in rural areas, because it allows for the provision of some emergency care by bystanders prior

to the arrival of EMS response resources. It did appear that the dispatchers had a self-study course from the Association of Public-Safety Communications Officials International to become certified and had the card system for the Medical Priority Dispatch System purchased by the Plains to Peaks RETAC. If they are to continue to implement the emergency medical priority dispatch system, updated EMD cards will need to be purchased.

Communications and Information Systems

The Cheyenne County emergency communications network appears to be in good working order and has become part of the state backbone on the 800 MHz digital trunked radio system. Notification to agencies occurs via VHF paging, but the bulk of the radio traffic occurs on the 800 MHz radio system. Coverage did not appear to be an issue in the county, and the system has worked well during large-scale events that have happened in the county over the past few years. Interoperability within Colorado also appears to be in good working order. The interoperability with neighboring counties in Kansas is improving, and cross state agreements are in process to allow agencies in each county to have radio channels across state lines. Currently, the dispatch center has the capability to connect disparate radio systems for interoperable communications on an ad hoc basis. The emergency manager's office has a cache of 10 extra radios for large events if needed. Cell phone coverage throughout the county overall is good. However, there are poor coverage areas on U.S. Highways 40/287 west of Kit Carson, U.S. Highway 287 south, U.S. Highway 40 from Arapahoe east, U.S. Highway 385 north and south and spotty coverage along some county roads and in the low spots along the Big Sandy.

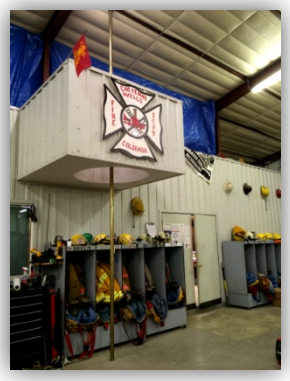
The ambulance service uses the *ImageTrend* Electronic Patient Care Report (ePCR) software, which allows the transmission of ePCRs to receiving hospitals, the EMS billing provider and the state database.

It was unclear during the interviews what type of scheduling system is used for both the hospital and EMS systems. Utilizing an online scheduling system would allow personnel access to the schedule and provide better tracking and managing personnel through the system. The services would be allowed to view the daily availability of personnel and ensure coverage to areas that need it. Personnel would be able to see open shifts from home and schedule themselves accordingly. Systems like this are relatively inexpensive and easy to set up, understand and maintain. There is no equipment to purchase such as servers, and the contract company would handle upgrades along with maintenance. As the system becomes more regional, it would be easier to share resources across a broader area.

Public Education

Limited EMS public education efforts are underway in Cheyenne County, although there are opportunities to expand. Keefe Memorial Hospital participates in health fairs to provide education, not only about EMS, but also about other topics like chronic diseases such as diabetes. Keefe Memorial Hospital participates in hospital week, where school-age children are given the opportunity to come into the hospital to learn more and take a tour to see the various aspects of the hospital departments. In the past, the hospital participated in activities for EMS

Week including acknowledgement of pay-per-call EMS providers in the community; however, they have not participated recently. Newspaper articles could be published around EMS Week in May educating the community on the services that the ambulance provides to the community and giving positive recognition to EMS providers who give up their time to help neighbors in time of need.



The #1 Fire Protection District participates in Fire Safety Week and the "I'm Not Scared, I'm Prepared" program. Additionally, they collaborate with local Boy Scout and Girl Scout troops to provide education about first aid.

The West Cheyenne Fire Protection District provides fire safety education to kindergarten through fifth grade students to help them prepare for what to do in a fire or other emergency. They encourage children to go home and talk with their parents about what their action plan will be in the event of an emergency or fire. The West Cheyenne Fire Protection District acknowledged they do not offer a lot of education for the older population, which could be an area of expansion in the future.

Prevention

Many of the public education activities occurring in Cheyenne County focus on injury prevention efforts, although more opportunities exist. Currently the #1 Fire Protection District provides first aid training to Boy Scout and Girl Scout troops and participates in the "I'm Not Scared, I'm Prepared" program to provide emergency preparedness materials to local children. The West Cheyenne Fire Protection District provides emergency preparedness education to elementary school children to encourage proactive conversations with their families about how emergency situations will be handled.

There is also a coalition in Cheyenne County through the Plains to Peaks RETAC with funding from the Colorado Department of Transportation for occupant safety to offer the "Cheyenne County Clicks" project. Now in the fourth year of funding, "Cheyenne County Clicks" works with a contractor, Drive Smart Colorado, to promote seat belt use. The project includes representation from schools, the hospital, local public health, a local insurance agent and others. The program has a presence at many events throughout the county, including pre-prom drinking and driving presentations at the local high schools.

The Cheyenne County Public Health Department offers a wide range of programs and services including drunken driving prevention, well child exams, health education classes, diabetes education and emergency preparedness. Increased collaboration and communication between local public health and the hospital about current services and programs could be helpful.

Mass Casualty

Cheyenne County Emergency Preparedness has the lead role in planning for all hazards, including mass casualty incidents. The county emergency preparedness director has established relationships with the emergency response agencies, and the team heard that agencies generally reported working well with county emergency preparedness. Mass casualty planning occurs on an ongoing basis, and the county emergency preparedness conducts exercises to test the county

plan biennially. The degree of internal planning varies at the agency level. Some of the organizations reported a detailed all-hazards-based planning process, regularly conducted exercises and consistently performed after action reviews. Other agencies reported they do not have a written mass casualty plan and do not conduct exercises on a regular basis. Some even expressed that the incident command system was ineffective, and their agencies did not use it, even on large-scale incidents. This dichotomy causes variation in response effectiveness involving multiple agencies. For example, agencies expressed concerns about a plethora of issues related to communications and coordination of resources with the search for a missing person that occurred shortly before the consultative visit team went to Cheyenne County, while the response to a transportation incident involving thirteen patients in 2011 was remarkably effective. There was also some confusion about the county mass casualty planning documents supplied to the consultative visit team. Quality mass casualty plans meeting the most current standard were ultimately available; however, not all of the agencies knew they existed. This is another symptom of the variability in mass casualty planning capabilities at the agency level.

Integration of Health Services

Keefe Memorial Hospital and the ambulance service are county-owned, but operate largely independently of each other. From time to time, the hospital is required to find staffing for the ambulance for interfacility transports because the EMS providers are pay-per-call based and have full time jobs around the county. If a patient requires Advanced Life Support for interfacility transport, either a hospital nurse or an outside agency must be called in to provide higher-level transport care. The ambulance service has recently outsourced, via a verbal agreement, to a neighboring service to the provision of both ALS and BLS ground interfacility transport capability. If this agency is not available, then the patient will be flown out by helicopter whether or not the condition of the patient merits air transport. Flying a patient increases the cost that the patient incurs and uses an expensive and limited resource in an inefficient manner.

Keefe Memorial Hospital is currently set up as a sole community provider and relies upon a steady volume of inpatient hospital stays. The declining county population coupled with a healthcare paradigm that is changing to focus on more outpatient care requires the current health system delivery model to evolve into a more sustainable structure. Due to the size of the county, the hospital, the clinic, public health and EMS should consider focusing on integration of combined services.

It appears that community members, including the prehospital providers, support the hospital and share a concern and commitment to keeping the hospital open. However, a decision must be reached regarding the future of the hospital. Several options currently under discussion include converting the hospital from a sole community provider to a critical access hospital, a rural health clinic, a community clinic, or a community emergency center. Additionally, a decision will need to be made on whether or not to transition the ambulance service from Basic Life Support to Advanced Life Support.

Integration of services can be beneficial in any of the above scenarios, and opportunities to integrate the hospital and ambulance service exist. As the hospital operates currently, two

nurses are required to be in house to fulfill federal requirements. If the hospital converts to a critical assess hospital, only one nurse would be required to be staffed at a time. This change would allow for better integration between the hospital and ambulance service because the second nurse could become available to help with EMS coverage, providing Advanced Life Support care with appropriate training. As another option, the hospital could look at recruiting a paramedic with the potential financial benefit of costing less per hour than a nurse.

If the hospital chooses to transition from a sole provider to a free-standing rural health clinic, the EMS system will need to be revamped in order to provide ALS level care for longer 9-1-1 transports to an out-of-county hospital. As the system currently exists, many of the pay-per-call providers have a challenge responding during normal business hours. This puts the community at risk of not being able to respond quickly to 9-1-1 medical requests as the only crew available may be out of the area on a transport. In order to bring ALS level care into the community, the clinic could utilize the nurses from the hospital to provide visiting nursing services through the rural health clinic. In addition, the nurses could be sent through an EMT or nurse to paramedic bridge program to allow them to staff the ambulance and provide the ALS level care during long 9-1-1 transports. Another option to consider is integrating a paramedic into the hospital system immediately. This will provide a smoother transition in the future as the healthcare system becomes more outpatient focused. One last option for bringing ALS level care into the county is to license and contract an adjacent ALS ambulance provider to operate in the county. This option would involve re-envisioning the role of Cheyenne County Ambulance Service and strategizing how the outside agency would respond across the county.

Another potential response to the change in the healthcare paradigm is to provide ALS capabilities through recruitment of at least one paramedic. Paramedic level care can initially be introduced into the emergency room setting with a mutual agreement with the ambulance service to provide ALS level care when requested. The paramedic's hospital salary might be offset by the ambulance service to provide a dual role within the healthcare system. The paramedic should assist in the emergency room and if a transfer is needed, can staff the ambulance to provide ALS care. By integrating a paramedic into the existing system, the need for ALS mutual aid as a first choice for interfacility transports is eliminated. This would then allow for an agency within the county to generate revenue from the interfacility transport. As the paramedic integration progresses within the hospital and EMS response, the next phase of integration is into public health. Utilizing an ALS provider to work in both the hospital and EMS setting provides a full integration of healthcare resources along with cost saving measures. One provider can function in both areas of healthcare within the community creating an efficient cost effective system based upon continual quality patient care.

Regardless of the decisions made regarding the hospital structure, the hospital should consider partnering with adjacent hospitals or affiliating with larger parent health system like HealthOne, Centura, Banner or University Health. Partnering with another organization can provide cost saving measures due to shared resources like billing, coding, staff and specialty services.

Evaluation

Currently, evaluation of EMS quality of care and protocol compliance occurs via a 100 percent review of run reports. The ambulance service director reviews all charts and notifies the medical director of any significant concerns. In addition, the Penrose EMS coordinator, Jeff Force, reviews 100 percent of the cases through the *ImageTrend* Electronic Patient Care Report (ePCR) software. Any concerns for deviations from protocol or standard of care are referred to the medical director.

As can be seen from the survey (see Appendix B), there is a perception by approximately 40 percent of the respondents that patient care document review is seldom or never done. The disconnect between a 100 percent case review and the perception that review is not occurring is likely due to a failure in loop closure. It is critical that the information gleaned from the review of cases, either positive or negative, gets back to the field providers.

In the future, the ambulance service's medical oversight, quality management case reviews and other quality assurance programs will likely be provided by the system from which they ultimately receive their medical direction. It will be important for the new medical director for the ambulance service to ensure that proper loop closure is done. In addition to local continuous quality improvement, the ambulance service should continue to actively participate in the Regional Continuous Quality Improvement Program under the Plains to Peaks RETAC.

Keefe Memorial Hospital Recommendations

Short-term (3 months - 1 year)

Determine the future of Keefe Memorial Hospital by examining options including, but not limited to, converting the hospital from sole community provider to a critical access hospital, a rural health clinic, a community clinic, or a community emergency center.

- Review Eide Bailly recommendations with additional questions concerning a provider-based rural health clinic versus a free standing rural health clinic.
- Examine the feasibility and strategic reports that have been done to date in conjunction with current financial, staffing and community needs projections. As the State Office of Rural Health, the Colorado Rural Health Center can assist if the decision is made to move forward with Critical Access Hospital conversion as well as with questions and feasibility for the future of the rural health clinic.

Ensure reimbursement is being maximized through the rural health clinic.

- Review how physician inpatient visits and visiting nursing services are being reimbursed through the hospital as opposed through the rural health center. Additionally, review the total reimbursement structure along with all billing practices to ensure accurate and optimized processes are in place for all services. Seek out education and assistance from outside resources, as needed.

Regain the trust of the hospital staff and provide leadership development avenues.

- Provide education on team building and service excellence for managers on a regular basis and keep employees informed through regular communication.
- Review, implement and enforce policies and procedures regularly. Provide avenues for staff input and buy-in. The Colorado Rural Health Center offers assistance and periodic educational opportunities on topics for team building, leadership and culture change within healthcare facilities.

Empower the nurses by allowing them to work within the full scope of practice within the emergency room.

- Utilize nurses' skill sets to include blood draws and 12 Lead ECG placement in order to increase efficiency in the emergency room.

Work with the region for training, including Advanced Trauma Life Support for providers (ATLS) and Advanced Cardiac Life Support (ACLS) and Trauma Nursing Core Course (TNCC) training for nurses.

- Contact the hospitals within the region and set up a rotating training schedule on a quarterly basis.

Apply for and implement 340B Program for the hospital and clinic (Drug Pricing Program and Pharmacy Affairs).

- Use the assistance of the Colorado Rural Health Center or Eide Bailly consultants to look at eligibility and registration for this program. As a sole community provider, the

hospital would need to have a disproportionate share adjustment percent equal to or greater than 8 percent in the most recent Medicare cost report. More information can be found at http://www.hrsa.gov/opa/

Set performance standards and improve coding and billing processes to insure patient bills get sent out more quickly.

- Review best practices and set up processes accordingly.
- Review, implement and enforce policies and procedures with staff and providers regularly.
- Work with providers, coding staff and billing staff on documentation/billing/coding processes.
- Seek out education, training and resources for staff on these practices. The Colorado Rural Health Center can assist with connections to resources. Consider out-sourcing billing if billing timeframes do not improve quickly.

Implement Eide Bailly recommendations to hire a full time physician, removing the need for the locum tenens expense and implement Chargemaster review for accuracy inpatient billing.

- Request Eide Bailly to assist with Chargemaster review. Education for managers and billing personnel can be done through webinars, which will reduce the cost. Chargemaster should be analyzed by experts, such as Eide Bailly, to make sure that revenue codes and CPT codes are correct.
- Seek information, resources and education about recruitment and retention to help overcome difficulties with recruitment and retention. The Colorado Rural Health Center has recruitment services and can assist with retention information.

Develop a strategic plan: evaluate revenue generating service lines.

- Consider increasing hospital fees for service to increase hospital revenue source.
- Conduct a Chargemaster review on a regular basis.

Develop public relations and marketing strategies.

- Include a letter from the hospital CEO with the hospital bill acknowledging past billing mistakes and stating what improvements are being made to change the process.
- Publish a letter from the hospital CEO in a newsletter or newspaper acknowledging past billing problems and what is being done to change and improve the process.

Medium-term (1 - 2 years)

Seek out partnerships, whether with the Colorado Rural Health Center or a large hospital system.

- Invite healthcare systems (Centura, HealthOne, Banner) to your hospital asking for an affiliate partnership.
- Become familiar with the programs offered to rural healthcare facilities by the Colorado Rural Health Center.

- Contact and work with state organizations (Colorado Rural Health Center, Colorado Hospital Association, and others) to find out about available resources.
- Work with other area hospitals and larger hospital systems to create synergy and maximize resources to meet patient needs.

Track and report data and quality outcomes to the hospital board and public quality measures/customer service benchmarks.

- Use Hospital Compare, the satisfaction survey results, and any other data showing quality measures and/or customer satisfaction when interacting with patients, employees or the community.

Cheyenne County Ambulance Service Recommendations

Short- term (3 months - 1 year)

Increase the number of qualified EMS providers by conducting an initial EMT training course in Cheyenne County.

- Review the schedules for schools, sporting events, churches, service clubs and other organizations in the community so that the training class does not conflict with any major community event. The course coordinator should also assess if there are periods of peak demand for businesses in the area. It is impossible to schedule an initial EMT training course that does not conflict with any other event in the community, but the timing can be adjusted to avoid those that effectively prevent a student from successfully completing the course.
- Develop a course schedule then seek to recruit students. Students must apply and complete a selection process that provides information sufficient to independently assess their ability to complete the course of instruction and qualify for service as an EMS provider. A written application should include elements that demonstrate the student meets the age, language and educational requirements and can nominally pass the background check standards established by the ambulance service.
- Work cooperatively with the local school system or a community college to administer tests to students that pass this initial screen to further assess the student's capabilities. The local school system may already have access to standardized tests to assess essential skills in math, science, reading and English language. Some agencies use the Health Occupations Basic Entrance Test (HOBET) as a tool to evaluate these attributes, and the course coordinators can use their expertise to determine an appropriate threshold score.
- Perform an initial background check on the applicant. The State of Colorado requires a fingerprint background check for all applicants seeking EMS provider certification. There are only a handful of specific convictions that automatically exclude an individual from becoming certified. Most are assessed on a case-by-case basis, and a determination is based on factors such as the nature of the conviction, the amount of time that has elapsed since the conviction and whether or not the individual served his sentence or complied with all of the requirements imposed by the court. Cheyenne County Ambulance Service and the hospital where students will complete the clinical component of the initial EMT class likely have more stringent criteria related to criminal history. Individuals that do not meet these requirements can be eliminated from consideration. The rigorous screening process creates a reasonable expectation that students will be able to successfully complete the class and comply with all certification requirements because of the screening process. Once the class begins, there is still an opportunity to make minor adjustments to the schedule through mutual agreement to accommodate specific needs and support success for the actual course participants.

Create written procedures for interfacility transfers by ground ambulance.

- Focus on maintaining quality, reliable BLS service until there is some reason to believe that the status of Keefe Memorial Hospital as an ambulance destination will change. At that point, the ambulance service will want to consider changing its scope of service to

Advanced Life Support in order to meet the needs of the community.

- Enter into a formal, written mutual aid agreement with an Advanced Life Support provider to clearly specify, at a minimum, the procedures for requesting mutual aid, response time requirements, minimum requirements for personnel and ambulances, who has rights to the revenue from the call, who is at risk for nonpayment of charges and the process for addressing problems that arise. A significant number of templates and mutual aid agreements are available online. The RETAC coordinator also has access to draft agreements and can provide technical assistance to help ensure that the agreement includes the provisions relevant to the current situation.

Create an on-call schedule for the pay-per-call EMS providers for 9-1-1 and interfacility transports.

- Develop an availability shift schedule. This will be easier once provider numbers increase. Each provider would have the ability to access the schedule and would be able to track and manage personnel through the system. All providers would be allowed to view the daily availability of personnel and ensure coverage to areas that need it. Pay-per-call EMS providers would be able to see open shifts from home and schedule themselves accordingly. As the system becomes a more regional system, it would be easier to share resources across a broader area. *Netscheduler* is one example of an online scheduling program.

Medium-term (1 - 2 years)

Review the system for EMS medical direction to determine if the parties have devoted sufficient resources to provide thorough medical oversight that is consistent with objective standards and the preferences of the local medical community.

- Seek local physicians to provide medical oversight for Cheyenne County Ambulance Service. In the past, medical direction for Cheyenne County Ambulance Service was provided locally. For the last several years, however, the Plains to Peaks RETAC has worked collaboratively with the large healthcare systems in Colorado Springs to have one of them fulfill the requirements for EMS medical direction. The current system is in a state of flux due to the impending retirement of the EMS medical director and the recent change of the ambulance service clinical coordinator so it is difficult to ascertain the root cause for any apparent deficiencies in the current system. The new personnel should have the opportunity to work through the learning curve before they determine if systemic changes are indicated. Changes in the regulatory environment, such as the EMS quality management bill that has been introduced in the legislature, may also affect EMS medical direction. In addition, if the ambulance system evolves into a more regional provider, EMS medical direction will need to evolve similarly to meet the needs of that system.
- Review of the system involves assessing the adequacy of prospective, concurrent and retrospective medical oversight. The review should include participation from the ambulance clinical coordinator, the EMS medical director, EMS providers, ambulance service administration, representatives of the local medical community, individuals with expertise in quality management systems from the hospital and other medical providers and other physicians who receive patients transported by Cheyenne County

Ambulance Service.

Increase the number of qualified EMS providers by recruiting military veterans trained as EMTs or paramedics who are leaving active duty service.

- Recruit military personnel. The process is simpler now than in years past. The United States military operations have been scaled down for a variety of reasons resulting in a significant number of veterans leaving active duty and looking to move into communities where they can use the EMS skills acquired during their service. If Cheyenne County Ambulance Service transitions toward a service with full-time paid employees, the agency can actively recruit and hire military veterans directly. If the volunteer or pay-per-call model continues, the ambulance service can work cooperatively with local employers to hire military veterans with EMS training as a path toward improved worksite safety and an opportunity to enhance their standing as a good corporate citizen in the community.
- Seek assistance from the Colorado Department of Labor and employment which offers priority service for veterans and eligible spouses through Colorado Workforce Centers located throughout the state. The closest Colorado Workforce Centers are located in Burlington, Lamar and Limon. Hero 2 Hired (h2h.jobs) is a web-based program operated by the Department of Defense to link military veterans with employers. Employers can post openings for free, and the site offers direct access to qualified personnel, many of whom have already passed rigorous background checks for military security clearance. There are a number of other sites such as Iraq and Afghanistan Veterans of America (IAVA.org), HireVetsFirst.gov, USAJobs.gov, HelmetsToHardhats.org and Military.com that offer postings to military job boards, many free of charge to the employer. Fort Carson, near Colorado Springs, and other military installations hold job fairs to help place veterans leaving the service and Cheyenne County Ambulance Service can attend those events when they have appropriate openings. Once the ambulance service has hired veterans, they can leverage the knowledge and expertise of that individual to attract more veterans. Military veterans currently on the payroll can help translate the need for specific skills in the civilian market into military jargon to help target the most qualified personnel. Current employees can also serve as mentors for new or prospective employees.

Increase the number of qualified EMS providers by developing a trained cohort of EMTs locally.

- 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 as an elective. 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. The initial EMT course can then be offered as an elective for high school seniors. Once they reach 18, they can be certified as an EMT and have a marketable skill. Those students interested in a healthcare career can use this as a springboard to become a paramedic or achieve higher levels of training to pursue a degree in a healthcare field.

Those with other interests can use it to distinguish themselves from others in a competitive job market or as an opportunity to serve their community as a volunteer EMS provider. In addition, if the initial EMT course is offered through a cooperative agreement between the local school district and a community college, students can earn college credit and build hours toward a degree program. The small class size at the high schools in Cheyenne County significantly limits the effect of this recommendation because it would require nearly 100 percent participation of each cohort to make the EMR and initial EMT training feasible.

Develop succession plan for the ambulance director position and transition to full time role.

- Perform weekly or semi monthly training sessions with prior director until new director is comfortable with the role.

Pay EMS director a reasonable salary for time spent.

- Increase the stipend for time spent doing director duties while working to transition to a full time role.

Enhance community perception to recruit more pay-per-call EMS providers.

- Publish articles in the local paper from time to time on what EMS does, the positive impact the service provides to the community, the importance of the providers serving the community and how to become a member of the ambulance service. These articles can be timed around EMS Week in May, which will play a second role in acknowledging the gratefulness the community has for their paid-per-call EMS providers.

Utilize nurses currently in the community and cross-train them into EMS as EMTs or send them through a nurse to paramedic bridge program.

- Partner with an adjacent county to host a combined EMT class. This way there is the potential for more students to participate, and instructors can be shared limiting the strain on the Cheyenne County EMTs who have to solely instruct the class.
- Determine the nurses who are interested in cross-training as a paramedic and use the Colorado Resource for Emergency and Trauma Education (CREATE) grant program to supplement local funding and send them through the process. Several community colleges around Colorado offer a bridge program that is convenient to fit into a nursing schedule.

Long-term (2 - 5 years)

Hire a full-time EMS director that will serve the community at the paramedic level.

- Seek to recruit EMTs in order to build the provider staffing level up. Once the service is ready for ALS level care, seek to hire a paramedic who can also double as the EMS director.

Develop a pool of ALS personnel from Cheyenne County in order to participate if a regional model that shares ALS personnel between agencies forms in the future.

- Research the legal and logistical issues inherent in the formation of a regional emergency medical services or community paramedicine agency. In order to serve as an equal partner, Cheyenne County Ambulance Service should be able to contribute resources like those of its neighboring jurisdictions to the cooperative effort. Preparing personnel to serve in this role requires significant lead-time. It takes about 1,200 hours just to complete the mandatory didactic, clinical and field internship components of an initial paramedic training program. Prerequisites can add anywhere from several weeks to as much as a year depending on the educational foundation of the particular individual. Individuals licensed as a registered nurse may be able to function in this role at a fundamental level with as little as 150 hours of training. The cost to train personnel to the paramedic level is significant. Tuition, books and fees run about $7,500.00 per student through an accredited program. Paramedic training centers are also based in metropolitan areas so students will have to commute long distances.
- Investigate growing your own paramedic level providers from the ambulance Basic Life Support staff. Rural areas have a difficult time attracting and retaining qualified paramedic level providers. This is due, in part, to the limited earning potential in low volume systems. The small number of calls generates a limited amount of revenue to pay salaries and other operating costs. Another factor relates to the "fit" within the community as demonstrated by the limited success of retaining individuals with current paramedic certification from other areas. Many families are not prepared for the rigors of a rural lifestyle. Limited opportunities for fulfilling employment for other family members, shopping, recreation, school choice and other factors have a dramatic influence on the decision to stay in a rural area. Several agencies have had good success with growing their own paramedic level providers. The investment in individuals currently employed by the agency to help them reach their full potential has shown great promise. Selecting candidates who are established in the area virtually eliminates the mismatch between the provider's family and the community. Other family members have acceptable employment or a support network. Children and parents are already comfortable with the schools and so forth.
- Look for creative ways to fund educational opportunities. Depending on the configuration of the regional emergency medical services or community paramedicine agency, adequate funds may or may not be available internally to support a program to provide initial paramedic training to existing crewmembers. The Colorado Resource for EMS and Trauma Education (CREATE) grant program, operated by the Colorado Rural Health Center, is a tremendous resource. The program accepts applications throughout the year and will pay 50 percent, or up to 90 percent with a waiver based on demonstrated financial need, of eligible expenses for initial paramedic training. The sponsoring agency frequently makes some kind of contractual arrangement with the student that requires a period of service after the training is completed. Specific individuals may be eligible for other funding options such as programs under the Workforce Investment Act for the unemployed or vocational rehabilitation programs administered by the U.S. Department of Veterans Affairs.

Consider revising the Cheyenne County Ambulance resolution to update citations, include quality parameters and add enforcement mechanisms to prepare for the possibility of dealing with other ambulance service providers.

- Review the current Cheyenne County Ambulance resolution, which was updated in 2006. There have been a few statutory and regulatory changes in the interim although the resolution was crafted to address the possibility that citations in the document would change over time, and it appropriately refers to succeeding laws or regulations. A number of significant EMS initiatives are making their way through the legislative and regulatory processes this year and it would be prudent to defer the other amendments until the fate of those initiatives has been decided. Cheyenne County is a responsible, effective local government and has established procedures for implementing reasonable regulations in accordance with its statutory authority. Changes to the ambulance resolution can be achieved through these procedures to provide the county with appropriate tools to effectively manage future service delivery models.

EMS and Trauma System-Wide Recommendations

Short- term (3 months - 1 year)

Ensure each agency has a good understanding of what the other does, e.g..., the Visiting Nurse Association program.

- Set up regularly scheduled meetings with community healthcare partners. Discuss current programs, services, staffing and future plans.

Continue to use the Hospital Preparedness Program through Colorado Department of Public Health and Environment for developing better preparedness for mass casualty.

- Request a site visit from the department's Office of Emergency Preparedness and Response (OEPR) to review plans and discuss utilization of Hospital Preparedness Program funding. More information is also available from the Colorado Rural Health Center.

Seek to increase the collaboration and numbers of participants in programs, seniors programs for example.

- Involve medical staff with these discussions so they can refer patients to local services. In addition, more community participation in programs could help build more confidence in the healthcare system.

Restore and maintain a sustainable, coherent emergency medical dispatch program.

- Provide pre-arrival instructions from a trained emergency medical dispatcher. The Plains to Peaks RETAC provided emergency medical dispatch training on the Medical Priority Dispatch System and purchased the standard instruction cards for the communications centers serving the rural areas in the region. Over the last several years, employee turnover and administrative changes at the Cheyenne County Sheriff's Office Communications Center has caused the emergency medical dispatch program to languish. The current administration for the communications center is working diligently to get all of the dispatchers trained and revive the program.
- Ensure that all the dispatchers at Cheyenne County Sheriff's Office Communications Center complete the Association of Public Safety Communications Officials (APSCO) emergency medical dispatch course. Once the current staff is trained, any new dispatchers should complete this program as part of their orientation before they are permitted to function without direct supervision by an experienced dispatcher. The course is available from Association of Public Safety Communications Officials (APSCO) for a reasonable cost, and it provides the essential knowledge to answer EMS calls, prioritize the response and provide pre-arrival instructions to caller as needed.
- Replace the current Medical Priority Dispatch System instruction cards since they are old and likely do not reflect current emergency medical practice, most notably with respect to the recent changes in CPR. The Cheyenne County Sheriff's Office Communications Center, in cooperation with its medical director, should review the Medical Priority Dispatch System instruction cards before the dispatchers complete their training and the program is ready to come online. The instruction cards should be

replaced if they are out of date or if they are not compatible with the educational content in the Association of Public Safety Communications Officials (APSCO) emergency medical dispatch course. Current instruction card sets are readily available from Association of Public Safety Communications Officials (APSCO), Medical Priority Dispatch System and several other sources.

- Budget for the ongoing costs to maintain and operate the emergency medical dispatch program. Association of Public Safety Communications Officials (APSCO) requires 24 hours of continuing education every two years and current CPR training to maintain dispatcher certification. The instruction cards also become obsolete periodically as medical practice evolves. These costs are modest and should be appropriated annually through the regular budget process although grants may be available to subsidize these costs.

Utilize a priority dispatch system to ensure the correct medical response assets are dispatched to calls for service if a regional shared resource model or community paramedicine agency forms in the future.

- Research additional training and revised instruction cards. At present, variation in the type of medical response assets is very limited, and it is obvious which resource should be dispatched. If alternate service delivery models emerge, the dispatcher will require additional information to help discern the appropriate response. Fortunately, dispatchers will have been trained through the Association of Public Safety Communications Officials (APSCO) emergency medical dispatch course and possess the essential skills to prioritize calls. Additional training and revised instruction cards may be needed, depending on the types of resources available through the regional shared resource or community paramedicine agency.
- Establish a regular meeting schedule. Cheyenne County Sheriff's Office Communications Center and the regional shared resource or community paramedicine agency should establish a regular meeting schedule to ensure both agencies are current on each other's capabilities. As the scope of services for the regional shared resource or community paramedicine agency expands and contracts to serve the constituents, dispatch protocols will need to be revised to reflect the most recent information about resources and medical practices. Operations from the previous period can be reviewed at the regular meetings to determine if resources are being used appropriately or if there are opportunities for process improvement.

Medium-term (1 - 2 years)

Develop written Mass Casualty Incident plans for each agency to ensure that plans are coordinated well at the county and regional level.

- Coordinate through the county emergency manager. This can be an agenda item during regularly scheduled community healthcare coalitions meetings. Every emergency response and healthcare agency must have a mass casualty plan because, ultimately, every mass casualty incident is local. If it occurs in someone's jurisdiction, they are responsible for managing it. The response by the first agency to respond affects how the incident is managed in its entirety. It is also essential that

individual agency plans be coordinated. It is unrealistic to expect another agency to provide resources if the availability of those resources has not been verified. Individual agency plans also need to be coordinated to ensure that a single resource in the area is not being committed to multiple agencies at the same time.

- Create simple mass casualty plans. It is important to create a framework that clearly defines specific roles personnel should be able to perform, how to request assistance when the magnitude of the incident exceeds individual agency capabilities, how to integrate the supplemental resources into the initial response and how to communicate with them. Templates for individual agency plans are available online, and technical assistance is readily available through Cheyenne County Emergency Preparedness, state and federal emergency management agencies, the state Hospital Preparedness Program and industry associations.

Conduct some type of mass casualty exercise, tabletop, functional or full-scale, on an annual basis to increase responder's familiarity with mass casualty plans and improve ability to execute mass casualty plans effectively.

- Conduct periodic exercises. Management of mass casualty incidents is a complex process and requires a significant amount of coordination. It is important for each provider to develop the skills necessary to effectively perform his or her role in a major incident. In addition, mass casualty incidents occur infrequently, and the skills to effectively manage these types of incidents degrade unless they are exercised regularly. Periodic exercises allow providers to use the tools of mass casualty incident management and identify shortcomings in the process. This is of paramount importance when new technologies, often without an intuitive interface, are used. Exercises provide the opportunity to discuss capabilities with other providers who have different expertise and training, and they reinforce skills to create the confidence within individual providers to bolster their ability to function effectively under stressful conditions.
- Utilize the Cheyenne County Emergency Preparedness director to conduct mass casualty exercises as the lead for these events. An exercise committee with representatives from the other response and healthcare agencies can provide the strategic vision to establish goals for the exercise and identify the specific system components to be tested. Detailed implementation should be assigned to specific agencies or personnel based on the specific scenario and the components to be tested.
- Schedule the exercise at a time to maximize agency participation. This may mean that exercises are conducted in the evening or on a weekend to allow volunteer providers to participate. It may also limit the scope of the exercise due to time constraints, but it is more important to develop the collaboration between agencies than it is to test a broad array of system components.
- Provide retrospective exercise review with all agencies involved to determine if resources were used appropriately or if there are opportunities for process improvement. Cheyenne County Emergency Preparedness can compile this information for review after subsequent exercises to track the effectiveness of changes over-time.

Develop and implement an education and continuing education standard for agency managers and supervisory personnel within the region.

- Work with the RETAC and adjacent areas in order to provide regional training opportunities. Continue to utilize hospital and EMS conferences for continued growth.

Long-term (2 - 5 years)

Investigate regionalizing the emergency medical and trauma services system.

- Move toward a common online ePCR system within the region. The system can utilize a common online ePCR and system evaluation could be consolidated along with standardized billing.

Create one central billing operation utilizing data from the common ePCR system. This would create efficiencies in the system.

- Seek ways to regionalize the system to consolidate resources, saving money and increasing the profit margin.

Work collaboratively with the ambulance services, hospitals and public health agencies in the surrounding jurisdictions to develop regional Advanced Life Support ambulance transport capabilities, support hospital emergency services and address gaps in community based health services through formation of a multijurisdictional community paramedicine agency or other appropriate organization (also see *An Innovative Vision* section).

- Look for ways to address multiple community health service needs. A community paramedicine agency has the flexibility to use a variety of providers- EMS provider, registered nurse and others. There are presently a number of unmet healthcare needs, and additional needs may emerge in the future depending on the evolution of service delivery models. The low population density affects the viability of many options, and it may be necessary to approach the problem from a regional basis to be economically feasible.
- Consider innovative organizational forms to enhance collaboration with other agencies in Cheyenne County and adjacent jurisdictions. For example a regional community paramedicine agency can provide a variety of services:
  - Supplement the BLS ambulance transport system on 9-1-1 calls for service when higher level care is indicated with a network of ALS intercept vehicles.
  - Provide ALS EMS staffing for routine interfacility transports from hospitals in Burlington, Cheyenne Wells, Eads and Hugo to tertiary care centers on the Front Range.
  - Staff critical care EMS transports for high acuity or time sensitive interfacility transports from area hospitals to tertiary care centers on the Front Range.
  - Use ALS staffing to complement RN capabilities in hospital emergency departments.
  - Conduct home health visits.
  - Conduct follow-up visits for patients recently discharged home from area hospitals,

or tertiary care centers to monitor for complications and verify compliance with discharge instructions.
    - Provide continuing education for EMS providers, registered nurses and other providers.
    - Provide community education for injury/disease protection.
- Operational funding may come from an array of sources:
    - Direct patient charges
    - Contracts with area hospitals and tertiary care centers
    - Public health grants
    - Contracts with education centers
    - Dedicated tax subsidies
    - General fund tax subsidies
    - State and federal grants for health care services
    - Insurance companies
    - Employers
    - Centers for Medicare and Medicaid Services Grant

This recommendation is listed as a long-term goal, but implementation should begin immediately. It will not take long to identify specific functions that will benefit from the collaborative efforts and initiate these synergistic relationships between agencies.

An Innovative Vision

This is a theoretical vision. Concepts may or may not be actualized as stated, but some variant could enhance the healthcare in the county or region.

Healthcare Integration in Cheyenne County

The changing healthcare dynamic has caused many leaders in healthcare to challenge their thinking on current system models. These current systems of care will not work in a new paradigm of Health Care Finance Reform. Small providers in rural and remote areas of the United States need to look outside their communities for help and support. Small towns like Cheyenne Wells and Kit Carson are changing with an outflow of young population but still have service needs for populations that are reaching retirement age and beyond. Cheyenne County is the perfect community for innovative ideas and concepts that, if proven, could mean reshaping the future of healthcare in rural communities across the United States.

Vision

This vision starts at the hospital and with the board of directors. They must break down old barriers and thoughts. The idea of competition between small towns cannot be the norm any longer. If the hospital needs to become a critical access hospital, steps for conversion should start immediately in order to reap the benefits that this will afford. Along with reducing the need for dual nursing staff, the hospital could replace the second nurse with a paramedic through attrition or cross-train current nurses to become paramedics. This leads into the innovative vision of integrating the community paramedic model.

A Regional Approach

The hospital should reach out to create a regional healthcare system that could include Burlington, Hugo, Eads and Sharon Springs. Becoming a regional health system will take thought, careful planning and a leadership team that is willing to give up a certain level of control for the greater good. This could include the provision of paramedic services and the creation of a highly functioning system of care that could share physicians and ancillary staff. Recruiting physicians for multiple hospitals to work within the region as a whole would be easier than doing so for individual facilities. In a regional approach, common infrastructure could be achieved by utilizing a common Electronic Medical Record (EMR), a single billing office and shared human resources. This would likely accrue other benefits that would not be easily seen on the surface.

Along with merging healthcare resources, the ambulance systems should be merged. Local Basic Life Support care augmented with regionalized paramedics could help solve 9-1-1 Advanced Life Support (ALS) response, ALS interfacility transport and community health initiatives. Rural communities need to rely on well-trained and educated providers to respond to emergencies, staff the hospital, provide public health, provide primary care services and manage post hospital discharge care for patients.

Community paramedics could be utilized to support many of these in-hospital, interfacility and community facets of care. Initial start-up funding for the community paramedic education and operational startup could come from grant sources like the Colorado Resource for EMS and Trauma Education (CREATE) and Centers for Medicare and Medicaid Services. Savings from reducing staff at the hospital to one registered nurse per shift when the move is made to a

critical access hospital would more than pay for the community paramedic program in Cheyenne County. Hiring three to four paramedics in the community who could function in multiple roles would be advantageous to all healthcare systems. The hospital might even create an agreement with the county and public health to share the community paramedic and perhaps some nominal operational costs. However, this becomes more beneficial as part of a regional system. The regional health system would benefit from the community paramedics program by the provision of more services and utilizing paramedics while not responding to emergency requests. The regional health system might be able to bill for the services or look to a bundled payment approach working closely with the Accountable Care Organization.

With a regional system, paramedics would get a diverse experience without skills degradation. The system could employ five paramedics per day dispersed throughout the region to work in the emergency room, public health clinic, nursing homes or providing post discharge home visits and be on-call in an intercept vehicle at night in the more remote locations like Cheyenne County. When an emergency request comes in, the paramedic can utilize the intercept vehicle and rendezvous with BLS ambulance responders. Combining Electronic Patient Care Reports (ePCR) and billing offices would make for a more efficient service delivery model within the region. Training could also be regionalized at this level for Advanced Cardiac Life Support, Pediatric Advanced Life Support, Basic Life Support, Prehospital Trauma Life Support and continuing education could be provided to the EMS agency and the facilities with two regional clinical educators.

Finally, this system could create strategic alliances with Centura, Banner, University Health or HealthOne to make an impact for total patient care. This alliance could create a mechanism for patients to return to the communities sooner in a skilled swing bed or even to home with proper care from a health care team. Thinking beyond the walls of the hospitals will be important for the future of community healthcare.

Appendix A

Cheyenne County Ambulance Service Statistics 2013

Request for service by Town

Cheyenne Wells	78	60%
Kit Carson	35	27%
Wild Horse	8	6%
Arapahoe	1	0.77%

Top requests for service type

Traffic Collision	32	25%
Fall Victim	16	12%
Medical Transport	10	8%

Average run by Mileage (to scene)

0-5 miles	109	84%
>20 miles	6	5%

Average run by Mileage (to destination)

0-5 miles	105	81%
>20 miles	10	8%

Average run times

Enroute	00:12:25
To Scene	00:06:28
At Scene	00:18:09
To Destination	00:37:55
Back in Service	00:27:33
Total average call time	01:42:30

Top Patient Age

85+	20	15%
75-84	18	14%
25-34	17	13%

Top runs by location type

Street or Highway	49	31%
Health Care Facility	39	30%
Home/Residence	32	25%

Top Hospitals Transported to

Keefe Memorial Hospital	62	69%
University of Colorado Hospital Anschutz Inpatient Pavilion	5	5%
Weisbrod Memorial County Hospital	4	4%

Appendix B

Pre-visit Survey Results

The community (public) supports Keefe Memorial Hospital.		
I agree	70.8%	17
I disagree	4.2%	1
I do not know	25.0%	6
answered question		24

The community supports Cheyenne County Ambulance Service.		
I agree	87.5%	21
I disagree	4.2%	1
I do not know	8.3%	2
answered question		24

Keefe Memorial Hospital is staffed and equipped to effectively care for patients in emergency situations.		
I agree	79.2%	19
I disagree	12.5%	3
I do not know	8.3%	2
answered question		24

I would feel comfortable with a mid-level provider such as a Physician Assistant or Nurse Practitioner overseeing patient care in the emergency room in place of a Physician.		
I agree	45.8%	11
I disagree	33.3%	8
I do not know	20.8%	5
answered question		24

I am content with my job here at Keefe Memorial Hospital.		
I agree	72.7%	8
I disagree	27.3%	3
answered question		11

Keefe Memorial Hospital has the staffing, equipment, and training to provide quality patient care.		
I agree	54.5%	6
I disagree	45.5%	5
answered question		11

Continuing education classes for staff are readily available.		
I agree	63.6%	7
I disagree	27.3%	3
I do not know	9.1%	1
answered question		11

Cheyenne County Ambulance Service and Keefe Memorial Hospital staff work well together.		
Always	54.5%	6
Majority	45.5%	5
Sometimes	0.0%	0
Never	0.0%	0
answered question		11

Cheyenne County Ambulance Service volunteers provide an acceptable level of care to the patients being transported to Keefe Memorial Hospital.		
Always	54.5%	6
Majority of the time	36.4%	4
Sometimes	9.1%	1
Improvement needed	0.0%	0
answered question		11

I feel comfortable taking my patients to Keefe Memorial Hospital for adequate levels of care.		
I agree	100.0%	9
I disagree	0.0%	0
answered question		9

Continuing education opportunities are readily available.		
I agree	66.7%	6
I disagree	33.3%	3
I do not know	0.0%	0
answered question		9

#1 Fire Protection District and West Cheyenne Fire Protection District work well with Cheyenne County Ambulance Service providers.		
Always	66.7%	6
Majority	33.3%	3
Seldom	0.0%	0
Never	0.0%	0
answered question		9

Keefe Memorial Hospital staff and Cheyenne County Ambulance Service providers work well together.		
Always	66.7%	6
Majority of the time	33.3%	3
Sometimes	0.0%	0
Never	0.0%	0
answered question		9

I am aware of the Regional pre-hospital protocols.		
I agree	66.7%	6
I disagree	33.3%	3
answered question		9

There are enough EMS providers for EMS response.		
I agree	4.2%	1
I disagree	87.5%	21
Not applicable	8.3%	2
answered question		24

There are sufficient hospital staff members to provide quality patient care.		
I agree	66.7%	16
I disagree	29.2%	7
Not applicable	4.2%	1
answered question		24

There is an active interest in volunteering in EMS within Cheyenne County.		
I agree	12.5%	3
I disagree	79.2%	19
Not applicable	8.3%	2
answered question		24

The EMS system is adequately funded.		
I agree	37.5%	9
I disagree	4.2%	1
I do not know	54.2%	13
Not applicable	4.2%	1
answered question		24

Cheyenne County Ambulance Service and Keefe Memorial Hospital are sustainable over the long term.		
I agree	12.5%	3
I disagree	16.7%	4
I do not know	70.8%	17
Not applicable	0.0%	0
answered question		24

Cheyenne County Ambulance Service and Keefe Memorial Hospital are in compliance with all applicable regulations.		
EMS is compliant only	4.2%	1
Hospital is compliant only	0.0%	0
Both are compliant	25.0%	6
Neither are compliant	0.0%	0
I do not know	66.7%	16
Not applicable	4.2%	1
answered question		24

Capability exists to provide critical care for inter-hospital transports.		
I agree	54.2%	13
I disagree	4.2%	1
This program needs to be developed	4.2%	1
I do not know	37.5%	9
Not applicable	0.0%	0
answered question		24

The Community Paramedic Model will help enhance the EMS and hospital system.		
I agree	37.5%	9
I disagree	4.2%	1
I do not know	58.3%	14
Not applicable	0.0%	0
answered question		24

The EMS Medical Director participates actively in the system.		
I agree	50.0%	12
I disagree	20.8%	5
I do not know	16.7%	4
Not applicable	12.5%	3
answered question		24

The EMS Medical Director regularly monitors clinical performance.		
I agree	41.7%	10
I disagree	20.8%	5
I do not know	25.0%	6
Not applicable	12.5%	3
answered question		24

EMS Quality Improvement reviews are performed.		
Regularly	58.3%	14
Seldom	29.2%	7
Never	12.5%	3
answered question		24

Radio communication systems are adequate throughout the system.		
I agree	66.7%	16
I disagree	16.7%	4
I do not know	4.2%	1
Not applicable	12.5%	3
answered question		24

Cell phone communications are adequate throughout the system.		
I agree	50.0%	12
I disagree	20.8%	5
I do not know	12.5%	3
Not applicable	16.7%	4
answered question		24

Local EMS education is available to the community. (EMT classes and continuing education classes)		
I agree	58.3%	14
I disagree	12.5%	3
I do not know	25.0%	6
Not applicable	4.2%	1
answered question		24

Local EMS education is available to the community. (EMT classes and continuing education classes)		
I agree	58.3%	14
I disagree	12.5%	3
I do not know	25.0%	6
Not applicable	4.2%	1
answered question		24

Are you aware of an MCI plan within the county?		
Yes I am aware	45.8%	11
Yes I am aware and know how it works	20.8%	5
No I am not aware	16.7%	4
Not applicable	16.7%	4
answered question		24

Cheyenne County Ambulance Service participates in MCI training and exercises.		
Frequently throughout the year	12.5%	3
Twice a year	8.3%	2
Once a year	29.2%	7
Once every few years	25.0%	6
Not that I can remember	25.0%	6
		24
answered question		

Regular efforts are made to educate and inform the public in regards to AED, CPR, first aid and EMS access.		
I agree	37.5%	9
I disagree	25.0%	6
I do not know	29.2%	7
Not applicable	8.3%	2
		24
answered question		

The EMS response is adequate and timely.		
I agree	58.3%	14
I disagree	8.3%	2
Response is timely only	4.2%	1
Response is adequate only	16.7%	4
Not applicable	12.5%	3
answered question		24

High quality medical instructions are provided by the 911 dispatch center.		
I agree	16.7%	4
I disagree	45.8%	11
I do not know	33.3%	8
Not applicable	4.2%	1
answered question		24

In your opinion, how effective is the overall local EMS system in meeting the needs of the community with 1 being non-functional and 10 being ideal?

Answer Options	1	2	3	4	5	6	7	8	9	10	Rating Average	Response Count
Rating	0	2	0	1	1	2	3	**10**	2	3	7.25	24
answered question												24

Appendix C
List of Stakeholders Interviewed

Cheyenne County Commissioners and County Administrator
Patrick Ward
Nancy Bogenhagen
Rod Pelton
Marcy Brossman

Keefe Memorial Hospital Administration
Virginia Halligan
Sue Kern
Christine Connolly, MD
Kurt Papenfus, MD

Keefe Memorial Hospital Board of Directors
Wayne Caldwell
Gerald Keefe
Phil Knudsen
Harry Nelson
Greg Weed

Public Health and Emergency Preparedness
Linda Roth
Darcy Janssen

Cheyenne County Ambulance Service
Sue Kern
Jeff Little
Chandra Little
Leonard Robinson
Andrew Maxcy
Rayetta Palmer
Eric Palmer
Sherri Jones
Carolyn Gerstner

West Cheyenne Fire Protection District
Jason Randel
BJ Mayhan
Monty Weeks
Jeff Little

#1 Fire Protection District
Travis Watson

Cheyenne County Sherriff's Department Communication Center
Sherri Vincent
Tish Wright

Appendix D
Definition of Terms

Advanced Life Support- A level of medical care provided by a paramedic in the prehospital setting. A paramedic is an individual who has a current and valid paramedic certificate issued by the department and who is authorized to provide advanced emergency medical care in accordance with Chapter 2 rules.[1]

Basic Life Support- A level of medical care provide by an emergency medical technician in the prehospital setting. An emergency medical technician is an individual who has a current and valid EMT certificate issued by the department and who is authorized to provide basic emergency medical care in accordance with Chapter Two rules.[1]

Community Clinic - A facility that provides health care services on an ambulatory basis, and is neither licensed as an on-campus department of a hospital nor listed as an off-campus location under a hospital's license.[2] Services are reimbursed either by a fee for service or capitation methodology. There are usually no fixed payments in a fee for service model. Clinics bill for services delivered and are paid on predetermined rates for each service. When using a capitation method of payment, a fixed payment is made periodically for health care coverage to enrolled individuals.

Community Emergency Center - A community clinic that delivers emergency services. Care is provided 24 hours per day, 7 days a week, unless otherwise authorized. A community emergency center may provide primary care services and operate inpatient beds.[3] Services are reimbursed as describe in Community Clinic.

Community Paramedic- A state licensed EMS professional that has completed a formal standardized Community Paramedic educational program through an accredited college or university and has demonstrated competence in the provision of health education, monitoring, and services beyond the roles of traditional emergency care and transport, and in conjunction with medical direction. They receive clinical training, provide in-home visits, work under medical direction, manage patients with chronic conditions, and help to prevent hospital readmissions.[4] The specific roles and services are determined by community health needs and in collaboration with public health and medical direction.

A community paramedic must practice in accordance with protocols and supervisory standards established by a physician, advanced practice registered nurse, or physician assistant. A community paramedic may provide services as directed by a patient care plan if the plan has been developed by the patient's primary physician, an advanced practice registered nurse, or a physician assistant, or other relevant local health care providers authorized by the state, Medicare or Medicaid to create and modify patient care plans. The patient care plan must ensure that the services provided by the community paramedic are consistent with the services offered by the patient's health care home, if one exists, that the patient receives the necessary services, and that there is no duplication of services to the patient.

Services may include interventions intended to prevent avoidable ambulance transportation or hospital emergency department use, including the performance of minor medical procedures, initial assessments within the community paramedic scope of practice, care coordination, diagnosis related to patient education, and the monitoring of chronic disease management directives in accordance with educational preparation, and other services determined appropriate by the medical director.

Critical Access Hospital - A Medicare participating hospital located in a rural area, which furnishes 24-hour inpatient and emergency care services. The facility must be more than 35-miles from any hospital or other critical access hospital maintain no more than 25 inpatient beds and have an average annual length of stay of 90 hours or less.[5] Critical access hospitals are paid for most inpatient and outpatient services to Medicare patients at 101 percent of reasonable costs.

Rural Health Clinic - A facility located in a non-urbanized area that typically furnishes outpatient health care services. Rural health clinics were established to address an inadequate supply of physicians serving Medicare beneficiaries in underserved areas. Rural health clinics are paid an all-inclusive rate per visit for certain primary and preventive health services. Rural health clinics can be either independent or provider-based. Independent clinics are freestanding clinics where as provider-based clinics are integral and subordinate parts of a hospital, skilled nursing facility or a home health agency.[6] Payment rates are different for independent clinics compared to provider-based clinics.

Sole Community Hospital - A Medicare participating rural hospital that must be 35 miles from a like hospital.[7] Sole community hospitals are paid the highest of four amounts calculated by Medicare for inpatient services.

[1]6 CCR 1015-3, Health Facilities and Emergency Medical Services Division Chapter Two- Rules Pertaining to EMS Practice and Medical Direction Oversight, April 2013
[2]6 CCR 1011-1, Standards for Hospitals and Health Facilities, Chapter 9, Community Clinics and Community Clinics and Emergency Centers
[3]6 CCR 1011-1, Standards for Hospitals and Health Facilities, Chapter 9, Community Clinics and Community Clinics and Emergency Centers
[4]The Flex Monitoring Team. *The Evidence for Community Paramedicine in Rural Areas: State and Local Findings and the Role of the State Flex Program.* University of Minnesota, University of North Carolina at Chapel Hill, University of Southern Maine, February 2014
[5]Department of Health and Human Services, Centers for Medicare & Medicaid Services, Medicare Learning Network, Critical Access Hospital Fact Sheet, December 2013
[6]Medicare Benefit Policy Manual, Chapter 13, Rural Health Clinic and Federally Qualified Health Center Service
[7]Department of Health and Human Services, Centers for Medicare & Medicaid Services, Medicare Learning Network, Sole Community Hospital Fact Sheet, January 2014

Appendix E

Assessment Team Biographical Information

Consultative Visit Team

From left to right: Dr. Art Kanowitz, Matt Concialdi, Margaret Mohan, Eric Schmidt, Ron Seedorf, Chris Montera, Arlene Harms and Jennifer Dunn

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.

Chris Montera, AAS, NR-P

Christopher is the Assistant CEO at Eagle County Paramedic Services. Chris is the immediate past president of the Emergency Medical Services Association of Colorado and was the EMS Data Specialist for Western Regional Emergency Trauma Advisory Council under contract to serve the State of Colorado. Chris has 23 years of experience in EMS and has received numerous awards for service. In his career he has worked in the Fire Service, public health and several EMS services. He was named one of the top 10 EMS Innovators of the Year in 2010 by JEMS and PhysioControl. In his spare time he enjoys being a geek, producing his internet radio show EMS Garage (http://www.emsgarage.com), and other Colorado outdoor activities.

Eric Schmidt, RN, BSN, MBA, EMT-I

Eric is a Colorado native and began his career in emergency services more than 26 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 currently contracts with the Northwest RETAC to serve as coordinator and provides 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 prehospital 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, EMS Occupational Education credential from the Colorado Community College system and a technician level Amateur Radio license from the Federal Communications Commission.

Colorado Rural Health Center

Jennifer Dunn

Jennifer works as the Director of Programs, where she is responsible for the oversight of the Critical Access Hospital (CAH), Rural Health Clinic (RHC), and Emergency Medical Services (EMS)/Emergency Preparedness programs. She earned a Bachelor's Degree from Concordia College in Moorhead, Minnesota and a Master's Degree in Public Administration from the University of Colorado at Denver. Jennifer has previous experience in training, product line development, and health insurance programs for underserved children and families.

Ron Seedorf

Ron manages the Hospital Preparedness contract for Colorado Rural Health Center, which is funded by a Colorado Department of Public Health and Environment grant. The grant provides Federal emergency preparedness funds to help hospitals, clinics, Medical Reserve Corps, and first responder agencies enhance their capacity to respond in the event of a mass casualty or pandemic event. Ron comes from Yuma, Colorado a small town on the northeast plains, where he worked at Yuma District Hospital as their Grants Manager and Trauma Coordinator. With a Bachelor of Science in Business Management and Administration, Ron has over 20 years in private business experience and has worked in Emergency Medical Services as an EMT for almost 20 years. Ron continues his EMS involvement working on projects with the State Emergency Medical and Trauma section and Emergency Medical Services across Colorado. Ron also serves on numerous committees, including the Joint Committee on Rural Emergency Care. This is a committee with members from National organization of State Offices of Rural Health and the National Association of State EMS Officials to address mutual interests in rural emergency medical services.

The Department Representatives

Matt Concialdi, BA, NR-P

Matt is the EMS System Development Coordinator at the Colorado Department of Public Health and Environment, EMS and Trauma Systems Branch. In addition, Matt staffs the EMS Safety Task Force for the department. Matt served as the co-project manager, writer and editor for this consultative visit. He is a NREMT-Paramedic who started his EMS career in 2001 working in the EMS system of Orange County, California. Matt holds degrees in Emergency Management, Fire Technology Medical Services Officer 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 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. In 2012 he received the Excellence in Patient Care (EPIC) coin award through HealthOne. He also owns his own CPR/First Aid and Emergency Preparedness business serving the Denver Metro area. In 2012 Matt became a member of CO-2 Disaster Medical Assistance Team, a federal response team though the Health and Human Services Division of the Department of Homeland Security.

Arthur Kanowitz, MD, FACEP

Dr. Arthur Kanowitz is a board certified emergency physician with 33 years experience in EMS and is the only physician who has functioned as a full-time EMS medical director in Colorado. Dr. Kanowitz became an EMT in 1975 and later graduated from Dr. Gordon's (Cycle One) Paramedic Program. He worked for Denver Health Paramedic Division for five years before entering medical school at the University of Colorado. He completed an internship in Internal Medicine and a residency in emergency medicine before joining the staff at Lutheran Medical Center where he worked as an ED physician and their EMS medical director. Since leaving clinical practice, Dr. Kanowitz has served as medical director for Pridemark Paramedics and Mountain View Fire and founded a medical device research and development firm. Dr. Kanowitz has served the Colorado EMS community on numerous councils and boards including the State Emergency Medical and Trauma Services Advisory Council, Foothills RETAC, Emergency Medical Services Association of Colorado advisory board, Denver Metro Physician Advisors and Boulder County Physician Advisors. He also served as board member and President of Colorado American Chapter of Emergency Physicians. Nationally, Dr. Kanowitz has served on both the American College of Emergency Physicians Trauma Committee and EMS Committee and is a member of the National Association of EMS Physicians and the National Association of State EMS Officials. He has multiple publications in EM / EMS journals and books. Currently Dr. Kanowitz is Colorado's State Emergency Medical and Trauma Services Medical Director. He is also the President and Chief Medical Officer for Securisyn Medical, an EMS research and development firm that is currently working on the development of a radically new endotracheal tube stabilization system.

Margaret Mohan, RN, BSN

Margaret Mohan is the trauma system specialist for the Emergency Medical and Trauma Services Branch at the Colorado Department of Public Health and Environment. In this role, she provides technical assistance to trauma facilities throughout the state on maintaining and improving the trauma program at individual facilities and the system of trauma care throughout the state. Margaret served as the co-project manager and editor for this consultative visit. Prior to coming to the department, Margaret worked at the Department of Health Care Policy and Financing, which is the Medicaid agency for the state of Colorado. During her ten years there, she supervised the unit that conducted provider payment audits for overpayments, fraud and abuse, as well as investigated quality of care issues. Margaret also managed the acute care benefits section where she worked to define the amount, scope and duration of the Medicaid services provided. Margaret is a registered nurse who has worked at a level I trauma center in a variety of roles including staff nurse on the surgical unit, house supervisor and nurse manager of the float pool, forensic, surgical and orthopedic units.

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[1] William Bright, (2004) *Colorado Place Names*, 3rd Edition. Johnson Books.
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[4] Cheyenne County Abstract of Assessment (2012). Department of Local Affairs.
[5] Cheyenne County Budget 2014
[6]Medicare Benefit Policy Manual (2013) Chapter 13 Rural Health Clinic and Federally Qualified Health Center Services.
[7]Health Resources and Services Administration. *340B Drug Pricing Program & Pharmacy Affairs*. U.S. Department of Health and Human Services. http://www.hrsa.gov/opa/

All photos taken and provided courtesy of Matt Concialdi