NLCERA and WFPD

Annual Report 2019

Picture courtesy of NLCERA.org website

Table of Contents

NLCERA and WFPD 2019 Annual Report

Introduction

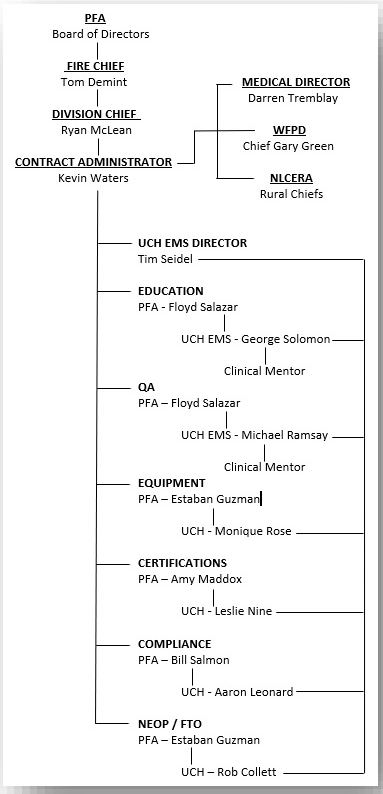


Figure 1.1: Flow Chart of Reporting structure within the NLCERA Contract. Courtesy of PFA in collaboration with UCHealth.

2019 for the Northern Larimer County emergency Response Area (NLCERA) has brought many changes. This fiscal year has seen the introduction of a new Director over UCHealth Emergency Medical Services (EMS), with a vision and focus on collaboration, integration, and sustainable EMS services for the community served. To improve our partnership UCHealth EMS in collaboration with the NLCERA has redesigned our organization chart to better suit the needs of the community and our partner agencies. These changes allowed for consistency of service and reporting within similar areas of responsibility to address the needs of the NLCERA and WFPD. See Figure 1.1.

Emergency medicine in the NLCERA and WFPD is defined through five Pillars: Protocols, Response Time, Quality Assurance and Quality Improvement, Education, and Equipment. These pillars share a symbiotic relationship with each other. Individually they enable operations delivery of emergency services to the communities. Together they create a seamless foundation that allows for accountability and enhancement with the EMS system. See Figure 1.2.

This annual report will look at these areas and what has been identified as areas of improvement. These changes continue to develop the system and give us a glimpse of what the future holds for the NLCERA and WFPD as we continue to grow and expand our cooperative approach to Community Emergency Services.

UCHealth Organization Overview

UCHealth EMS is comprised of a full compliment of staff including, Paramedics, EMT's, Critical Care/Flight Paramedics, Community Paramedics, Critical Care RN's, and EMT Reserves. Along with a support team that includes Vehicle Service Technicians, Controllers, Leadership staff, and Admin Support. See Figure 1.3. As a CAAS Accredited organization we have systems set in place to ensure every aspect of UCHealth EMS is meeting exceptional standards.

Figure 1.2: Pillars of EMS Compliance. This star represents the relationship and foundation. Courtesy of PFA in collaboration with UCHealth

UCHealth EMS provides various Service Lines for the NLCERA, WFPD. The 911 response is only one facet of our commitment to our community. Collaboratively with the NLCERA, the contractor UCHealth EMS along with UCHealth Hospitals and Ambulatory Services provide other benefits to the NLCERA and WFPD.

- ***Interfacility Transfer Service Line:*** UCHealth along with the Poudre Valley Hospital work with the NLCERA and Wellington Fire Protection District (WFPD) to provide emergent and non-emergent needs for the community through the Transfer Service Line. The intent is to provide medical care to patient needs in an atmosphere that allows for 911 resources to be readily available for the unpredictable emergency needs of the community. Providing Advanced Life Support (ALS), Basic Life Support (BLS), and Critical Care Transport (CCT) resources allows UCHealth to tailor the service needs to the community and all medical facilities within.

Paramedics	75
EMT's	91
CCT/Flight Paramedics	8
CCT/Flight RN's	15
Materials Technicians	11
EMS Dispatchers	11
EMS Admin Staff	5
EMS Leadership	15

Figure 1.3: Staffing Breakdown of UCH EMS employees.

- ***Special Resource Deployment***: UCHealth has resources that work with Federal, State, and Local entities in other Emergency environment such as Disasters, Wildland Fires, and Law Enforcement. These teams train and are skilled in providing EMS within the ICS system in various Emergency situations. Tactical EMS (TEMS) has a focus in providing medical care in conjunction to Law Enforcement environments. All Hazards Response Team (AHRT) work in various situations, but mainly focus on EMS inside of disaster and wildland fire environments.

- ***Community Medicine:*** The Community Medicine Service Line consists of Community Paramedics, EMTs, and Nurses who help a variety of patients with different health needs that are not emergencies. Community Medicine provides resources that assist members of the community with direction to medical care or assistance based on their needs. Community Medicine also works to provide safety, and educational services. These services range from Child Seat Installs to Public Education and training such as "Stop the Bleed".

Response Compliance

UCHealth EMS Response Prior to 2019

Since the beginning of the NLCERA in June of 2015 the EMS system has continued to evolve and develop into a cohesive environment. Collaboration in 2019 has been the emphasis. This focus has improved relationships and problem solving with each entity of the NLCERA and WFPD. Allowing for agencies inside the NLCERA and WFPD to address the needs of their communities while advancing collaborative efforts. 2019 identified this collaboration as an opportunity for change and improvement. Under the pillar of Response Compliance UCHealth EMS now develops specific data measures pertaining to the entire NLCERA including WFPD. Measuring response compliance for the entire NLCERA allows for the identification of improvement and work with all the agencies in the NLCERA to provide solutions to response times and coverage needs.

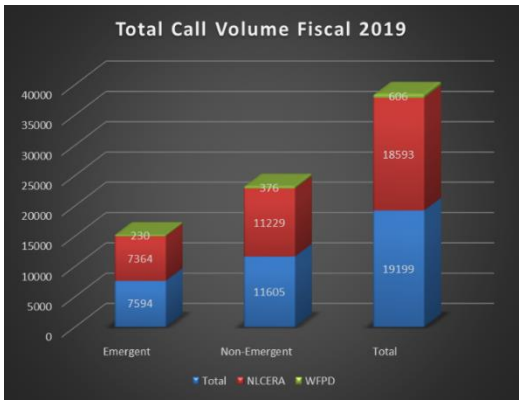


Figure 2.1: Total Call Volume for the NLCERA and WFPD separated by response type. Data from July 1, 2018-June 30, 2019 represents data for UCHealth Fiscal year

The first improvement was to identify a member of the UCHealth EMS team to be dedicated to communication and measuring of EMS contract metrics. In this space we have been able to jointly work to identify process improvement within EMS response and execute it for the better of the entire NLCERA.

2019 Request for Service Overview is broken down below:

UCHealth EMS ran a total of 19199 calls in contract year 2019 (June 1, 2018-May 31, 2019). Figure 2.1 shows total call volume broken down by Emergent and Non-Emergent. It is also separated by NLCERA and WFPD. Below in Figure 2.2 is a breakdown of Response by month showing the relation between compliant and Late After Review. This chart shows the overall compliance for the entire NLCRA and WFPD. Figure 2.3 is a breakdown of the Percentage compliance for the NLCERA and WFPD by zone and response type.

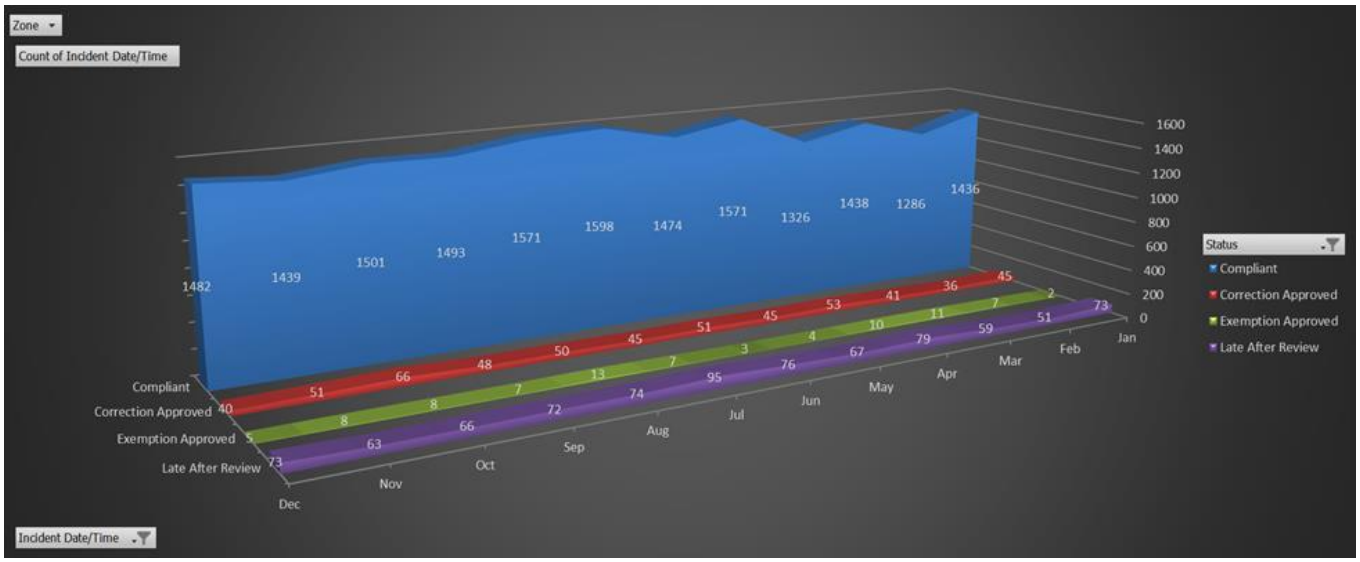


Figure 2.2: Graphic comparing call volume compliance numerically. This Graph shows the relation of compliant and Late after Review based on performance requirements by Zone. Data from July 1, 2018-June 30, 2019 represents data for UCHealth Fiscal year.

2019 Process Improvement and Change

Figure 2.5 shows the cost associated to Response Compliance. Breaking down the cost between the NLCERA and WFPD showed a total of $72200 in Liquidated Damages. $67000 associated to the NLCERA and $5200 to WFPD.

Figure 2.3: This graph shows the compliance by percentage for the NLCERA and WFPD by zone and response type. Data from July 1, 2018-June 30, 2019 represents data for UCHealth Fiscal year

In this area we began to evaluate data and track factors that contribute to response time delays. Using a Process Improvement Method called DMAIC changes were made for 2019. DMAIC allowed for the ability to ***Define*** the problem, ***Measure*** the issues, ***Analyze*** the data, ***Improve*** the system, and Monitor the changes through ***Controls***. (DMAIC)

- Addition of BLS ambulance and repurposing of CCT to assist with the transfer service line started Nov. 5th, 2018. This allowed for a decrease in 911 resources used for the service line diminishing opportunity cost lost.
- The process changes of Emergency Medical Dispatch (EMD) and send in March 2019 allowed for a more accurate response by units. Collaboration with PFA and FC911 saw an increase in accuracy of un-coded medical calls by 52.3%.
- A New NLCERA Map Zone was activated on June 1, 2019. This map allowed for reasonable and accountable response based on the Contract Performance Requirements. The map was instituted based on population density. See Figure 2.6

		Compliance Reporting 2018/07/01 - 2019/06/30	Outlier Reporting 2018/07/01 - 2019/06/30				
Zone	Priority	Response Time Compliance	Late Response Fine	Zone Fine	Credits	Adjusted Zone Fine	Total Fine Assessment
1	Emergent	97%	$10,400	$0	25%	$0	$10,400
	Non Emergent	95%	$38,400	$0			$38,400
2	Emergent	92%	$12,600				$12,600
	Non Emergent	100%	$800				$800
3	Emergent	78%	$2,400				$2,400
	Non Emergent	90%	$2,000				$2,000
4	Emergent	98%	$400				$400
	Non Emergent	100%	$0				$0
5	Emergent	100%	$0				$0
	Non Emergent	100%	$0				$0
	Totals:				TOTAL:		$67,000

		Compliance Reporting	Outlier Reporting 2018/07/01 - 2019/06/30				
Zone	Priority	Response Time Compliance	Late Response Fine	Zone Fine	Credits	Adjusted Zone Fine	Total Fine Assessment
1W	Emergent	99%	$400	$0	0%	$0	$400
	Non Emergent	99%	$600	$0			$600
2W	Emergent	75%	$3,800				$3,800
	Non Emergent	100%	$0				$0
3W	Emergent	93%	$200				$200
	Non Emergent	97%	$200				$200
4W	Emergent	100%	$0				$0
	Non Emergent	100%	$0				$0
					TOTAL:		$5,200

Figure 2.5: Overview of 2019 Fiscal Year Liquidated Damages. This is broken down by zone and response type. Separated costs by contract for the NLCERA and WFPD. Data from July 1, 2018-June 30, 2019 represents data for UCHealth Fiscal year

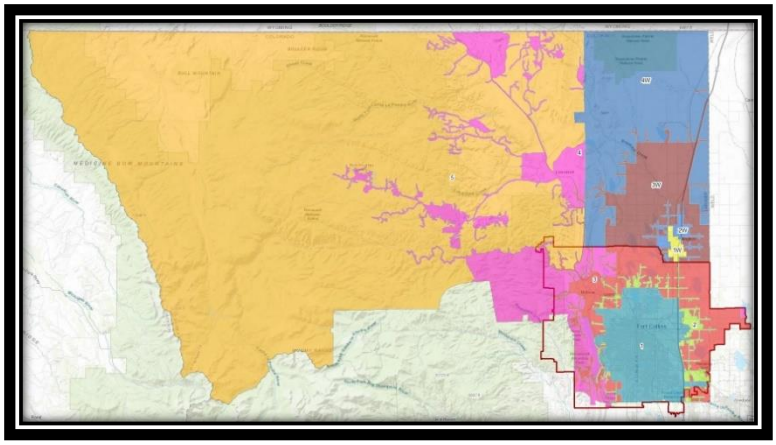


Figure 2.6: New Map implementation based on population density. Courtesy of PFA in collaboration with UCHealth.

- Data driven analysis of demand for EMS services allowed for optimal deployment of Ambulances in the 911 system by time of day and day of week. Utilizing a program from First Watch called Demand Consumption, unit deployment was prioritized based on data. The NLCERA coverage needs allowed for unit coverage optimizing demand by time of day and day of week. This process began in Aug. 2018 and saw the endorsement for another 911 ALS ambulance in Oct. 2018.

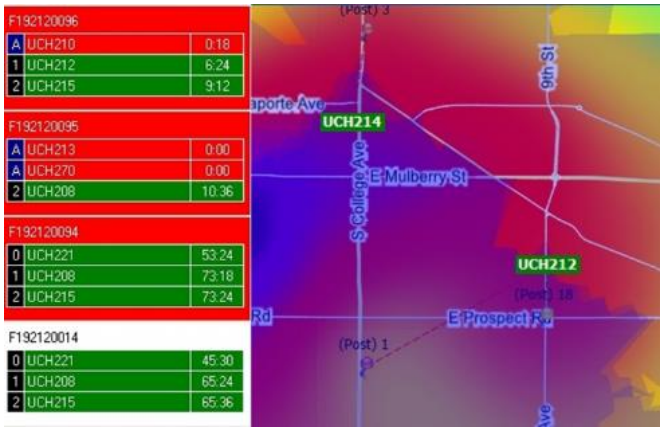


Figure 2.7: MARVLIS program showing a HEAT map of predicted call volume and ambulance GPS location. The left side shows calls and recommended unit dispatched based on GPS ensuring closest unit response.

- Update of Deployment Model and Static Post coverage. On Oct. 1st, 2018. UCHealth EMS curtailed UCH220 from moving out of the WFPD. This change improved uptime coverage of the WFPD and configured them to only respond as Mutual Aid to other portions of the NLCERA as needed.

- MARVLIS is a program that uses past data and provides in the moment live prediction of calls volume using HEAT map overlays. Using GPS and unit locations it provides post recommendations based on demand allowing to optimize coverage balancing both geography and potential demand. It also recommends unit response based on closest unit. See Figure 2.7. Work on MARVLIS began in May 2018. Initial program implementation and Beta testing began in June 2019 and went live on August 21st, 2019.

The above changes help improve not only the compliance of response but provides innovative cost-effective means to meet the growing and evolving emergency needs of the community. See Figure 2.8 RE Continuum. Moving forward the future of compliance will revolve around detailed data that will drive process improvement. Measuring the changes allows for objective decisions in process improvement as well as accountability to change. This accountability can validate change and collaboration in the NLCERA.

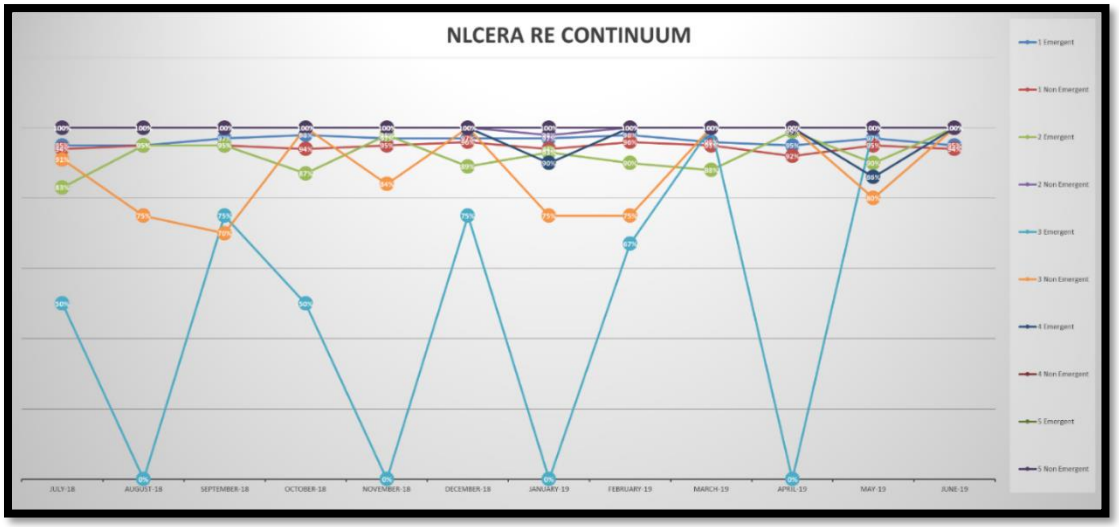


Figure 2.8: RE Continuum. This marks compliance by zone and response type. Data from July 1, 2018 – June 30, 2019.

Quality Assurance and Quality Improvement

UCHealth EMS QA/QI Prior to July 2019

In 2018 UCHealth EMS QA/QI was performed utilizing a program called ADHoc. Utilizing a team of personnel, a manual review of reports meeting certain "triggers" was set in place. Review of this process was found to be varied in its approach and application. Identifying a need for consistency UCHealth EMS focused on filling this position to address the pillar of QA/QI. Utilizing different applications, methods, and technologies we began the collection of data with the intent to work with Education and develop focused and intentional training. These various programs and methods presented opportunities for improvement bringing about things like collaborative case reviews driving clinical improvement.

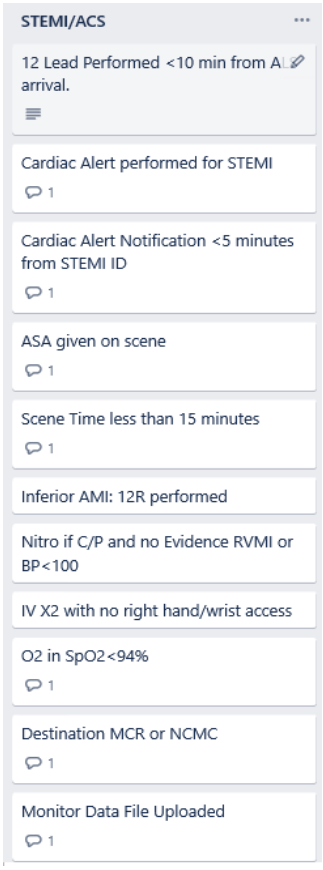


Figure 3.1: Example of the STEMI/ACS KPI Care bundle measuring clinical excellence based on protocols.

2019 Process Improvement and Change

- **The goal of the QA/QI department.** Currently we are invested in utilizing programs such as First-Pass to leverage the technology to achieve clinical excellence. Providing the highest level of prehospital care will be measured through performance by objective expectations using protocol as the base standard of measurement. One aspect of First-Pass is the ability to measure procedures and match them to the protocol expectations based on patient disposition. This allows for objective tracking of protocol expectations with documentation. See Figure 3.1

- **First-Pass and Key Performance Indicators (KPI's).** First-Pass is a program that provides real-time monitoring of our patient charting for defined areas of care. These KPI's, or Bundles of Care, are areas that have the greatest impact on our patients with respect to outcomes and quality of life. These "Bundles" will provide a performance measure for both the individual and the organization. Individual providers will receive regular and continuous feedback on their performance regarding clinical expectations and protocol compliance. First-Pass will monitor in real-time critical interventions performed and medication administrations. This monitoring is achieved through First-Pass Triggers, which send real-time notifications. These Bundles are currently completed and testing of the software is underway. The initial bundles of care will be for Acute Coronary Syndrome (Heart Attack), Stroke, Trauma, Sepsis, Respiratory, and General. In Figure 3.2 you can see preliminary data on calls and types run for contract year 2019.

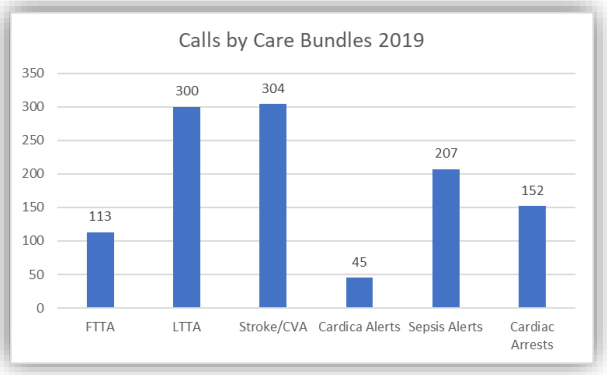


Figure 3.2: Data for 2019 based on the new KPI Care bundles. First Pass allows for the tracking of these calls as well as the volume we run annually. Data courtesy of ESO ADHoc. Data from Data from July 1, 2018-June 30, 2019.

- **Education and Training Integration:** Data analysis will help drive education and training based on Clinical data such as critical treatment areas that are known to be high risk and/or impact patient outcomes. As a pillar of compliance education can be properly informed on trends and best practices. This will help to drive performance clinically supporting staff on an individual basis and as an EMS organization in whole. These areas of education can be monitored for success through QA/QI and outcomes. Crews will be supported in their professional growth and recognized for excellence in order to promote a culture of ownership, innovation, and excellence.

- **Future Goals and Objectives**
  - Creation of closed loop feedback tools between all organizational stakeholders—EMS Providers, QA/QI, Education, Hospital ED Staff, Cooperating Agencies (NLCERA and WFPD), and Medical Direction—in order to continuously improve quality of care and processes that support change. Figure 3.3 is an example of data provided by a cooperating hospital assisting with patient outcomes and driving EMS clinical Standard of Care.

ED Discharge Location	Full Activations	Total
Died in ED	8	8
ED to ICU	44	56
ED to OR	26	40
Intervential Radiology	2	2
ED to Floor Status	27	66
ED to OBS Status	1	1
ED D/C Home	20	20
Seen in ED & then Transferred OUT	5	8
Behavior Health Facility	2	3
ED D/C to Jail	2	2
Patient Left AMA	1	1
Total:	138	207

Figure 3.3: Discharge data from hospital for EMS on Discharge of patients that were FTTA. This reflects all transport agencies. Courtesy of UCHealth Trauma Services. Data from: Data from July 1, 2018-June 30,

  - Create a patient centered CQI process that looks toward downstream outcomes as a method for evaluating effectiveness of the care we provide. Figure 3.4 shows a collaborative approach to Hospital and EMS interface that can advance patient care and improve patient outcomes. Patient Hospital data showing Stroke Patients and the time they receive intervention when patients met the criteria for treatment.
  - Evaluation and expansion of KPI and Care bundles to enhance care provided to patients centered around best practices, and protocols.

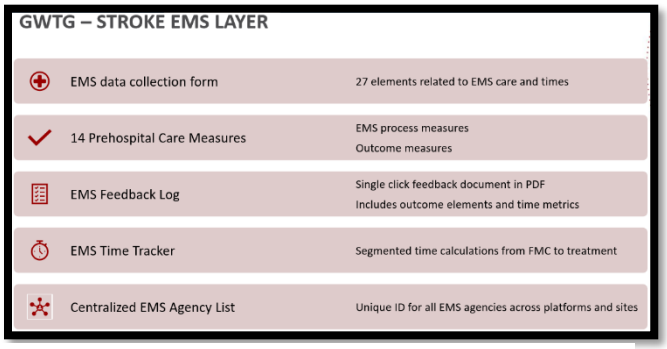
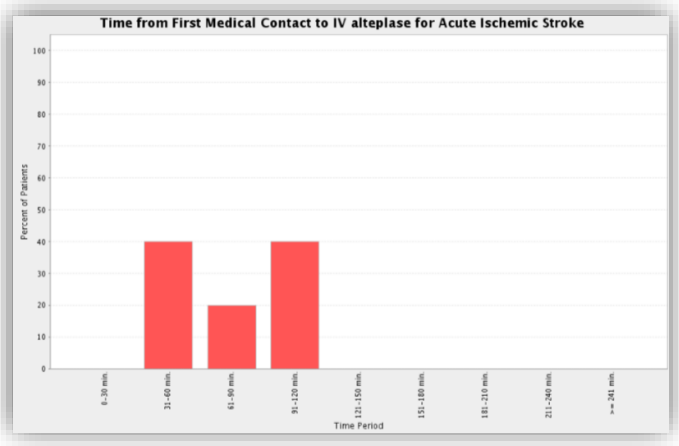


Figure 3.4: Stroke data for patients transported to hospitals by EMS that receive treatment based on care provided by EMS who meet the appropriate treatment criteria. Courtesy of UCHealth Hospital Regional Neuro Spine Support. Data from July 1, 2018-June 30, 2019.



Education

In EMS contract year 2019, UCHealth EMS went through a series of changes and improvements within the education and training division of the department. At the start of 2018, an analysis was performed and discovered the need for the following;

- Better oversight of the education and training
- Methods of tracking certifications and continuing education
- Methods of providing more hands-on training in the delivery of content that meets state and national registry requirements along with the integration of protocols and procedures under the medical direction of Dr. Tremblay

Beginning in Fiscal 2019 a Clinical Education Coordinator was appointed to maintain oversight and provide department education and training for providers in collaboration with cooperating agencies within the NLCERA and WFPD. This position was filled in December 2018 and in January, started the role of serving staff and collaborating with external providers. Since this has occurred, a more organized structure and approach was implemented within the department that surpasses both the State Office of EMS and National Registry requirements for certification and training.

Changes for 2019:

1. The tracking of certifications and continuing education was previously tracked manual with limited redundancy in documentation and retro-active verification. With this came the deployment of Medic-CE, a tool that is utilized to track certifications and training for EMS staff and our partnering agencies. This software provides self-paced applications and training as well as mandatory training with verification of completion to maintain accountability. Since the deployment of Medic-CE, the tracking of training and certifications became more streamlined thus allowing UCHealth to transition a 100% tracking and file keeping system.

Row Labels	Sum of Credit Hours
Jan	214
Feb	224.75
Mar	321.75
Apr	544.75
May	196.5
Jun	225
Aug	48.5
Sep	69.5
Oct	7
Nov	38
Dec	55.5
Grand Total	**1945.25**

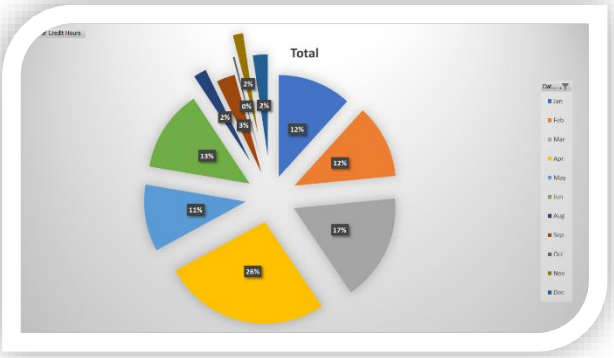


Figure4.1: Graph showing total training broken down by percentage per month over 2019 Fiscal year, and the total hours per month. Data extracted from MEDIC CE from Data from July 1, 2018-June 30, 2019.

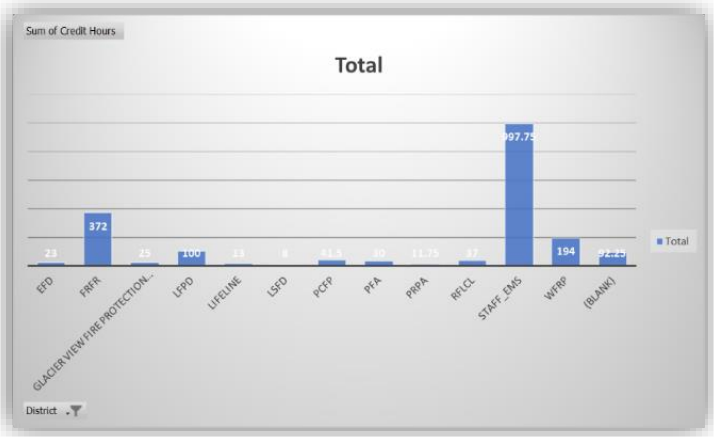
2. Medic CE provided the foundation to distribute training to staff and expand on practical training to supplement the didactic expectations. Now within the NLCERA training and education are presented to all providers on a monthly basis consistently and with the same expectations. See Figure 4.1. An annual training calendar now provides different topics and hours to meet both state and National renewal requirements. Along with approval from the Medical Director skills, interventions and procedures are delivered monthly to all practicing providers in the NLCERA and WFPD. This resulted in education monthly addressing the didactic and psychomotor skills providers need to work in accordance with the protocols.

3. Cooperative joint training with cross agency training initially utilized on duty staff and progressed to off duty training. This benefits all providers because training can focus on teamwork efficiently. This change saw and improvement from an average of 18 providers to reaching over 100 providers. This program showed great success with a higher number of providers getting the hands-on training and education they needed to apply in the field.

Future of Education and Training:

As we continue to build and grow our education and training throughout the 2020 fiscal year, comes many great changes. One of the great changes will be the implementation of two clinical mentors which is a new concept for prehospital care. These two providers will direct report to the education and training division of UCHealth EMS and are high functioning paramedics that will be trained to focus on the growth and development of each individual clinician. This allows for more targeted education and teaching based on discoveries within the QA/QI process, changes within the protocols, and changes with equipment. Clinical mentorship will be the difference in effecting positive health outcomes in the lives of our patients.

Continued tracking of education and the content can be driven by data through Medic CE. Figure 4.3 shows the distribution of training by agency and total hours. This data can help agencies keep staff accountable to training.



Row Labels	Sum of Credit Hours
EFD	23
FRFR	372
Glacier View Fire Protection District	25
LFPD	100
LifeLine	13
LSFD	8
PCFP	41.5
PFA	30
PRPA	11.75
RFLCL	37
Staff_EMS	997.75
WFRP	194
(blank)	92.25
Grand Total	**1945.25**

Figure 4.3: Bar graph of training broken down by agency and total hours of training by agency for Fiscal year 2019. Data from: Data from July 1, 2018-June 30, 2019.

Protocols

Our standard of care will be driven by our evidenced based protocols, which will be continuously modified and improved as a result of data analysis, medical direction, industry best practices, and input from providers and receiving facilities. Protocols this year have gone through significant change. Through collaboration with Medical Direction protocols have been built around national standards and evidence-based medicine.

Changes in Protocols

- The interface of the protocols has been streamlined to identify procedures based on provider level. From EMR to Paramedic Protocols now define clinical expectations based on provider certification.
- Protocols have been built with flow charts to assist with guiding providers based on patient complaints. These flow charts are based on best practices and evidence-based research

Protocols within EMS Message from Dr. Tremblay

The Northern Colorado Prehospital Protocols are the protocols for all EMRs, EMTs, EMT-IVs, AEMTs, Intermediates and Paramedics that function under my medical license, regardless of agency affiliation. A significant amount of time has been invested in this document to provide the highest quality of prehospital care. Using feedback from providers we have also made every effort to increase clarity around scope of practice and evidence based best practice.

These protocols define the standard of care for EMS providers, and delineate the expected practice, actions, and procedures to be followed in commonly encountered medical emergencies. The protocols are presented in an algorithm format and are intended to reflect real-life decision points visually. These protocols have allowed us to create a robust Continuous Quality Improvement structure around case review and education. In a short time we have already seen significant improvement in patient care and outcomes directly connected with the ability to review cases with our providers in the context of protocols and education. I believe this is only the beginning of exciting advances in the quality and consistency with which we can deliver patient care to our community.

Future of Protocols

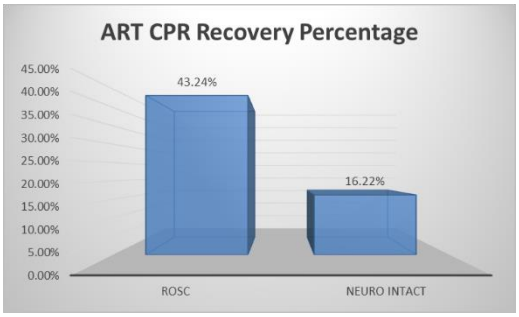


Figure 5.1: Graph showing ROSC recovery data since January 2019 of ART CPR within the NLCERA. Protocol shows ROSC rates above the National Standard. Data courtesy of PFA.

Protocols can be measurable and improve patient outcomes. ART CPR is one example and was adopted by PFA in 2017 leading collaboration in the NLCERA. Starting in 2018 change began in Protocols, Education, and Training. This year with the Medical Director we were able to activate the protocol changes and train staff to this standard of care during cardiac arrests. Figure 5.1 shows the recent data on this protocol change with Return of Spontaneous Circulation (ROSC) and the percentage of those leaving the hospital Neurologically Intact. This data shows innovation driving care above the national average of 31.1 percent in 2018 for ROSC and 10.4 percent survived to discharge.

(Reference: https://mycares.net/sitepages/uploads/2019/2018_flipbook/index.html?page=18)

Equipment

History of Resource Equipment

UCHealth EMS over the past year has worked to standardize equipment and disposable supplies on all the ambulances deployed. In the past trucks were stocked with an array of items that did not match one another. Equipment was purchased through various vendors and need was determined based on arbitrary thresholds. Durable equipment was based on a 1:1 ratio need, and replacement needs were done annually based on stock. Inside this baseline of operations opportunity for improvement was identified.

Improvement Changes for Equipment

- Looking at disposable items we looked at past purchasing and prioritized stock levels based on usage. This tracking was established through software called Operative IQ. Supply of stock and quantity was based on licensing requirements and usage. Operative IQ showed usage and recommended base needs for all

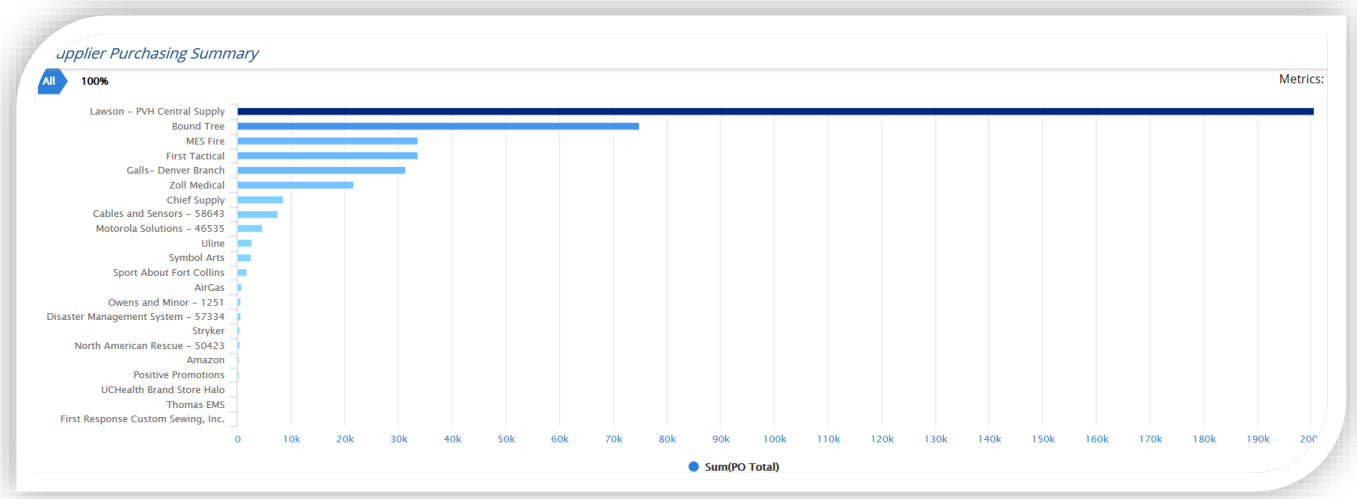
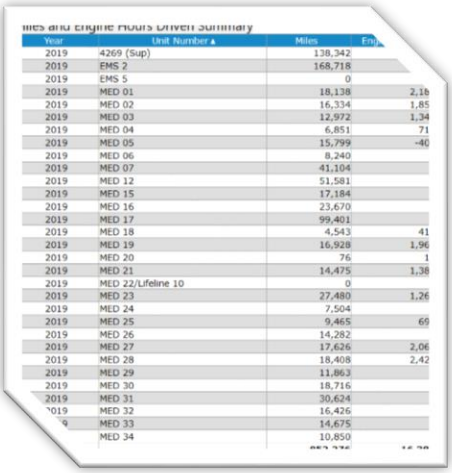


Figure 6.1: Graph from Operative IQ showing monthly purchasing by distributor. Operative IQ allows for tracking of purchases and distribution of purchases based on volume and cost. This can show changes in trends so we can identify reliability of equipment ensuring equipment needs are met for all the NLCERA.

ambulances. This created a more streamlined process for crew members and consistency in the items being stocked.

- UCHealth EMS also works directly with the Poudre Valley Hospital ER and Medical Center of the Rockies ER to have products that are compatible to create a seamless transition for the patient upon arrival. These standardizations create a consistent and predictable workflow for crew members to deliver high-quality care and compatibility with cooperating fire agencies.
- UCHealth EMS uses a bin system to restock trucks efficiently and promptly. The bin system allows each truck to be set up the same each time with each bin being identically the same. We can track and forecast expirations and prevent stock-outs.

- Durable equipment such as vehicle and EKG monitors require maintenance and evaluation to ensure reliability. As with disposable equipment we began tracking durable equipment through Operative IQ. This provided 2 benefits. It established monitoring of required maintenance to maintain their operational status and it provided a reporting system to identify unexpected equipment needs. This process of reporting allowed for accountability and addressing equipment needs in a timely fashion to keep units and equipment in ready status.



Year	Unit Number	Miles	Eng
2019	4269 (Sup)	138,342	
2019	EMS 2	168,718	
2019	EMS 5	0	
2019	MED 01	18,138	2,16
2019	MED 02	16,334	1,85
2019	MED 03	12,972	1,34
2019	MED 04	6,851	71
2019	MED 05	15,799	-40
2019	MED 06	8,240	
2019	MED 07	41,104	
2019	MED 12	51,581	
2019	MED 15	17,184	
2019	MED 16	23,670	
2019	MED 17	99,401	
2019	MED 18	4,543	41
2019	MED 19	16,928	1,96
2019	MED 20	76	1
2019	MED 21	14,475	1,38
2019	MED 22/Lifeline 10	0	
2019	MED 23	27,480	1,26
2019	MED 24	7,504	
2019	MED 25	9,465	69
2019	MED 26	14,282	
2019	MED 27	17,626	2,06
2019	MED 28	18,408	2,42
2019	MED 29	11,863	
2019	MED 30	18,716	
2019	MED 31	30,624	
2019	MED 32	16,426	
2019	MED 33	14,675	
	MED 34	10,850	

Figure 6.2: Operative IQ can manage durable assets tracking vital information about usage. This allows for predictable vehicle replacement to ensure reliability.

Future of Equipment

- In the future, we will continue to standardize and align with our partnering agencies to deliver high-quality care. Equipment changes can work with the other pillars of compliance to provide training when equipment changes take place. It allows changes that may take place to be accountable to all providers in the NLCERA and WFPD.
- Cooperation allows to make sure equipment is being utilized correctly based on protocols and validated through the QA/QI process. Training and education will work with Equipment to ensure that all providers using equipment know the function and application of equipment to make sure they are getting the most out of these resources when providing care to patients.
- UCHealth EMS has seen a significant saving in implementing the bin system. Looking forward we will continue to develop the restock system and how it can be utilized for MCIs and other emergency events to reduce any delay in patient care.

Unit Number: EMS 2

	Mileage			Engine Hours		
Date	Mileage Reported On	Mileage	Miles Driven	Hours Reported On	Hours	Hours Driven
9/1/2019	9/23/2019	186,224	0	9/23/2019	933	0
8/1/2019	8/29/2019	186,224	4,395	8/29/2019	933	97
7/1/2019	7/31/2019	181,829	3,153	7/31/2019	836	69
6/1/2019	6/29/2019	178,677	1,717	6/29/2019	767	42
5/1/2019	5/30/2019	176,960	2,207	5/30/2019	724	52
4/1/2019	4/30/2019	174,753	150,788	4/30/2019	673	37
3/1/2019	3/31/2019	23,965	2,653	3/31/2019	636	69
2/1/2019	2/27/2019	21,312	2,112	2/27/2019	567	56
1/1/2019	1/31/2019	19,200	1,694	1/31/2019	511	55
			168,718			**477**

Figure 6.3: Example of vehicle tracking by month. This allows to show trending in usage and identify high utilization months and assist with causation and identify potential issues before they happen.

Summary

2019 has brought many positive improvements to the system. Developing and defining the 5 pillars allowed for UCH EMS the NLCERA and WFPD to combine their strengths into defined areas of responsibility. These pillars help to improve the services we provide for our communities, and support staff on the front lines. Historically focus on response times have been the emphasis and standard on how we validate the services we provide. Although prompt and reliable response is important it is only one aspect on the continuum to the various solutions to our community's emergency needs.

Focus on identifying opportunities to improve services has led to a well-rounded approach to response, patient care, transport, and ultimately outcome. The 5 pillars allow for accountability and support to each other while driving improvement and change that is measurable, and necessary.

Improvements in response allowed for better staffing to the system needs and brought in a dynamic approach to unit positing. This posting driven by data now balances the response needs based on geography and demand. Education focused on building a consistent collaborative foundation to deliver training to all providers. This in turn allows for providers to deliver care at the highest standard. Protocols improvements have been driven by best practices and aligned care in a way that can be tracked and quantified in QA/QI process. The QA/QI process can now leverage technology to efficiently hold providers accountable and support training and education to improve this care. With the knowledge on outcomes and through QA/QI protocols can continually be evaluated for improvements and lead the industry in EMS best practices. Equipment and support tracking keep resources in a reliable ready status while tracking cost. This tracking allows to make cost effective decisions creating a sustainable platform for EMS to thrive and meet the growing needs of the communities in the NLCERA and WFPD.

Closing Letter from Director Tim Seidel

On behalf of UCHealth Emergency Medical Services (EMS), we are honored to be able to serve the citizens of the Northern Larimer County Emergency Response Area (NLCERA) and Wellington Fire Protection District (WFPD). It is our privilege to serve alongside some of the best volunteer and professional fire agencies in the state. UCHealth continues to strive to meet and exceed all expectations as the vendor of the NLCERA and WFPD contract that is administered by Poudre Fire Authority. UCHealth remains dedicated to providing the highest level of prehospital care services to the community through partnership and collaboration with all public service entities.

This year UCHealth focused on the development of the most advanced treatment and technologies for our patients and reduction of prehospital care costs for our community. This focused approach and advancements allow us to continue driving improvement in patient outcomes.

UCHealth EMS and our partner agencies have seen these focuses become a reality as we have had a significant increase in cardiac arrest neurological survival rates, improved educational opportunities, and many other improvements through the development of the EMS system pillars.

UCHealth now looks toward this coming year where innovation, system improvement, and continued focus on improving patient care will take prehospital care in the NLCERA and WFPD to new levels. The implementation of the innovative paramedic clinical mentor program will work alongside our prehospital providers and positively effect health outcomes in our patients. New and cutting-edge training offerings, including virtual reality skills and anatomy labs, and further development of collaborative training will continue to bring all responders together under a unified goal. This industry leading approach to training, in conjunction with the cutting-edge research opportunities available through UCHealth and the one-of-a-kind cardiac arrest evaluation and investigation initiated by PFA, will bring improvements to prehospital care not seen anywhere else.

UCHealth has been committed to the communities of the NLCERA and WFPD for 47 years and we look forward to our opportunity to continue to serve and grow with these communities for decades to come.

Best Regards,

Tim Seidel

Director of Emergency Medical Services

UCHealth