NorthStar EMS Pandemic Response Analysis & Mitigation Strategies

Executive Summary

Introduction

NorthStar EMS began operations on April 1, 1992 with the goal of "Providing Excellance in Prehospital Medicine." Our motto holds ever more true as we start our 29th year of serving the citizens of the City of Tuscaloosa, City of Northport and the county. Our mission statement, "Dedicated to providing personalized and professional care to our community" serves as the foundation to which we haved worked with Tuscaloosa Fire & Rescue, Northport Fire & Rescue, Tuscaloosa County Sheriffs Department, DCH Regional & Northport, and other healthcare agencies.

It was only ten years ago on April 27, 2011, that Tuscaloosa County faced a *"Hundred Years Storm."* The tornado outbreak that hit our community was recognized as one of the *"Top 10"* weather events ever recorded. The City of Tuscaloosa, with NorthStar EMS (NEMS) as a partner, absorbed miles of total destruction, but met the challenge. And then on October 19, 2019 DCH Regional Medical was attacked with ransomware.

Over a period of approximately three weeks, DCH was unable to accept emergency patients. Every 911-request required transport outside of Tuscaloosa County with the exception of true life or death emergencies. On average, NEMS bypassed the two DCH hospitals in Tuscaloosa County forty times a day. This added an additional 50 miles and "time" when transporting patients to another hospital.

No one could have predicted the impact that COVID-19, yet another storm, would have on our EMS system. The World Health Organization (WHO) first reported COVID-19 on

December 31, 2020. NEMS began monitoring this situation immediately and in January 2020, we understood all to well that COVID-19 caused abnormal repiratory illnesses and carried an unusually high death rate. On March 13, 2020, multpile emergency disaster declarations were made on national, state and local levels. This healthcare disaster challanged NEMS to manage critical issues to ensure meeting the contractual expectations that the city required. The invisable virus caused substantial harm to many of our family members and friends. We experienced unprecedented economic impacts due to shutdowns and supply chain interuptions. Schools were closed and all University of Alabama sporting events were cancelled. Everyday we managed extenuating issues and adversity that affected our citizens and stressed healthcare providers to their limits. Everyone's daily lives and our company were changed due to a pandemic that will be long remembered in the history books.

As the primary provider of EMS Response and Transport for our community, NEMS stood firm in maintaining operations. Our business practices adapted as necessary to ensure our ability to respond to prehospital medical request (911 calls), facilitate the interfacility movement of critical patients to tertiary facilities as well as transport to and from regularly scheduled health-care appointments. There were no models to draw from to help us understand the impact of COVID-19 on EMS operations. Therefore, as critical issues impacting the delivery of ambulance service were identified, NEMS did our part to communicate these issues to all healthcare system stakeholders. NEMS also engaged with state and national EMS authorities to discuss best practices to mitigate potential problems. To that end, NEMS developed strategies to change negative trends that were in our control. However, as time passed there were many critical issues that were beyond our control affecting our response time performance. This is why NEMS requested that the City of Tuscaloosa suspend response times as the key metric for measuring contractual compliance.

On page 63 of the "Request for Proposal for Ambulance Services Franchise and EMS System Performance Specifications," it states:

8. Response Time Exceptions and Exception Requests

Franchisee shall maintain mechanisms for backup capacity, or reserve production capacity to increase production should a temporary system overload persists. However, it is understood that from time to time unusual factors beyond Franchisee's reasonable control effect the achievement of specified Response Times Standards. In the monthly calculation of Franchisee's performance to determine compliance with the response time standards, every emergency request (priorities 1 to 3) originating from within the City shall be included except as follows:

a. Multicausality Disaster.

The response time requirements shall be suspended during a declared multicausality incident, medical advisory, or disaster in the City or during a declared disaster in a neighboring jurisdiction to which ambulance assistance is being provided by as requested by the City.

Our request was reviewed by the City and granted for the period September 2020 through April 6, 2021. Please note that the initial City of Tuscaloosa Disaster Declaration was issued on March 13, 2020 and lifted on April 6, 2021.

Ambulance Transports & Response Times

EMS transports saw an immediate drop by 10.22% (10 transports/day) (**see figure 1**) in the days following Emergency Declarations. It is surmized that this was primarily due to citizens not wanting to call 911 or initiate any non-emergency transport request for fear of going to a medical facility and being exposed to COVID-19.

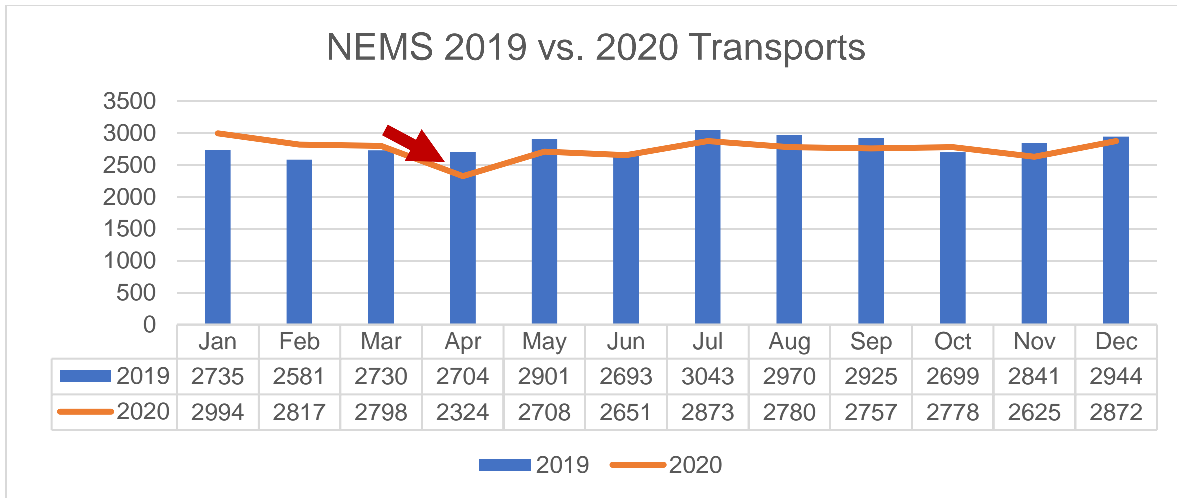

Figure 1

**The red arrow depicts the immediate drop in transports by 10.22%. Comparing the bars which represent 2019 transports by month to the 2020 line shows that month-over-month the overall transport volume fell.*

Figures 2 & 3 are Daily Transport Comparisions and illustrate the daily drop in transports from March-April 2020 with trending back to, but just under pre-COVID-19 levels.

Daily Transport Comparison 2019 vs. 2021

2019	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Trans/Mnth	2735	2581	2730	2704	2901	2693	3043	2970	2925	2699	2841	2944	**33766**
Trans/Day	88.2	92.2	88.1	90.1	93.6	89.8	98.2	95.8	97.5	87.1	94.7	95.0	

Figure 2

2020	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Trans/Mnth	2994	2817	2798	2324	2708	2651	2873	2780	2757	2778	2625	2872	**32977**
Trans/Day	96.6	97.1	90.3	77.5	87.4	88.4	92.7	89.7	91.9	89.6	87.5	92.6	

Figure 3

It is important to present **Figure 4** to help understand the fact that less transport activity would result in ambulances being more available to meet response time expectations. This was indeed the case from March 2020 – July 2020. The following chart shows the response time compliance for Priority 1 (Potentially life threatening response requiring a response time of <9 minutes), Priority 2 (Non-life threatening emergency response requiring a response time of <11 minutes), and Priority 3 (Urgent response requiring a response time of <15 minutes).

Tuscaloosa Compliance	20-Jan	20-Feb	20-Mar	20-Apr	20-May	20-Jun	20-Jul	20-Aug	20-Sep	20-Oct	20-Nov	20-Dec	21-Jan	21-Feb	21-Mar
1	94.20%	97.80%	98.20%	97.60%	97.40%	99.30%	98.80%	85.70%	81.60%	85.70%	86.60%	91.00%	75.30%	81.90%	87.80%
2	92.50%	86.40%	92.40%	95.70%	92.20%	91.70%	88.80%	92.70%	86.50%	79.10%	68.20%	75.00%	79.00%	83.20%	84.80%
3	94.30%	92.50%	93.00%	95.20%	92.30%	90.40%	87.30%	80.20%	86.50%	88.50%	83.30%	88.20%	83.50%	87.10%	92.10%

Figure 4

During March – July, even though a State of Emergency was declared, NEMS continued meeting our contractual response times. It was not until July 2020 that EMS system issues began to impact the level of ambulance availability to respond to requests for services. Response times began improving in February 2021. As critical issues affecting the EMS system continue to normalize, response times will return to pre-COVID-19 percentages.

In 2020 NEMS began to witness a shift in the call priority types (**Figures 5 & 6).** When compared, the distribution of Priority types from 2019 to 2020 clearly demonstrates that the number of Priority 1 calls fell while Priority 2 and Priority 3 calls rose. This change in the initial 911 call-taking process coupled with a difference in how calls are prioritized would certainly affect the mathamatical calculations that NEMS had been using since becoming an accredited call center. The obvious change in numbers would also have an impact on response time calculations.

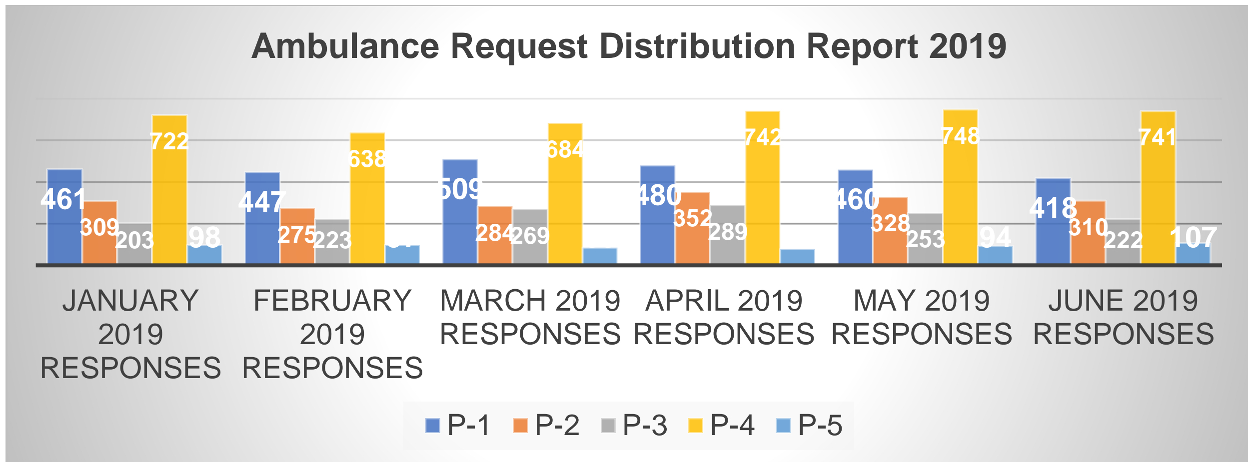

Figure 5

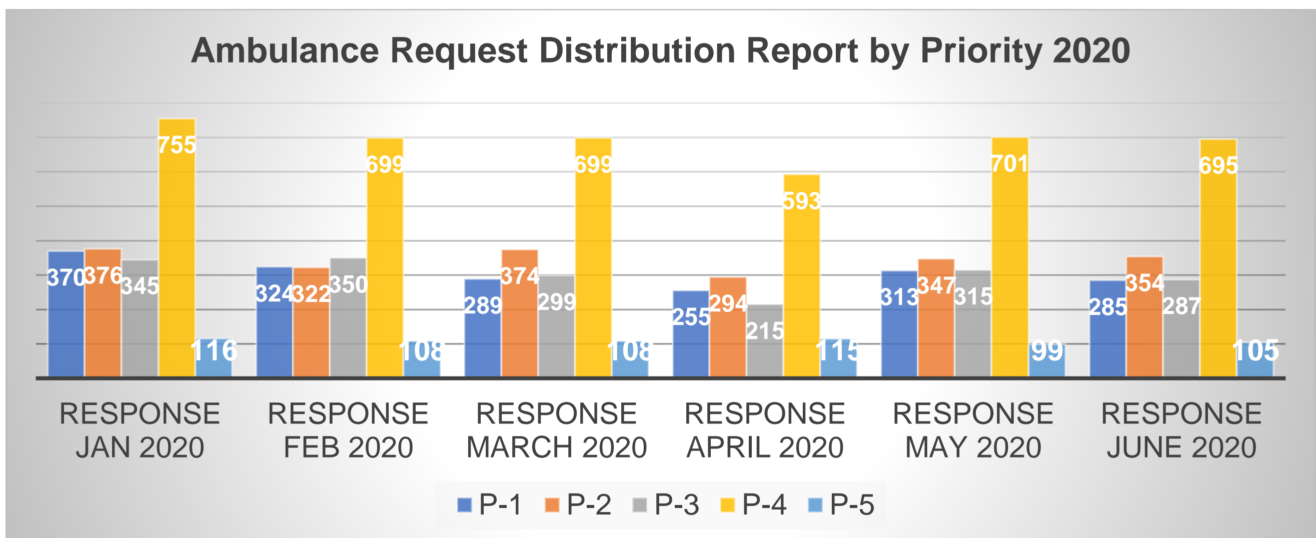

Figure 6

<u>Response Time Compliance Continues to Be Our #1 Priority</u>

To date, NEMS continues to improve our staffing levels. NEMS added over 7,000 payroll hours to maintain pre-Covid 19 staffing levels based on current system demands using our deployment strategies. It is our goal to do everything possible to continue producing the necessary daily number of ambulances necessary to meet contractual response time expectations. It wasn't until August 2020 that NEMS did not meet our monthly response time goals. This was due in a large part to critical issues affecting our EMS system that were beyond the control of NEMS, Tuscaloosa Fire & Rescue and even the hospital system. These critical issues included

1) Hospital Turn Around Times; 2) Misuse/abuse of ambulance resources by requesting use when the patient didn't meet medical necessity; 3) Managemen of psychiatric patients and 4) Staffing. Though we continued deploying the projected number of ambulance resources required per the EMS deployment model, these critical system issues resulted in ambulance unavailability thus negatively affecting response time compliance. Our EMS systems inability to control these critical issues were the primary reasons why response compliance was suspended during the declared State of Emergency per our contract guidelines. As the EMS system stabilizes, there will be a gradual return to pre-pandemic results. However, now that we have identified these critical issues, they must be addressed to prevent reoccurence.

Critical EMS System Issues

NEMS' continuous quality improvement process identified that COVID-19 was negatively affecting critical components of our local EMS system.

1. **Hospital Turn-around Times (TAT) -**

   NEMS continusly measures how long an ambulance is engaged executing a request for medical services. From the time the ambulance call is received, dispatched, enroute, arrives on the scene, leaves the scene to transport to a hospital, arrives at the hospital and the time that the ambulance is cleared to return back to service. If any of these time parameters can be shortened, then that allows the ambulance to get back into service quicker. Hospital Turn-Around Time (TAT) is a critical part to this concept insomuch that during this time component NEMS has the least control and yet greatest opportunity to impact the return of an ambulance to the system.

   COVID-19 negatively impacted this opportunity primarily due to:

   1. Delays in hospital staff accepting patients from the ambulance crews due to the hospital ED being under staffed and overwhelmed with patients.
   2. The increased time required for NEMS to decontaminate the ambulances after each call.

Average hospital turn-around time increased (see **Figure 7**) from an average of 27:54 minutes (Jan/Feb 2020) to 33:59 minutes (Oct-Dec 2020). This extra 6:04 (average) minutes

results in minimizing ambulance availability. For example, NEMS transports 40 patients per day to the DCH hospital system. Increased hospital turn-around time per day is 40 x 6:04 = 241.6 minutes or 4.03 hours of ambulance time that is now unavailable to the EMS system each day to respond to requests for service. This had a negative financial impact exceeding $10,000.00 per month.

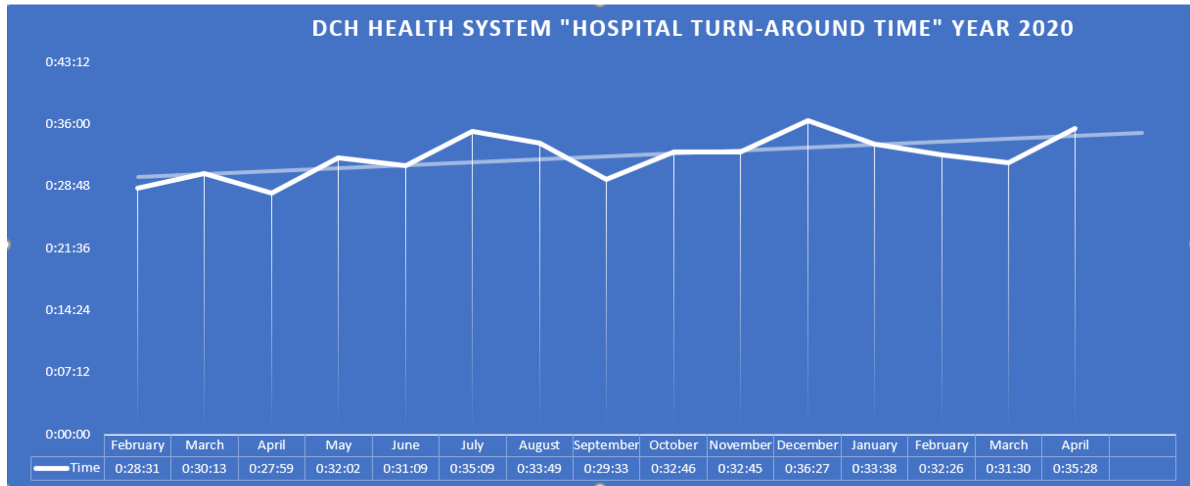

Figure 7

Total ambulance task times were also extended when patients had to be transported out of Tuscaloosa County. Some hospital transports went to the Birmingham and Montgomery markets as well as out of state to Mississippi and Tennessee. These “long-distance” transports removed an ambulance from our service area reducing the available ambulances capable of responding to local calls for hours on end.

2. **Misuse or Abuse of Ambulance Resources –**

Medical Necessity

In order for ambulance transports to be considered for payment by the Centers for Medicare and Medicaid (CMS), and other third-party insurance carriers, there must be justification for why a patient requires an ambulance stretcher for transport. The reason for stretcher transport must be documented. The guidelines for justification are disseminated by CMS.

During regular quality improvement meetings, senior administration from both NEMS and Tuscaloosa Fire Rescue identified that an obvious trend of transport requests had emerged. These transport requests were primarily discharges from hospitals that involved patients who did not meet the stretcher requirment guidelines setforth by CMS to justify medical necessity. Thus NEMS was being contacted to perform patient transports for patients who did not require an ambulance. Herein lies the problem, ambulances were being misused to carry out unnecessary transports thus removing ambulances from the community.

NEMS' mitigation strategy to this issue included, placing a Transport Coordinator in the hospital allowing for appropriate vetting of medical necessity for transport. This position was filled in January 2020. However, the coordinator was removed from the hospital in February 2020 due to COVID-19, not returning until August 2020. Additionally, in early summer 2020, NEMS enhanced their line of communication with DCH (Regional and Northport) working with hospital administration to receive regular daily bed counts, available ICU bed space and pending discharge and transfer volumes.

NEMS committed to working with DCH to manage their patient transfer needs. COVID-19's impact on the hospital system created an environment where certain patient types needed to be transported to other medical facilities. Due to regional medical facilities being overwhelmed in Birmingham, it was not uncommon to transport patients long distances to receiving hospitals elsewhere in the tri-state area. An example would be when NEMS facilitated early morning transports in November 2020 of two ventilator dependent COVID-19 patients, one going to Montgomery, AL while the other went to a hospital in Tennessee. Specialty transports occurred in conjunction with our normal deployment of ambulances as COVID-19 impacted staffing.

In an effort to assist in maintianing the local health care system as a whole, NEMS facilitated transport requests from area hospitals, freeing up vital bed space which could then be used to care for newly infected patients suffering from the virus. This was achieved by NEMS through the use of its regional presence in surrounding counties.

Figure 8 depicts the 1,190 transports performed by NEMS' neighboring county operations. (Note: Tuscaloosa ambulances have call signs in the 900-999 range, ambulances from Jefferson County are in the 500-599 range and Pickens County ambulances are in the 600-699 range.)

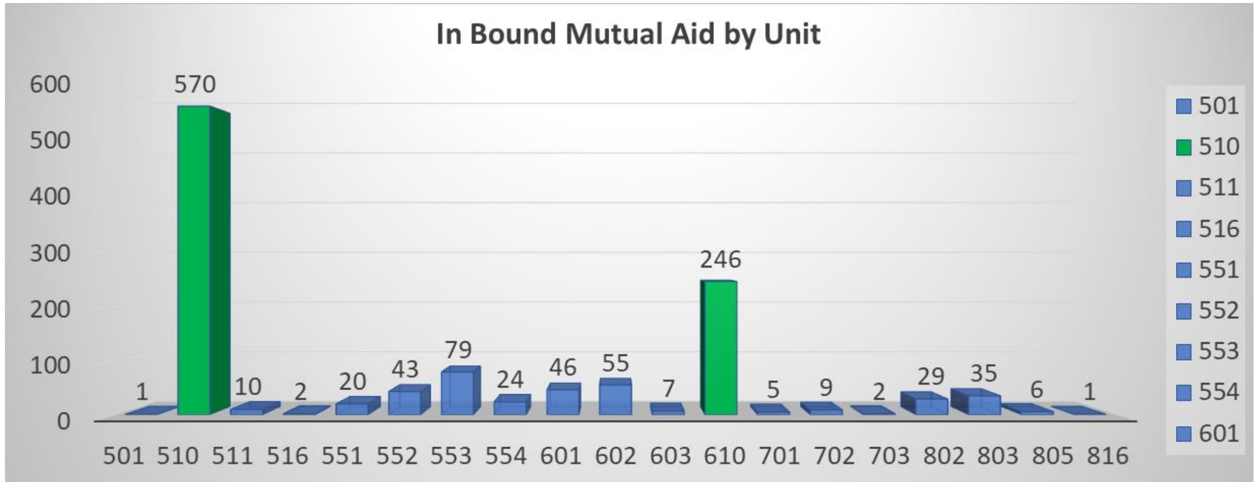

Figure 8

Our ability to surge additional ambulance resources into Tuscaloosa County allowed us to steadily regain our overall compliance percentages for Priority 4 (Unscheduled non-emergency responses requiring a response time of <60 minutes) and Priority 5 (Scheduled non-emergency responses requiring a response time of <30 minutes). Below in **Figure 9** the graph shows month-over-month compliance for these Priorities for 2020.

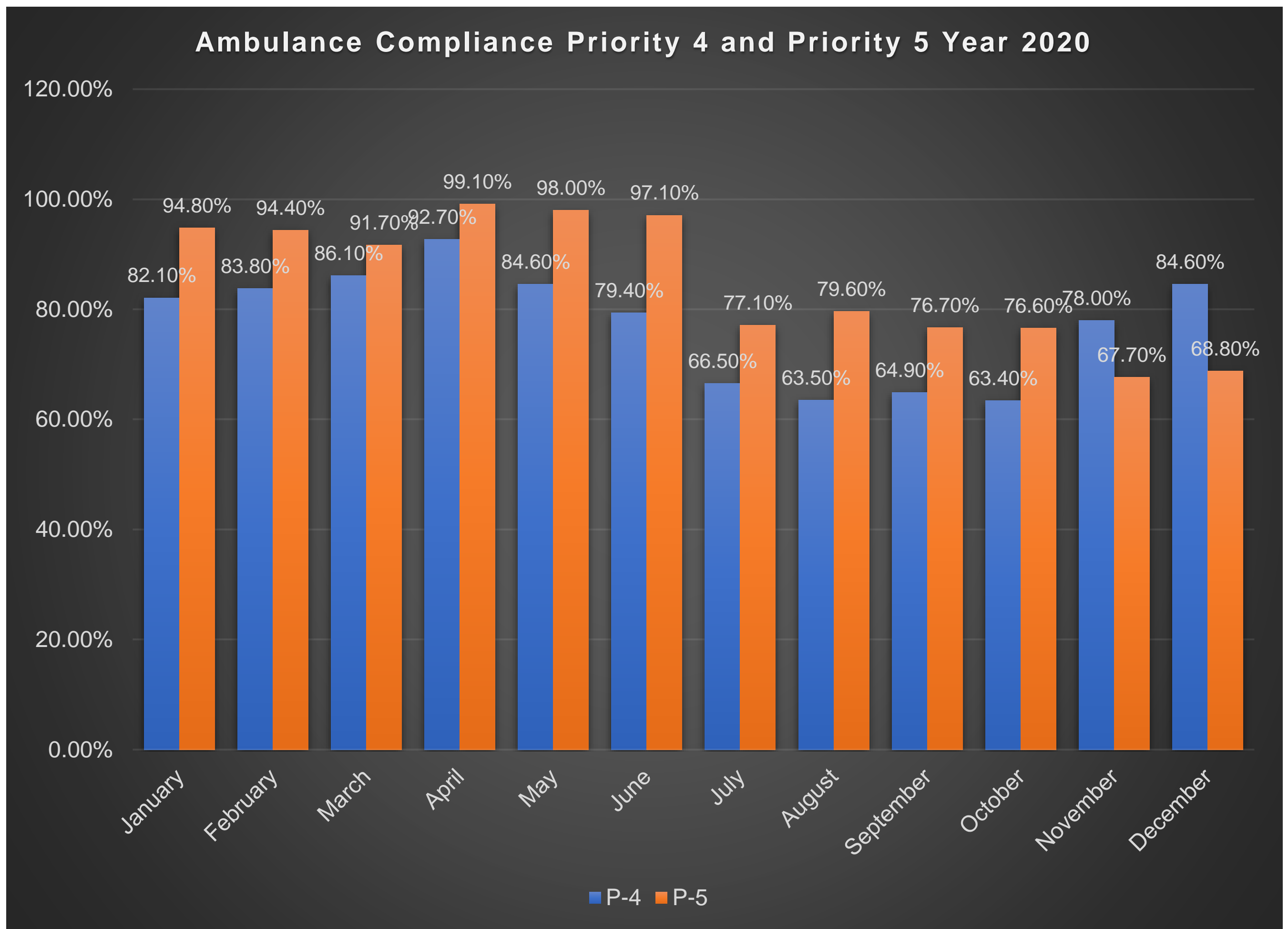

Figure 9

3. Psychiatric Needs -

Psychiatric patients require regular intervention and oversight. A side effect of COVID-19, was the absence of the availability of psychiatric care. Due to the virus, psychiatric facilities were limited in their ability to treat patients. Limitations in the system found many of the mentally ill without care. The limited bed space for inpatient psychiactric care required ambulances to transport over 1,914 (non-medical) mentally ill patients to out of town facilites taking the critical resources needed for local 911 request out of the system for hours.

In mid-December 2020 NEMS was contact by Lauren Kois PhD, Forensic Psychologist and Professor at the University of Alabama. She was making application for a grant intended to study the local psychiatric system, identify the weaknesses and make recommenditations to Governor Kay Ivy. We were able to provide significant

response data allowing the GAINS Center to successfully include Tuscaloosa County in the study. That SAMSHA (Substance Abuse and Mental Health Services Administration) study is currently ongoing as NEMS continues to participate and provide supporting data to address the response and transport issues being identified.

4. NEMS Staffing –

Since March 13, 2020, NEMS has been concerned about how COVID-19 might affect our Team Members. **Figure 10** shows the total number of Tuscaloosa Team Members that were off due to being exposed or infected by COVID-19. Keep in mind, just being exposed to COVID-19 caused the employee to self-quarentine for 2-weeks. Employees actually infected and testing positive were out for a minimum of 2 weeks.

Tuscaloosa Operations
Time Off Due to Covid 19

Dept.	# Employees	Total Hrs.
Billing	6	328.98
Dispatch	14	637.63
Field Ops	40	2349.6

Figure 10

Excessive hours, inevitiable infection, subsequent illness and in some cases loss of life began to quickly take a toll. During the month of July, NEMS added "bonus" ambulances in our rural counties paying near "double-time" to work in Tuscaloosa County.

Figure 11 illustrates the additional payroll hours added to Tuscaloosa operations to incentivise Team Members to work extra shifts.

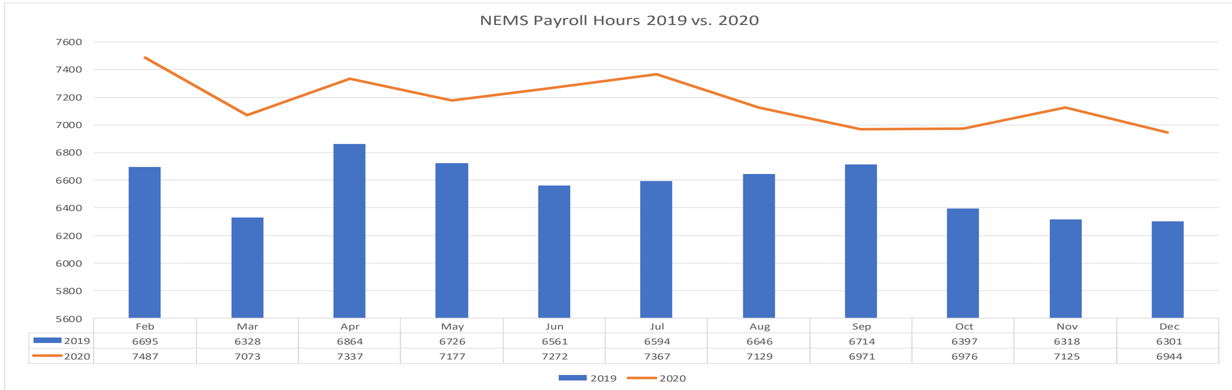

Figure 11

Figure 12 provides a snapshot of the number ambulances deployed on a daily basis from March 2019 through March 2021.

Tuscaloosa Ops Deployment Over Time			
Mar-2019	**Mar- 2020**	**Nov- 2020**	**Mar- 2021**
20 Shift Trucks	22 Shift Trucks	23 Shift Trucks	23 Shift Trucks
17 ALS	16 ALS	20 ALS	21 ALS
3 BLS	6 BLS	3 BLS	2 BLS

Figure 12

NEMS' administrative team also staffed an additional **2,421 hours** ensuring that ambulances would be in service during staffing shortfalls.

Executive and Management Personnel used to ensure staffing of ambulances:

- Edgar Calloway - Operations Director
- Rich Schreiber - Communications Director
- Jason Esslinger - Tuscaloosa County Operations Manager
- Grant Webb - Marion County Operations Manager
- Vicky McCrory - Pickens County Operations Manager
- Bill Bauer - Jefferson County Operations Manager
- Wes Griffin - Tuscaloosa Operations Supervisor
- Tim Wilson - Tuscaloosa Operations Supervisor

Figure 13

As part of NEMS continuous quality management (CQM) process, we also monitored employee turnover month-over-month (see **Figures 14 & 15**). NEMS requires 75 FTEs to completely fill its daily scheduled positions. Prior to COVID-19, the turnover report shows NEMS was at approximately 64 full-time personnel and 68 part-time personnel which equates to 8 full-time personnel (NEMS uses a 8:1 ratio – 8 part-time = 1 full-time.)

NEMS 2020 Turnover Report

Goal: < 25% Total for FY — Total % Turnover: 36.13%

Turnover		January	February	March	April	May	June	July	August	September	October	November	December	Total	Voluntary	Involuntary
Tuscaloosa	# FTEs	64	63	65	65	66	66	68	65	64	66	66	64	65.1666667		
	# Left	1	0	1	0	0	0	3	1	0	2	0	1	9	7	2
	%	1.56%	0.00%	1.54%	0.00%	0.00%	0.00%	4.41%	1.54%	0.00%	3.03%	0.00%	1.56%	13.81%		
	# Orientation	0		2	1	1	0	2	0	0	2	2	0	10		
Dispatch	# FTEs	19	20	20	23	23	22	23	24	23	23	25	25	22.5		
	# Left	0	0	0	0	1	0	1	1	2	0	2	0	7	7	
	%	0.00%	0.00%	0.00%	0.00%	4.35%	0.00%	4.35%	4.17%	8.70%	0.00%	8.00%	0.00%	31.11%		
	# Orientation	0	0	2	3	0	0	1	2	0	2	2	2	14		

Strategic Indicators **2020**
Human Resources
Part time

Goal: < 25% Total for FY — Total % Turnover: 59.52%

Turnover		January	February	March	April	May	June	July	August	September	October	November	December	Total	Voluntary	Involuntary
Tuscaloosa	# FTEs	67	69	66	56	54	55	65	64	64	58	66	62	62.1666667		
	# Left	2	2	11	2	1	1	5	6	5	1	1	0	37	36	1
	%	2.99%	2.90%	16.67%	3.57%	1.85%	1.82%	7.69%	9.38%	7.81%	1.72%	1.52%	0.00%	59.52%		
	# Orientation	1	1	3	1	0	2	11	4	4	1	3	1	32		
Dispatch	# FTEs	5	5	6	5	5	5	5	4	3	3	3	3	4.33333333		
	# Left	0	0	1	0	0	0	1	1	0	0	0	0	3	3	
	%	0.00%	0.00%	16.67%	0.00%	0.00%	0.00%	20.00%	25.00%	0.00%	0.00%	0.00%	0.00%	69.23%		
	# Orientation	0	0	1	0	0	0	0	0	0	0	0	0	1		

Figure 14

NEMS 2021 Turnover Report

Goal: < 25% Total for FY — Total % Turnover: 7.92%

Turnover		January	February	March	April	May	June	July	August	September	October	November	December	Total	Voluntary	Involuntary
Tuscaloosa	# FTEs	64	64	65	67									65		
	# Left	0	1	0	2									3	2	1
	%	0.00%	1.56%	0.00%	2.99%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	4.62%		
	# Orientation	1	1	2	3									7		
Dispatch	# FTEs	25	25	24	24									24.5		
	# Left	0	0	0	0									0		
	%	0.00%	0.00%	0.00%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00%		
	# Orientation	0	0	0	0									0		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total		
	FT	0	1	0	2	0	0	0	0	0	0	0	0	3		

Strategic Indicators **2021**
Human Resources
Part time

Goal: < 25% Total for FY — Total % Turnover: 11.43%

Turnover		January	February	March	April	May	June	July	August	September	October	November	December	Total	Voluntary	Involuntary
Tuscaloosa	# FTEs	63	60	61	61									61.25		
	# Left	4	0	2	1									7	7	
	%	6.35%	0.00%	3.28%	1.64%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	11.43%		
	# Orientation	2	0	1	0									3		
Dispatch	# FTEs	3	3	3	3									3		
	# Left	0	0	0	0									0		
	%	0.00%	0.00%	0.00%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00%		
	# Orientation	0	0	0	0									0		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total		
	PT	4	0	2	1	0	0	0	0	0	0	0	0	7		

Figure 15

By assessing the turn-over reports, note that there are not huge fluctuations with the numbers of employees NEMS maintained on staff. Staffing only became a critical issue once COVID-19 started impacting our ranks and we did not have additional support staff to replace them on their assigned shifts.

NEMS continues to employee an aggressive employee recruitment/retention strategy.

Recruitment activities include:

1. Social media job postings
2. Employee recruitment bonus programs
3. Recruitment sessions at local EMT training centers/colleges/universities
4. Tuition Program – NEMS will sponsor/finance approved employees to attend Advanced EMT and EMT-Paramedic training programs.

NEMS has employed two specific recruitment initiatives.

1. NEMS created the NorthStar EMS Training Academy. The Academy is sanctioned to teach EMT and Advanced EMT programs. Our goal is to create a pipeline whereby during the training courses we can interact with students and recruit them to be part of the NEMS team. Since its inception, the Academy has conducted 7 EMT and 6 Advanced EMT classes. To date we have hired 45 full-time and 31 part-time positions. We have a 59.52% retention rate for these new hires, many who go on to become EMT-Paramedics.
2. Most recently, NEMS started to work with the Tuscaloosa Career Center to help identify potential individuals that would be interested in becoming EMTs & dispatchers. This program is currently being developed and expected to kick-off within the next 30-60 days.

Additional COVID-19 Timeline Information

(April-June 2020)

1. NEMS became the central repository for patients testing positive for the COVID - 19. Working directly with Lynn Morrison, Trauma Services Coordinator at DCH Regional Medical Center, all patients testing positive for COVID - 19 who were transported by EMS were entered into a data base. As NEMS was the primary provider of transport services in the West Alabama Area, we became the central repository for this information. Over the next couple months, until numbers overhwelming proportions, this data base was maintained and the information was sent to all stakeholders in West Alabama. By mid-August the daily positive test results exceeded available tracking capacity.
2. Civil unrest. Multiple demonstrations at government installations in Tuscaloosa requiring medical stand-by readiness compounded the risk as public gatherings likely added to the growing number of positive test results. A bomb threat then altered the patient flow on June 10, placing DCH Regional on "lock-down" until the situation was resolved.
3. NEMS implemeneted a major upgrade to their computer aided dispatch (CAD), electronic patient care record (EPCR), and billing infrastructure. While not the best time to undertake a computer softwear change the installation and implementation had been planned for months.

Catastrophe (July 2020)

> Disaster is defined as *"the loss of your star or guiding light."* The fourth edition of FEMA's National Response Framework ***says "at the national level a catastrophic incident is one of such extreme and remarkable severity or magnitude that the Nations collective capability to manage all response requirements would be overwhelmed, thereby posing potential threats to national security, national economic security, and/or the public health and safety of the Nation."***

By mid-July 2020 the enormity of the Pandemic was staring our community in the face.

1. Tuscaloosa's economic foundation is based on Football. Well over a million tourist visit our city on an annual basis, all to watch our beloved Crimson Tide Football Team. The

University of Alabama Athletic Department, working with the Southeastern Confrence and NCAA feverishly searched to find a way to play a season. In early July it looked like the season might not become a reality.

NEMS was approach by the University of Alabama Athletic Department with request for Covid-19 testing and transport. Essentially NEMS would begin a program, in conjunction with the athletic training staff, to test all athletes competing or practicing. Transport services would also be provided as necessary, to and from medical appointments and quarantine locations. The service would begin in late July and continue through April 2020. At least that has become the reality. In early July we had no model for this process or historical event to emulate. Nurses experienced in the testing process from local medical facilities along with staff EMT's and Paramedics began the testing process on an ever changing schedule. All athletes and staff returning to campus were tested on arrival. Those participating in season active workouts were tested a minimum of three days per week, all others were tested weekly. (See Attachment 1: Letter from University of Alabama).

2. Securing Personal Protective Equipment (PPE) became an issue due to logistical issues and diminshed supply of gloves, goggles, gowns, N-95 masks. Critical administrative time was devoted daily to mmanaging supply chain issues.

3. Oxygen delivery supplies were also on national back order. Equipment used for the operation of transport ventilators became almost impossible to acquire and blind airway devices were in high demand and purchased only at a premium. When supply is low and demand is high price tends to follow. These necessary supplies were no exception. Prices doubled.

August-September 2020

August was the worst month to date. The common term in August was *"unsustainable"* but what did we know at that point? As the hospital began to fill up, admitted patients would spill over into the Emergency Department. Arriving at the ED and finding no bed space ***created ED wait times extending into hours as crews were unable to off-load patie***nts as real estate was stretched as thin as the staff serving it.

1. An already stressed staff, many dealing with time off due to Covid and the balance working excessive hours to compensate began to be pushed to the limit. During the month of July NEMS added *"bonus units"* in the rural counties paying near *"double time"* to work in Tuscaloosa County. During August these counties were also pushed to the limit as their normal tertiary destinations were full. Daily conversations and weekly face-to-face and virtual meetings with DCH Administration were implemented to enhance the flow of patients through the hospital. Exchange of cell phone numbers between all administrative staff improved communication and assisted in moving patients who were priority due to medical condition or bed space.
2. National Civil Unrest continued into August as well. Protest rallies like *"Back to Blue"* and marches led by local athletes required stand-by services. These demonstrations added to the public gatherings that would risk transmission of a virus now out of hand.
3. Mutual Aid is critical to any disaster response. Mutual aid is a voluntary recriprocal exchange for mutual benefit. It can be as simple as sending a transport unit to a neighboring county in the event of excessive call volume or as elaborate as mustering a tactical team to protect an area devastated by a hurricane. During the pandemic Mutual Aid, did not exist for months at a time. If Tuscaloosa County was overwhelmed with emergency request so were the neighboring counties. Rural hospitals were holding critical patients because there were no available beds nearby and EMS services were all inundated with request for critical care transports as well as emergency calls due to Covid-19. Remember, people did not stop driving and having heart attacks during the pandemic. Normal emergency traffic continued to exist.

High School Football and a National Championship

Late August brought the boys of fall and that meant, for the south at least, it was football season. Everyone was going to try and get back to school, assuming the worst of this pandemic would be over by September. With call volume through the roof and staffing issues impacting NEMS, our normal high school and college game coverage would look different this year. NEMS has always provided coverage for local football games, at cost to the school system. As we evaluated our staff and the hours they were working we decided to add a premium to the football coverage. The charge for a game would be increased by $200 and given entirely to the

staff dedicated to covering the game. A letter was drafted to all area schools explaining the situation and struggles we were facing in the medical community. The bonus gave enough incentive for already overworked medical staff to give up a Friday night of off time to cover a game. Amazingly this change allowed us to provide coverage to all games scheduled for the fall for the schools that agreed to the increased charges.

The college football season looked very different for Tuscaloosa. A blessing in disguise for EMS came in the form of reduced attendance and a month long suspension of the season. All home games came with a stadium near 20% capacity and holding the start of the season until late September brought cooler weather and fewer heat related incidents. A season that began looking like it might now happen ended in a National Championship for Alabama. The local economy took a huge hit as hotel rooms sat empty and resturants operated at 50% capacity. The reduction in related EMS volume allowed NEMS to meet the demand from Covid-19 while providing the usual stand-by and transport service for home games.

October-November 2020

Skilled Nursing Facilities October Surprise

It appeared the worst might be over during October. Numbers had stabilized a bit and we were sustaining what we thought was unsustainable when the Nursing Home Association implemented a new Covid testing procedure. A letter from CMS (Center for Medicare Services) in early summer eliminated the need for testing of EMS personnel who entered the Skilled Nursing Facilities during the pandemic. All employees had eagerly complied with the temperature checks and wrist bands required to enter all medical facilities. Any of our employees who were symptomatic were tested immediatly then relieved of duty pending results of the testing. The Nursing Home Association approached the Alabama Department of Public Health in October requesting all non-emergency staff submit to weekly testing to be allowed to enter and transport patients. CMS had already made the decision that emergency service workers were exempt however; those same EMT's and Paramedics were being used to transport non-emergency patients. As discussions continued, the Alabama Department of Public Health, Office of EMS and Trauma left us with the option to test or not enter facilities on non-emergency calls. As a solo provider, it became evident we would need to add a regular asymptomatic testing program to our daily activities as not transporting elderly and infirmed was not an option.

The State of Alabama provided the rapid Covid-19 test and our administrative staff began the process of weekly testing.

Test results to all Skilled Nursing Facilities within our service area would be provided. The results have been mixed as early on there were a few asymptomatic positives and several symptomatic positive test that would have been captured in our symptomatic testing process to begin with. Any rapid test that was positive would be repeated then a PCR test would follow at an established testing facility. This process would back-up these results. At the time this document was written, mid May 2021, testing has been suspended for all fully vaccinated employees.

December 2020

Stroke Plan Change

To further complicate matters, patients having strokes were being treated and transported as usual. Transport to a local facility, stabilization and transfer to a tertiary facilities was the norm. Christmas 2020 highlighted a change in this process. Once arriving at a local facility, limited tertiary bed space left acute stroke patients in small hospitals lacking the critical care ability and intervention to assure survial and recovery.

On December 24, 2020 the protocol changed. Direction from ADPH, Office of EMS requested that suspected stroke patients be transported directly to high level stroke facilities to assure they would be admitted and treated at a high level. Reality, a person having a stroke in a rural county would be transported past a local facility into the larger cities for admission to hospitals already full with Covid-19 patients. This took critical resources out of their local county, sometimes hours down the road. To circumvent the process of normal transfer procedures from smaller hospitals these stroke patients would appear at the tertiary facilities who, at that point had no choice but to admit and treat them. If transported locally there was no guarantee a facility *"within reach"* would have bed space to accept the transfer. There really becomes a limit to transport resources. A rural service with 15% or more of their staff off due to Corona left rural areas without coverage for 911 calls.

A New Year 2021

2021 brought hope. Over two-thousand hours of Covid Illness (59 Tuscaloosa Team Members) had decimated our Tuscaloosa ranks throughout December. Though we had our first death in January, the loss of a spouse, the numbers seemed to be improving. Staff returning to work began to positively impact our ability to move the patients. Vaccines had started, made available to our staff immediately. There seems to be a light at the end of the tunnel. Still in the middle of a disaster but the winds had died down, the rain seemed to be ending and a thin but present ray of sunshine was on the horizon. Mayor Maddox lifted the State of Emergency for Tuscaloosa on April 6, 2021.

NEMS continues to assist as requested in providing standby services for Covid 19 vaccination clinics.

NEMS Maintains a Continued Focus on Response Time Compliance

There are many factors that affect response time compliance. NEMS continues to improve upon those factors that we can controal. Our primary goal is to continue doing everything possible to continue producing the necessary daily number of ambulances necessary to meet contractual response time expectations. It wasn't until August 2020 that NEMS did not meet our monthly response time goals. This was due in a large part to critical issues affecting our EMS system that were beyond the control of NEMS, Tuscaloosa Fire & Rescue and even the hospital system. These critical issues included 1) Hospital Turn Around Times; 2) Misuse/Abuse of ambulance resources by requesting requesting use when the patient didn't meet medical necessity requesting use when the patient didn't meet medical necessity; 3) Management of Psychiatric Patients; and 4) Staffing. Though we continued deploying the projected number of ambulance resources required per the EMS deployment model, these critical system issues resulted in ambulance unavailability thus negatively affecting response time compliance. Our EMS systems inability to control these critical issues were the primary reasons why response compliance was suspended during the declared State of Emergency per our contract guidelines. As the EMS system stabilizes, there will be a gradual return to pre-pandemic results. However, now that we have identified these critical issues, they must be addressed to prevent reoccurence.

Challenges/Mitigation/Results

CHALLENGE	MITIGATION	RESULTS
Identifying possible Covid related patients.	Approached all patients as though they were Covid positive.	Assumed limited exposures to Covid patients; overuse of PPEs diminishing supplies.
Determining true number of Covid Cases in our Community. Geo/political command structures created but not unified throughout county.	Positive test at DCH/Northport and transported by EMS qualified entry into Covid database.	Health systems had preliminary information as to the quantity of Covid patients within the community.
UA Athletics wanted testing for all student athletes.	NEMS established a program to hire a medical testing staff, working under Dr. Jimmy Robinson to provided testing to all athletes and staff.	Continuous testing goals achieved. No games cancelled due to positive tests amongst athletes/staff.
PPE shortage. Controlling increased costs for these supplies.	Worked with multiple agencies including the EMA, medical vendors, internet shopping to secure PPEs.	NEMS was able to continue providing PPEs for personnel.
Oxygen administration supplies on national backorder. Difficulty finding vent circuits.	Worked with multiple agencies, including medical vendors, internet to secure O2 supplies.	NEMS was able to continue providing O2 supplies and resupply for our system.
Personnel/Staffing – decreased pool of EMTs/Paramedics entering the workforce.	NEMS continued its Training Academy to serve as a pipeline for new hires. Scheduling – Bonuses paid to ensure shift coverage.	$ 439,582.72 paid out in bonuses.

***This wasn't unique to NEMS as EMS personnel shortages were experienced in a large portion of EMS agencies throughout our state**.	Ongoing recruitment strategies centered on interactions with all training institutions, one-on-one recruitment, job postings on social media, etc.	NEMS Training Academy produced 21 (11 FT/10 PT) EMTS during 2020.
Ambulance Patient Offload Time/Wall Time Identifying issues that extended turn-around times to include: - keeping patient in ambulance until allowed in ED. - ED rooms were closed due to staffing levels. - ED over-filled with patients and nurses not ready to take over patient care. -Crews wanting to take a break -DeCon on ambulances extended turn-around times.	1. Times standards created to contact ED managers to facilitate offloading. 2. Supervisor stationed at ED > 2 ambulances with exteded wall times. 3. Created impromptu ED holding areas. 4. Coordinating mitigation calls with ED Staff as needed. 5. Participated in Office of EMS meetings to address extended offload issues. 6. Continuous meetings with ED staffs at both hospitals. 7. Worked with T. Snider at DCH to begin tracking true offload times.	Tracking offload times only last 10-days as hospital indicated that they were too busy to continue providing information. APOT should be determined from the time ambulance arrives at facility until the facility assumes responsibility for the patient. Without proper documentation provided from facility, NEMS' calculation of APOT is from arrival till "in-service." This issue will be addressed with the implementation of our ePCR solution which will capture time patients turned over to ED staff. Currently, there is no signficant improvement in APOT due to issues that are beyond NEMS' control.

Inappropriate utilization of ambulance resources, i.e., Medical Necessity/911 Abuse. Some misunderstanding of medical facilities not applying medical necessity standards when requesting ambulance transportation. 911 Abuse – ambulance resources sent on calls when not ambulance was needed or no patient was found.	Jan 2020, NEMS place transport coordinator at DCH Regional to help arrange ambulance transports for discharges and when patient required ambulance stretcher. Work with NH's to help them understand when patient's do not qualify for an ambulance stretcher.	NEMS has seen some improvement on a case-by-case basis. Still a tendency to use ambulances to transport patients regardless of the need for an ambulance, even when another, more appropriate means of transportation would make more sense. This continues to be a work in progress.
Psychiatric Transport Requests These request require ambulance resources to be tied up for extended times as most transports are sent out of county.	Determine severity of patient, emergency vs. nonemergency. Is using an ambulance required for the transport request.	While there has been a lot of meetings/discussion on this subject, no resolution has been identified.
DCH serves as a regional healthcare hub for West Alabama. NEMS resources being used for transport requests outside of Tuscaloosa County.	None. DCH requests for transports are facilitated by NEMS. NEMS agreeed that if hospital needs immediate transport and NEMS is not available, DCH can contact	NEMS continued to meet transport needs of DCH. However, out of county transports diminishes resource availability.

	another service to assist in transport.	
Dialysis transport impact on the availability of ambulance resources. Segregating patients required NEMS to spend extra time rerouting patients and decontamining ambulances.	Dialysis centers segregated dialysis patients based on Covid status to better manage scheduling. NEMS had to comply with scheduling requests for these patients.	Resulted in extending turn-around times for ambulances. This was not a viable solution to enhance ambulance availability.

ATTACHMENT 1

LETTER: UNIVERSITY OF ALABAMA

Sports Medicine

To Whom it May Concern,

In March of 2020, as COVID-19 evolved into a worldwide pandemic, NCAA athletics ceased across the entire country. Speculation at the time; the shutdown would continue through fall activities and include college football. In July, as camp approached, it became clear we would be required to COVID Test all athletes and coaches several times weekly. Positive test would lead to contact tracing and result in suspension of athletes for ten to fourteen days. As we began to address the logistics of mass testing of our athletes, coaches, and staff members it was apparent the medical staff within the University of Alabama athletic department would not be able to accomplish the task alone. In July 2020 I approached Edgar Calloway with NorthStar EMS, Inc. for assistance with this process. NorthStar has served as our agency for medical transport and emergency services for nearly thirty years. The working relationship and reliability is strong.

Edgar assured me he had no idea how but would find a way to assist the athletic department in any way possible. By early August NorthStar assembled a group of medical professionals who would perform the test daily. The early testing allowed us to identify asymptomatic COVID-19 athletes and quarantine them to create a safe environment.

Prior to the beginning of football season, the SEC contracted with a company to perform the testing program NorthStar had been overseeing. The number of testers was insufficient to cover the volume of athletes and staff members. NorthStar continued to augment testing services in conjunction with the contracted group, assuring continuity and thorough coverage of all athletes and staff. Along with testing services NorthStar also provided medical transport, as necessary, which prevented exposure of our medical staff while moving our athletes, in quarantine, to necessary medical appointments.

A season which began as a great unknown, where risk seemed to outweigh the opportunity to play ended in a National Championship for our football program and zero games cancelled due to COVID-19 outbreaks within Alabama's athletic department. NorthStar's assistance with early and frequent testing by medical professionals along with safe transport of athletes suffering the effects of the Corona Virus assured a successful fall athletic program for the University of Alabama.

Sincerely,

Jeff Allen
Associate Athletic Director for Sports Medicine
The University of Alabama

Sports Medicine and Rehab Center
Box 870323
Tuscaloosa, Alabama 35487-0323
(205) 348-3600
FAX (205) 348-9932