Identification and Vetting of Ground Ambulance Providers to Support Air Medical Operations at STAT MedEvac

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Abstract

Timely medical transportation at an appropriate level of care is essential to achieve positive health outcomes in critical medical situations. Critical care transport programs, such as STAT MedEvac (STAT), often provide the highest level of care and the fastest mode of transport when patients need it most. Issues arise, however, when weather and other operational challenges make it unsafe or impractical to operate an air ambulance. STAT addresses this challenge by collaborating with ground ambulance agencies local to their air medical bases. The ground ambulance agency provides an ambulance and driver while STAT provides the medical crew and most of the required medical equipment to facilitate ground critical care transports. Although STAT currently vets ground ambulance agencies prior to utilizing them, this vetting process is limited and there have been potentially preventable operational and safety events. Additionally, STAT's Communications Specialists frequently experience challenges in rapidly identifying an appropriate and available ground ambulance for these transports. This essay discusses the current state of STAT MedEvac's Ground Partner Program, the development of a comprehensive vetting program, and the utilization of information gathered during the vetting process to streamline ground ambulance dispatching. This project is of public health importance because air and ground

critical care services improve patient outcomes and facilitate rapid access to regionalized specialty care that is often unavailable locally.

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1.0 Introduction

1.1 STAT MedEvac Background

STAT MedEvac (STAT) is a large air medical service provider based at Allegheny County Airport in West Mifflin, Pennsylvania. STAT operates 18 helicopters, each at its own base, and 4 ground critical care ambulances across Pennsylvania, Ohio, Maryland, New York, and Washington D.C. Each helicopter is staffed with a pilot, flight nurse, and flight paramedic.[1] The ground ambulances have an EMT driver instead of a pilot. Generally, missions are either classified as scene runs or interfacility transports. A scene run is an emergency mission outside of the hospital for a critically ill or severely injured person who would benefit from the critical care capabilities of the medical crew, the increased speed of helicopter transport, and the higher-level care of a specialty referral center such as a level 1 trauma center or a comprehensive stroke center. Interfacility transports involve moving a patient from a sending facility, where the patient is in the emergency department or already an inpatient, to a receiving facility that can provide a higher level of care or other required specialty care.[1] The majority of STAT's missions are interfacility transports moving patients requiring critical care services from sending facilities, like community hospitals, to tertiary or quaternary care facilities, often in Pittsburgh. In 2020, these interfacility transports represented 80.6% of STAT's completed missions (Table 1).

1.2 Ground Partner Program Current State

STAT MedEvac has developed a culture of safety and only flies missions where there is consensus among the pilot and medical crew that it is safe to fly.[1] Weather is the predominant reason for declining a mission and accounted for 74.5% of missed missions in 2020 (Table 2). Icing conditions, high winds, and thunderstorms are regular causes of operational challenges, especially in the winter months and in the mountainous regions of Pennsylvania. When the helicopters cannot fly safely, STAT operates ground critical care missions. Although STAT has four ground critical care ambulances, one is dedicated to the Children's Hospital of Pittsburgh transport team and the other three largely handle interfacility transports within the City of Pittsburgh and Allegheny County. To fill the gap in ground units STAT created its Ground Partner Program (GPP) in which STAT has agreements in place with emergency medical services (EMS) agencies across its multi-state service area to maximize its operational flexibility. EMS agencies in the GPP serve as vendors to STAT and provide an ambulance and qualified driver while STAT provides its own equipment and the medical crew. As the transporting agency, STAT bills the patient or their insurer for the transport and compensates the EMS agency for the use of their resources. The GPP gives STAT operational flexibility to provide patients with the critical care transport services they require no matter the weather.

Despite its success, the GPP does have its challenges. Most critical care interfacility transports are urgent and unscheduled which presents STAT with the challenge of quickly identifying a ground unit that is both available and appropriate for the mission. Since the EMS agencies in the GPP also respond to 911 dispatches and perform their own interfacility transports there is no guarantee that a given EMS agency will have an ambulance available at any given time. Factors involved in identifying an appropriate EMS unit include distance from STAT's medical

crew and the ability of the ambulance to accommodate the patient and any associated equipment. For example, certain ambulances are not large enough to accommodate a patient on an intra-aortic balloon pump (IABP). Others may not have equipment appropriate for travel in adverse weather conditions (i.e., chains, four-wheel drive, dual rear wheels). Qualified drivers must also have adequate rest to mitigate issues of fatigue and on long distance transports two drivers may be requested. At the present time STAT works with 90 vetted EMS agencies across its catchment area and calls these EMS agencies in a predetermined order based on the agency's proximity to the STAT medical crew staffing the mission. Additionally, the Communication Specialists responsible for dispatching the ground ambulances do not have any reference materials showing them which ambulances are capable of meeting specialized equipment needs, such as the previously mentioned IABP. This lack of reference material means that a Communication Specialist could end up calling an EMS agency whose fleet does not contain any ambulance capable of the mission. Communication Specialists frequently end up calling numerous agencies before they can secure an appropriate and available ambulance for the mission though the exact incidence of this issue is not quantified.

STAT's challenges in identifying an appropriate and available ambulance are symptomatic of limited prehospital resources, especially in rural areas. Prehospital resources are limited because of the high cost of acquiring, equipping, and staffing a ground ambulance relative to the reimbursement earned per transport completed. Rurals areas compound this problem due to lower transport volumes that lead to lower revenue despite near identical fixed costs. When compared to a ground ambulance, a single medical helicopter can cover approximately five times the area. Air critical care transport reimbursement pays approximately seven times more than an otherwise identical critical care transport completed by ground, yet the marginal cost of an air critical care

transport is just double that of a ground transport. Critical care transport also requires a more highly trained medical crew who earn higher compensation. The significantly lower reimbursement rates paired with identical staffing costs and a smaller catchment area generally make ground critical care transport service economically impractical. STAT and similar critical care transport programs have a limited ground transport footprint despite these economic challenges because the programs are necessary to consistently deliver the ground critical care services patients require no matter the weather or other operational constraints.

The relationship between STAT and ground EMS agencies is complex. Depending on the situation, STAT is sometimes the customer and other times the service provider. On scene runs, ground ambulances are the first responders to medical emergencies in their local area and, when a patient's condition warrants, make the request for the 911 center to dispatch STAT or a competing air ambulance as seen in Figure 1. Conversely, STAT becomes the customer when they are paying the EMS agency for providing an ambulance and qualified driver to support critical care interfacility transports as seen in Figure 2. STAT has a dedicated outreach team who work to develop and maintain positive relationships with referring EMS agencies through outreach and education programs. Prior to being added to the GPP, a STAT MedEvac outreach team member conducts a site visit which includes a review of limited items and establishes only limited standards for the EMS agency and its ambulances. These limited items include the number of ambulances and EMS staff at the agency and a brief review of STAT MedEvac transport policies.

Historically, there have been incidents where a GPP ambulance arrives for a mission with an ambulance in disrepair or lacking sufficient oxygen or fuel. These incidents create tension between the EMS agency and STAT and furthermore between the sending facility and STAT since a time-sensitive transport may be delayed. STAT's incident reporting system does not allow for

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these mishaps to be identified categorically. For example, the incident reporting system was searched for the keyword "ambulance" for incidents occurring within 2020 to identify and quantify ground related incidents. The query for "ambulance" returned 109 incidents. After reading each incident report, 18 were determined to be related to the Ground Partner Program. The 18 GPP related incidents were categorized as oxygen, vehicle maintenance, unsuitable vehicle, unsafe vehicle operations, or EMS personnel issue. Depending on the nature of the incident multiple categories could apply to a single incident. Issues related to oxygen are the most common and are found in 39% of reported GPP incidents. Vehicles maintenance and EMS personnel issues are second most common and are each found in 28% of GPP related incident reports. The complete breakdown of incident categories can be seen in Table 3.

The GPP provides major operational support to STAT and, although it is functional and essential, management felt that there was an opportunity to increase the rigor of the GPP to increase consistency and decrease mishaps. Upon consultation with STAT's management team a two-pronged approach was favored: 1) EMS agency engagement and 2) dispatch process improvements. This paper describes an approach to both components.

2.0 Literature Review

The published literature contains limited research on arrangements like STAT's Ground Partner Program. Evidence does exist, however, to support improved patient access and outcomes from both ground and air critical care transportation (CCT), of which STAT is a provider.[3] Specialty and critical care services such as care for trauma, stroke, and acute coronary syndrome are both complex and resource intensive. These specialty care resources are often regionalized as a strategy to gain efficiencies while improving patient outcomes.[4] A downside of this regionalization of care is the need to transport critically ill or injured patients over longer distances to get them to definitive specialty care. Interfacility transport by critical care teams (prehospital registered nurse and flight paramedic) is of greater benefit to extremely ill patients when compared to standard advanced life support (ALS) EMS teams (paramedic and emergency medical technician).[3] The benefit of the CCT results from a combination of increased training in care of the critically ill patient and a greater scope of practice when compared to ALS. CCT teams are able to continue the intensive care unit (ICU) level care throughout transport while an ALS team would have to suspend certain interventions and medications to be able to transport the patient within their scope of practice.[3]

CCT is offered in the setting of an air ambulance though there are limited ground CCT teams, most typically in support of an air medical program. Air ambulances benefit from increased speed and range when compared to ground ambulances. Weather is a major factor in air ambulance accidents.[5] Ground ambulances, however, are able to safely operate in a much wider range of weather.[3] Given the highly variable geography and weather in STAT's catchment area, utilizing ground ambulances to complete interfacility transports provides needed operational flexibility.

3.0 Ground Partner Program Improvement Project

The project aimed at strengthening the GPP has two closely related components: EMS agency engagement and dispatch process improvement. EMS agency engagement includes establishing mutually agreed upon expectations for GPP participation and an inspection of the agency including its staffing model, equipment, and vehicles. The dispatch process involves leveraging information gathered in the inspection combined with mission requirements to rapidly identify and dispatch the closest appropriate GPP agency for a mission.

3.1 Vetting Checklist Development Methodology

STAT is subject to the licensing requirements of each state where a base is located (Pennsylvania, Ohio, Maryland, New York, or Washington, D.C.) and the requirements of its accrediting body, the Commission on Accreditation of Medical Transport Systems (CAMTS). The majority of CAMTS standards are above and beyond state requirements. For example, while Pennsylvania requires vehicle operators to complete a full Emergency Vehicle Operations Course (EVOC) just once, CAMTS requires the full EVOC course at least every two years. CAMTS requires reaccreditation every 3 years.[6] The CAMTS standards apply to every air or ground vehicle STAT uses to transport a patient regardless of who owns the vehicle.[7] Although CAMTS accreditation is common among air ambulance providers, there are no CAMTS accredited ground EMS agencies within STAT's service area.[8] As a result, ground EMS agencies are typically unfamiliar with CAMTS standards and may not meet them, despite meeting state licensure

requirements. Outreach personnel from STAT are able to assist agencies in meeting these standards by providing education and sample policies for the EMS agency to adopt. Beyond state and CAMTS requirements, STAT also has internal policy documents that govern operations in all vehicles where STAT medical crews conduct transports. The internal policies meet or exceed all CAMTS requirements and may not always be achievable for smaller EMS agencies due to these agencies' limited resources.

A key component of EMS agency engagement was the development of inspection checklists to guide the outreach team. The objective of the checklists is to standardize items that are reviewed at each EMS agency and establish minimum and preferred standards for an ambulance to participate in the GPP. The agency inspection centers around completing three inter-related checklists that were created in Microsoft Excel: agency (Figure 1), base(s) (Figure 2), and vehicle(s) (Figure 3). The agency checklist covers high level items such as operational policies and agency demographics. The base checklist is completed for each base an EMS agency operates and includes information such as the base's physical location and routine staffing plan. The vehicle checklist is completed for each ambulance that the agency wants to participate in the GPP. The vehicle checklist reviews the general condition of the vehicle as well as essential equipment on board such as an inverter, suction, and oxygen.

The project team started with the existing GPP site visit checklist and expanded it while adding references to CAMTS standards and STAT MedEvac policy, where applicable. The items on the checklist were created to meet the requirements of STAT MedEvac's policies, Pennsylvania EMS vehicle licensing standards,[9] CAMTS standards,[7] and guidelines of the National EMS Safety Council's Guide for Developing an EMS Agency Safety Program,[10] where applicable. In accordance with CAMTS standards, each EMS agency would be re-reviewed every three years

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with a goal of reviewing one third of participating agencies each year to balance the outreach staff workload.

3.2 Ground Ambulance Dispatch Tool Development

Upon completion of the inspection checklists, the project team shifted to developing a user-friendly tool that allows STAT's Communication Specialists to identify and contact the closest appropriate GPP participating EMS agency for a ground critical care transport. Using Microsoft Excel, a master spreadsheet containing key information on all GPP agencies was created (Figure 6). The master spreadsheet contains a significant amount of information that is useful for periodic reporting and other GPP maintenance activities, but its breadth and depth made it cumbersome for use when attempting to dispatch an ambulance. Using formulas and conditional formatting, key information was condensed into the 'Agency and Unit Selection' worksheet which indicates a unit's participation in the GPP and its suitability for certain specialty transports such as IABP and others (Figure 7). The next step involved creating a matrix of the driving distance from each EMS agency base to each STAT base using the Google Maps application programming interface (API) in Excel (Figure 8). This allows a Communication Specialist to sort by distance for a given base and view the EMS agency bases in order of closest to furthest. The Communication Specialist then calls the closest EMS agency base to determine which ambulances, if any, are available for the mission. The available ambulances are checked against the Agency and Unit Selection worksheet (Figure 7) to ensure, prior to dispatch, that the available ambulance has been vetted and meets the needs of the mission. If the closest agency is unable to provide an ambulance for the mission, the Communication Specialist moves down the list to the next closest EMS agency base and repeats

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the process until an ambulance is dispatched. The Excel matrix has a total of 2,400 potential combinations of EMS agency and STAT bases. Although some of these distance calculations are inherently impractical, taking a comprehensive approach revealed several matches between closely located bases and EMS agencies that were not presently being utilized.

4.0 Discussion of Implementing Vetting Checklist and Dispatch Tool

4.1 Benefits of Implementing Vetting Checklist and Dispatch Tool

STAT MedEvac is a mature critical care transport program with an established culture of safety and quality patient care. Given STAT's large catchment area and the significant impact of adverse weather conditions on the ability to safely conduct air missions the implementation of a ground critical care transport program is essential. The high cost of purchasing, maintaining, and staffing ground ambulances given the low frequency of ground transports from a given base make it impractical to position a ground ambulance at each air ambulance base. Purchasing and equipping a single ground ambulance can cost approximately $250,000.[12] Yet ground ambulance availability is essential to provide STAT with the operational flexibility that is essential to provide timely critical care transport services regardless of the weather. The solution devised by STAT's management team is the GPP. The GPP simultaneously provides STAT with just-in-time ground ambulances and local EMS agencies with an additional revenue stream.

Prior to this project, the GPP included only basic agency vetting and data collection for the 90 participating EMS agencies, several of whom have multiple bases of operation. STAT's outreach team includes a fulltime Director, two fulltime coordinators, and two part-time coordinators. The GPP is just one of the Outreach team's many responsibilities and their small staff makes it impractical to reach all 90 currently participating agencies on a regular basis. This led to STAT's critical care teams having inconsistent ground transport experiences and occasional mishaps (Table 3) impacting the timeliness and safety of the transport. Additionally, STAT's

communication specialists did not have comprehensive information to assist them in rapidly selecting and dispatching the closest appropriate ambulance for a given transport.

Upon implementation of the expanded agency, base, and ambulance vetting checklists, STAT will have increased confidence that the ground ambulances they request will consistently meet minimum safety and equipment standards. The incidence of a ground ambulance arriving to pick up a medical crew with an ambulance in disrepair or lacking adequate oxygen should also decrease significantly. Implementation of the Excel-based dispatching tool will result in faster identification of the most appropriate ground ambulance based on the combination of driving distance from the medical crew's base and characteristics that make the ambulance suitable for the transport (dimensions, equipment, etc.). The increased rigor of the GPP's agency review process will also positively affect the relationship between STAT and participating EMS agencies. By establishing clear expectations on what STAT expects from the agency and what the agency can expect from STAT the relationships will be strengthened and operational issues should decrease.

4.2 Challenges of Implementing Vetting Checklist and Dispatch Tool

The implementation of a more rigorous vetting process brings the challenges of ensuring that the EMS agencies stay in compliance with established standards and maintaining up-to-date information on each participating EMS agency. Upon implementation of the updated vetting checklists, STAT's outreach team would review each participating EMS agency no less than every three years to maintain compliance with STAT's CAMTS accreditation.[6]

Compliance between reviews can become problematic, especially with a three-year interval between reviews. More frequent reviews are not feasible given the number of participating

agencies paired with a limited Outreach staff. It may be possible, however, to do annual calls with the agency's leadership to review standards and expectations of GPP participation. For-cause reviews should be conducted in the event of an operational or safety mishap as reported in medical crew incident reports.

EMS agencies regularly update their ambulance fleets and the equipment they use in their ambulances.[12] When ambulances are replaced, the new ambulances frequently have different measurements and specifications that impact the ability of the ambulance to accommodate some of STAT's specialty transports. For the EMS agency to put a new ambulance in service it must first be licensed by the state.[9] Although state licensure ensures that certain minimum standards are met, several of the standards on the vetting checklists are above and beyond the standards established by the state.[7] To address this challenge STAT should request that participating agencies notify STAT when they have fleet changes and provide the details of those changes. Ideally, STAT would review every new ambulance prior to it being included in the GPP, but this is not operationally practical given the number of participating EMS agencies and the limited number of STAT Outreach staff.

4.3 Potential Future Program Improvement

The agency, base, and ambulance vetting checklists include both minimum and preferred standards for many checklist items. These two sets of standards were created with the future in mind. As the GPP continues to mature and evolve, STAT may find it mutually beneficial to offer preferred dispatching or increased reimbursements rates to EMS agencies that meet the more stringent preferred standards. For otherwise low-volume rural EMS agencies that rely on GPP

transports for a portion of their annual revenue, the prospects of being STAT's first call or higher reimbursement rates can be meaningful incentives to achieve the preferred standards.

In addition to the recommended changes to the GPP, STAT should also consider improvements to tracking of GPP dispatch and GPP mishaps. Currently, there are no dispatch metrics available for management to review. It would be helpful for management to be able to identify the average number of agencies called prior to dispatch for a given service region, among other metrics. These metrics could identify problem regions and lead management to work to add additional GPP agencies to those areas or address other dispatch related issues. When considering mishaps, the incident reporting system should be improved. It is not presently possible to query the quantity or nature of mishaps associated with a given GPP agency or the category of the mishap. Further complicating reporting, it is likely that GPP incidents are underreported because STAT personnel work closely with EMS agencies and depend upon them for referrals. If STAT's management team were able to identify problematic agencies early, those agencies can be contacted and given the opportunity to improve their performance. Should performance not improve, the agency can be removed from the GPP to prevent additional mishaps associated with that agency.

4.4 Utility of Vetting Checklist and Dispatch Tool at Other Programs

As a large, mature critical care transport provider, STAT is often seen as a role model for other organizations. Like many air medical programs, STAT covers a large and varied geographic area and has operations regularly impacted by inclement weather. The checklists and systems created as part of the GPP project are largely transferable to any critical care transport organization

who seeks to collaborate with their local ground EMS agencies. The checklists include references to both CAMTS accreditation standards and STAT MedEvac policy. Any organization could adapt the checklists to their own internal policies. Any external agency that adapts the checklist for their own use should note that some of the standards are based on Pennsylvania ambulance licensing standards and the adapting agency should ensure they instead utilize their own state's ambulance licensing standards. Finally, external organizations would only need to acquire a Google Maps API key, which is free of charge for a defined number of API calls and change the street addresses in the mapping file in order to adapt the system to their organization.

5.0 Conclusions and Public Health Implications

STAT MedEvac's Ground Partner Program gives STAT significant operational flexibility when their helicopters are unable to fly safely. The implementation of the vetting checklists and dispatching tool developed in this project will increase the GPP's rigor and assist with STAT's on-going adherence to CAMTS standards. The data collected during the enhanced site visits flows directly to the dispatching tool to assist Communication Specialists with more rapidly identifying and dispatching the closest and most capable ambulance. Although it will take time, once implemented the combination of the vetting checklists and the dispatching tool will improve GPP operations and safety for both STAT and their EMS agency partners.

Access to specialty care is a well-known public health challenge and patients often require transportation over long distances to reach the regionalized specialty care they need. STAT MedEvac created the ground partner program to ensure patients in their service area continue to have access to critical care transportation even when operational constraints prevent their aircraft from flying. Air and ground critical care transport services provided by STAT MedEvac provide a crucial and rapid connection between the scene of an emergency or an outlying hospital and regionalized specialty care services. The checklists and dispatching tool created as part of this project improve the quality and consistency of these critical care transportation service

Appendix A Figures

Figure 1: Scene Run Medical Helicopter Dispatch

911 Center dispatches EMS

EMS requests medical helicopter when clinically indicated

Helicopter transports to closest appropriate hospital
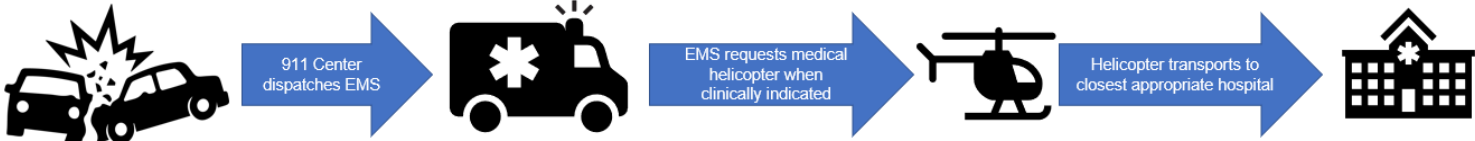
Figure 2: Interfacility Critical Care Transport Ground Ambulance Dispatch

Patient requires CCT for interfacility transfer

Weather makes air medical transport unsafe

Ambulance requested for ground transport

Local EMS agency transports CCT crew and patient

Figure 3: Agency Vetting Checklist

Date of Site Visit:			
Agency Name:			
24/7 Agency Contact Person		Phone Number:	

# EMS Units		
# Bases		
# Employees:		Notes:
EMR:		
EMT:		
AEMT:		
Paramedic:		
PHRN:		

Accreditation	CAAS / CAMTS / None		Minimum Standard	Meets?	Preferred Standard	Meets?	CAMTS Reference	Sm Reference
# Accidents w/Injury Requiring Care (last 36mos)								
# Accidents w/Property Damage (last 36mos)								
Employment minimum requirements			EVOC/EVDT				07.04.03	
Staffing Provided to STAT MedEvac			Single EMSVO		Crew of 2, both EMSVO			
Vehicle Operator Qualification Standards								
Minimum age:			18					504
Minimum Driving Licensure/Experience			2yrs licensed				07.04.02	504
Minimum EMS Qualification			EMSVO		EMT / EMSVO		07.04.01	504
Disqualifying Convictions (qty/type/time interval)			Within the last 3 years: Major Violation eg: DUI/DWI, Vehicle felony conviction (hit and run, negligent homocide, speeding >25MPH over speed limit, leaving the scene of an accident, reckless driving); Excessive violations;					504
Disqualifying Incidents (qty/type/time interval)			Within the last 3 years: excessive accidents					504
Re-review interval (speeding / moving violation / accidents)			Annual		Annual		07.01.08-3	504
Vehicle Operation Policy Review								
Speed limitation / traffic law compliance			Policy Exists		Aligns w/STAT Policy 502		07.01.02	502
Utilization of Emergency Warning Systems			Policy Exists; Usage tracked/trended in QM process		Aligns w/STAT Policy 501		07.01.03	501
Seat Belt Use			Required at all times the vehicle is in motion		Aligns w/STAT Policy 502			501
Tobacco Use			Prohibited in the vehicle					
Communications while Driving			Policy exists					247
Ambulance involved Accident Policy			Policy exists				07.01.05	267
Ambulance Breakdown			Policy exists		Aligns w/STAT Policy 505		07.01.07	505
Ambulance comes upon accident scene			Policy exists				07.01.04	209/503
Post-incident drug/alcohol testing			Policy exists; Mandatory post accident				07.01.06	112
Safe Backing			Policy Exists		Aligns w/STAT Policy 506			506
Vehicle Operator Safety								
Interval to repeat EVOC / EVDT			Refresher every 2yrs or after "at fault" accident		Refresher annually.		07.04.05	504
Co-Pilot Duties (when co-pilot present)			Set/verify GPS; L/S Response; Monitoring for Fatigue (must stay awake); No mobile phone/laptop use				07.04.06	209
Operator Safety Monitoring (i.e.: DriveCam)	Yes / No		Present, data on STAT MedEvac trips available for STAT MedEvac review		Integrated with Agency TQM program			
Driver duty and rest time			Policy Exists		12hr Duty Limit; 10hrs off between shifts		07.01.08-1	
Inclement weather			Policy Exists		Aligns w/STAT Policy		07.01.08-2 07.03.00	612
Aborting transport for safety concern			Policy exists		Aligns w/STAT Policy			612
Weather conditions the prevent safe transport			Policy exists		Policy			612
Vehicle Maintenance Program								
Regular maintenance process/program			Policy exists		w/documentation			
Procedure for unscheduled maintenance			Policy Exists					
Minimum Fuel Level			3/4 Tank at pickup		Full Tank at Pickup			
Work performed by certified mechanic or shop certified for make/model of chassis	Yes / No		Yes				07.05.05	

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Figure 4: Base Vetting Checklist

Agency Name:			
Base Name:			
Base Address:			
Closest Hospital:		Distance (mi):	
Closest STAT MedEvac Base:		Distance (mi):	
Units at Base:	BLS: ALS: CCT:		
Daily Staffing Plan:			

Figure 5: Ambulance Vetting Checklist

Date of Site Visit:				
Agency:				
Unit #:		Mileage		
Make		Model		
Type	I / II / III	Drive	2WD / 4WD	
Vehicle GPS Tracking	Yes / No			
Current State Inspection	Yes / No / Not Applicable	Year:		
Current State Registration	Yes / No / Not Applicable			
Current Vehicle Insurance	Yes / No			

	State:	Level:	License Number:	Expiration Date:					CAMTS Reference
Current State Licensure	MD NY OH PA WV	BLS ALS CCT							07.01.01 07.02.02 07.02.01 07.02.08 07.02.09 07.02.13 07.02.14

				Minimum Standard	Meets?	Preferred Standard	Meets?	
No evidence of damage penetrating the vehicle body or holes in the patient compartment				Vehicle body intact				07.05.02
Ambulance interior, including storage compartments, are clean to OHSA or equivalent standards.				Interior is visibly clean				07.05.03
Ambulance is cleaned after each patient transport. All surfaces and equipment that either came in contact with the patient or may be contaminated are cleaned and disinfected with an EPA registered disinfectant.				Interior is visibly clean, agency is able to describe procedure for decontamination of patient care surfaces and equipment after use				07.05.04
Appropriate receptacles exist and are utilized for waste:								
Biohazardous waste	Yes / No	Notes:		Container exists, is secured, and will prevent spillage in an accident				
Sharps	Yes / No			Container exists, is secured, and will prevent spillage in an accident				
Non-biohazardous waste	Yes / No			Container exists, is secured, and will prevent spillage in an accident				
Stretcher Mount Type:	Antler / Center Rail							
Bariatric Capable:	Yes / No							
50psi Oxygen Connection	Yes / No			Yes		2+ Connections		
Adequate Oxygen Supply	Yes / No			1500psi at start of transport				
Oxygen Supply Type	Compressed / Liquid							
Working Inverter	Yes / No			Yes				
Working on-board suction	Yes / No			400mmHg within 4 secs.; ability to adjust suction; One wall mount + 1 portable (State Requirement)				
Crew compartment Heating and Air Conditioning functions	Yes / No			Yes				
Patient compartment Heating and Air Conditioning functions	Yes / No			Yes; 68F to 78F; Procedure to monitor inside cabin temperatures				07.02.04
Adequate interior lighting equipment to ensure complete observation of patient and monitoring equipment used on the patient	Yes / No			Yes by visible inspection				07.02.02
Cab is able to be shielded from light in passenger compartment during nighttime use.	Yes / No							07.02.03
Ambulance fuel capacity provides at least 175mi of range	Yes / No			Yes				07.02.05
Ambulance has minimum 6in ground clearance at gross ambulance weight	Yes / No			Yes				07.02.06
Ambulance can fully perform at ambient temperatures of -30F to 122F	Yes / No			Yes				07.02.07
Functioning Siren	Yes / No			Yes				
Functioning Emergency Lights	Yes / No			Yes				
Functioning Communication Equipment:								
Radio	Yes / No			In working condition				
Mobile Phone	Yes / No			In working condition				
Maintenance Documentation Available:								07.05.01
Daily damage + equipment checks	Yes / No			Weekly		Daily		07.05.01-1
Fluid +Tire Pressure (min 2x/wk)	Yes / No			Weekly		2x/wk		07.05.01-2
Preventative + Unscheduled Maintenance	Yes / No			Records available				07.05.01
Road Hazard Equipment								07.02.10
Flashlight	Yes / No			Yes				
Road Marking Devices (cone, flares, triangles, etc.)	Yes / No			Yes				
Tools	Yes / No			Yes				
Leather Heavy Duty Gloves	Yes / No			Yes				
Reflective Vests	Yes / No			Yes				
Hatchet/Band Saw	Yes / No			Yes				
Snow Equipment	Yes / No			Yes				

Figure 6: Dispatch Tool: Sample Unit Characteristics Worksheet – Master

| EMS Service Name | Unit Number | Last Review Date | Mileage | Current Documents | | | | Level | License Number | Expiration | Make | Model | Ambulance Type | Drive | GPS Tracked | IABP Capable | ECMO Capable | Bariatric Capable | Stretcher Mount | Meets Minimum GPP Standard | Meets Preferred GPP Standards |
				State Vehicle Inspection	State Vehicle Registration	Vehicle Insurance	EMS Licensure State														
Bob and Joe's Really Good EMS	100	1/15/2017	123,456	Yes	Yes	No	OH	BLS	123456	8/23/2019	Ford	F450	I	4WD	No	Yes	Yes	No	Antler	Yes	No
Eric's Excellent EMS	200	7/31/2020	78,901	Yes	Yes	Yes	PA	ALS	456789	9/1/2021	Ford	F450	I	2WD	Yes	Yes	Yes	Yes	Center Rail	Yes	Yes

Figure 7: Dispatch Tool: Sample Agency / Unit Selection Worksheet

| Service Name | Unit # | Last Update | Approved for GPP? | Specialty Transport Capability | | | Stretcher Mount |
				IABP	ECMO	Bariatric	
Bob and Joe's Really Good EMS	100	1/15/2017	Yes	Yes	Yes	No	Antler
Eric's Excellent EMS	200	7/31/2020	Yes	Yes	Yes	Yes	Center Rail

Figure 8: Dispatch Tool: EMS Service/Base Distance Worksheet

Service Name	Driving Dist. to ME1	Driving Dist. to ME2	Driving Dist. to ME3	Driving Dist. to ME4	Driving Dist. to ME5	Driving Dist. to ME6	Driving Dist. to ME7	Driving Dist. to ME8	Driving Dist. to ME9	Driving Dist. to ME10	Driving Dist. to ME11	Driving Dist. to ME12	Driving Dist. to ME13	Driving Dist. to ME14	Driving Dist. to ME15	Driving Dist. to ME16	Driving Dist. to ME17	Driving Dist. to ME18
Washington Ambulance & Chair	3.5	46.9	41.2	31.5	47.9	123.2	111.9	76.3	150.5	249.7	128.0	192.1	228.4	79.7	42.4	67.9	156.3	239.9
Canonsburg Ambulance	4.2	46.6	35.0	18.8	47.5	116.9	105.7	70.1	144.3	249.3	119.7	185.9	228.0	73.4	43.1	61.7	150.1	239.6
Tri Community South	16.2	31.1	32.4	7.8	49.5	91.1	103.1	67.5	133.6	251.2	109.5	183.3	223.2	70.8	50.9	51.0	147.5	241.5
Baldwin EMS	21.5	26.4	27.5	3.1	39.4	88.3	98.2	62.6	130.8	248.4	102.8	178.4	218.3	65.9	50.9	48.2	142.6	238.7
Baldwin EMS	23.4	25.7	28.1	2.4	40.3	88.9	98.8	63.2	131.4	249.4	100.8	179.0	219.3	66.5	53.5	48.8	143.2	239.6
Guardian Angel Ambulance Service	23.5	25.7	27.8	2.4	40.4	88.7	98.6	62.9	131.2	253.0	100.5	178.8	222.9	66.3	53.3	48.6	143.0	243.3
Brooke Co. EMS (WV)	24.1	69.7	57.5	52.6	70.7	139.5	128.2	92.6	167.2	272.4	142.6	208.4	251.1	63.7	17.6	84.6	172.6	262.7
Medevac Ambulance Service	26.4	31.8	21.1	8.8	54.5	82.0	91.9	56.2	124.5	250.0	97.6	172.1	219.9	59.6	46.4	41.9	136.3	240.3
SouthEast EMS	27.1	30.8	33.8	6.8	33.3	94.6	104.5	68.9	137.1	242.4	111.9	184.7	212.3	72.3	57.2	54.6	148.9	232.6
Rostraver/West Newton EMS - 5	27.3	29.3	58.7	26.5	29.2	119.4	129.4	93.8	132.2	231.0	110.3	209.6	210.7	97.1	66.2	79.3	173.8	221.2
EMS Southwest	27.8	53.8	65.5	49.2	32.1	147.5	136.2	100.6	174.8	243.9	134.9	216.4	227.6	104.0	66.7	92.2	180.6	234.2
Rostraver/West Newton EMS - 4	28.1	22.7	63.5	19.9	20.2	112.8	117.6	82.0	125.6	234.2	103.7	197.8	204.1	101.2	67.1	72.7	162.0	224.5
Valley Ambulance Authority	28.2	49.5	17.1	25.2	72.2	99.1	87.9	52.2	157.1	267.7	115.2	168.1	237.6	51.6	39.8	53.3	132.3	258.0
Brentwood EMS	29.2	35.9	25.9	3.9	41.5	86.7	96.6	61.0	129.2	254.1	101.7	176.8	224.0	64.3	49.2	46.6	141.0	244.4
Munhall Area Prehospital Services	31.8	31.9	27.4	4.7	44.0	87.3	98.1	62.5	129.8	250.1	97.7	178.3	220.0	65.8	51.9	47.2	142.5	240.4
Rostraver/West Newton EMS - HQ	31.9	20.9	43.5	16.4	23.4	111.0	114.2	78.6	123.8	232.4	101.9	194.4	202.3	81.9	66.9	70.9	158.6	222.7
Hancock County EMS	32.0	67.2	47.8	42.9	79.5	129.8	118.6	83.0	157.5	285.4	133.0	198.8	255.3	52.5	13.1	74.9	163.0	275.7
Life Stat EMS	32.0	27.3	27.5	8.6	50.0	80.0	98.2	62.6	122.5	245.5	93.1	178.4	215.4	66.0	52.1	39.9	142.6	235.8
Fayette EMS	35.8	39.0	67.2	35.1	16.4	129.1	137.9	102.3	141.9	218.1	120.0	218.1	201.8	105.7	74.7	89.0	182.3	208.4
McCandless Franklin Park EMS	36.3	41.5	8.7	22.2	64.2	92.8	81.6	46.0	125.8	259.7	108.0	161.8	229.6	47.3	56.0	43.2	126.0	250.0
ASI (Ambulance Service, Inc.)	36.5	71.7	52.3	47.4	79.2	134.3	123.1	87.4	162.0	289.9	137.5	203.3	259.8	56.3	5.2	79.4	167.5	280.2
Economy Ambulance	36.6	55.5	11.3	32.2	78.3	94.4	83.1	47.5	152.4	273.8	121.3	163.3	243.7	42.2	45.1	60.7	127.5	264.0
Rostraver/West Newton EMS - 2	37.2	15.7	52.9	17.1	26.4	102.2	114.9	79.3	117.6	229.0	95.8	195.1	198.9	90.7	67.6	62.1	159.3	219.3
Martin Ferry EMS	38.4	82.2	72.0	66.7	83.2	153.9	142.7	107.1	181.6	284.9	157.1	222.9	263.6	76.7	27.3	99.1	187.1	275.2
Fayette EMS	39.0	35.2	70.4	38.3	10.6	125.3	141.1	105.5	138.1	210.6	116.3	221.3	194.2	108.8	77.9	85.2	185.5	200.9
McKeesport EMS	39.3	18.2	34.8	5.8	38.7	87.3	105.5	69.9	129.8	237.2	94.7	185.7	207.1	73.3	59.4	47.2	149.9	227.5
New Cumberland Area Amb	39.8	75.0	37.9	50.7	87.3	129.1	118.2	67.3	187.1	293.2	140.7	194.4	263.1	44.9	18.4	82.7	158.6	283.5
Fayette EMS	40.3	50.3	78.0	45.1	19.0	124.2	148.7	113.1	148.7	216.8	126.9	228.9	200.5	116.4	79.2	104.7	193.1	207.1
Cranberry EMS	40.5	49.4	2.0	31.8	72.1	80.1	68.9	33.3	138.2	267.6	115.9	149.1	237.5	40.8	60.1	39.0	113.3	257.9
Lower Valley	40.9	28.6	21.5	26.2	51.3	67.1	92.9	57.3	109.6	246.8	95.1	173.1	216.7	59.2	61.0	27.0	137.3	237.1

Appendix B Tables

Table 1: STAT MedEvac 2020 Completed Missions by Type

Mission Type	Number of Missions	Percent of Missions
Interfacility	9,065	80.6%
Scene	2,178	19.4%
Total	11,243	

Table 2: STAT MedEvac 2020 Missed Missions by Reason

Reason for Mission Miss	Number of Missed Missions	Percent of Missed Missions
Weather	4,150	74.5%
System Status	651	11.7%
Duty Time	287	5.2%
Referring Decision	250	4.5%
Administrative Decision	121	2.2%
Fuel / Other	55	1.0%
Mechanical	44	0.8%
Medical Decision	11	0.2%
Total Missed Missions	5,569	

Table 3: Ground Partner Program Related Incident Reports 2020

GPP Incident Category	Number of Incidents	Percent of GPP Incidents
Oxygen	7	39%
Vehicle Maintenance	5	28%
Unsuitable Vehicle	2	11%
Unsafe Vehicle Operations	2	11%
EMS Personnel Issue	5	28%

Table 4: STAT MedEvac 2020 Completed Missions by Mode of Transport

Mode of Transport	Number of Missions	Percent of Completed Missions
Air - Total	10,086	89.7%
Air - Interfacility	7,908	70.3%
Air - Scene	2,178	19.4%
Ground - Interfacility	1,157	10.3%
Total Completed Missions	11,243	

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