



Monroe Livingston Region Program Agency

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To: All EMS Agencies

From: Jeremy T. Cushman, MD, MS, EMT-P 
Regional Medical Director

Date: November 29, 2010

Re: Advisory 10-18: Regional Performance Measures

All of the agencies and providers within our EMS system strive to provide the best possible care for the patient. In the face of a myriad of challenges, our system must examine how we can meet the increasing demand for emergency medical services. This starts with our system identifying a common set of goals that ensure timely, high quality, evidence-based care for our patients. The attached document of MLREMS Performance Measures is the first step in that process.

The various different categories identify the performance indicator, its definition, its relation to system quality, and a performance goal. These measures are based upon as much evidence as there exists in prehospital medicine, as well as best practices identified in EMS systems with similar structure/volume/geography as ours. With specific regards to response time priority I anticipate a change in late 2011 or 2012 to include the addition of a non-emergency ALS response (Priority 3) along with continuing the non-emergency BLS response (Priority 4). These performance measures were developed with that priority response matrix in mind.

Let me be clear that although no individual agency is expected to meet these measures today, I hope that every agency looks to ways to meet these measures in the future. If we as a system wish to move forward, we must first identify the patient-centric values and goals that we want our system to meet, then over the coming years we use this as a touchstone within our Agency, Battalion, County, Region and Community to achieve them. Some of the items may not be within the scope or control of your agency, but it is our collective responsibility to assure that our **system** is able to meet these measures in the coming years.

These performance measures represent a living document which will require continued review and updating to identify additional means with which to measure and move our system forward. The performance measures as attached have been endorsed by the Monroe-Livingston EMS Council, the Monroe-Livingston REMAC, the Livingston County Board of Health, and the Monroe County EMS Advisory Board as each entity has a vested interest in helping our EMS agencies succeed in meeting their obligation to the community.

With any questions or suggestions for future performance measures, please do not hesitate to contact the Regional Program Agency.

Monroe-Livingston EMS System Performance Measures

Category	Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Performance Goal
Response Time Reliability	Call Processing Time	Time from 911 call intake (alarm) until unit notification including answering the phone, gathering vital information, and initiating a response by dispatching appropriate units (dispatch).	Communication and Dispatch component plays a major role in the efficiency and overall system deployment and response. Thus the communications component must be measured to assess the quality of its individual operations.	95% of calls processed in less than 90 seconds
	Turnout Time "Chute Time"	Time from response unit notification (dispatch) to vehicle wheels rolling toward the incident location. This includes personnel preparation for response, boarding the responding apparatus/vehicle, placing the apparatus/vehicle in gear for response, and wheels rolling toward the emergency scene.	The time from alert to wheels turning provides an indication of the state of readiness of personnel. Minimizing this time is crucial to an immediate response and minimizing response time.	When a resource is staffed, 90% of all Priority 1 and 2 calls turned out in less than 60 seconds.
	Response Time - Urban/Suburban	Time from response unit notification (dispatch) to the arrival of the vehicle on scene at an address/incident location in an urban/suburban environment. This does not include the time to access the patient.	This measurement is indicative of the system's capability to adequately staff, locate, and deploy response resources. It is also indicative of responding personnel's knowledge of the area or dispatcher instruction for efficient travel.	First responder with minimum of BLS capability is on scene 90% of the time in 5:00 for all emergent events (Delta or Echo) where first responder is dispatched
				ALS transport capable vehicle is on scene 90% of the time for Priority 1 calls in 10:00
				ALS transport capable vehicle is on scene 90% of the time for Priority 2 calls in 10:00
				ALS transport capable vehicle is on scene 90% of the time for Priority 3 calls in 15:00
	Response Time - Rural	Time from response unit notification (dispatch) to the arrival of the vehicle on scene at an address/incident location in a rural environment. This does not include the time to access the patient. Rural is defined by population density as determined by the respective County EMS Medical Director.	This measurement is indicative of the system's capability to adequately staff, locate, and deploy response resources. It is also indicative of responding personnel's knowledge of the area or dispatcher instruction for efficient travel.	BLS transport capable vehicle is on scene 90% of the time for Priority 4 calls in 25:00
				First responder with minimum of BLS capability is on scene 90% of the time in 8:00 for all emergent events where first responder is dispatched
				ALS transport capable vehicle is on scene 90% of the time for Priority 1 calls in 17:00
				ALS transport capable vehicle is on scene 90% of the time for Priority 2 calls in 17:00
	Back in Service Time "Drop Time"	Arrive at destination until Back in Service Time	The time required to transfer care is representative of the hospital system's ability to receive EMS patients and also of the agency's ability to turn around units for subsequent calls for service.	ALS transport capable vehicle is on scene 90% of the time for Priority 3 calls in 22:00
				BLS transport capable vehicle is on scene 90% of the time for Priority 4 calls in 32:00
	Call Coverage	Response units are staffed and equipped to respond immediately to a request for emergency medical assistance.	Public service agencies responsible for emergency response must adequately staff mobile units to respond for requests for service in their district in a timely manner.	90% of back in service times are within 30 minutes.
				95% of calls requesting service in the agency's district are covered by that agency or a formal agreement with an alternative agency(ies) to achieve the response time reliability expectations listed above.

Monroe-Livingston EMS System Performance Measures

Category	Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Performance Goal
Safety	Vehicle Failures	Number of Vehicle Failures while in Service.	The number of vehicle failures is directly related to the policies regarding the use of those vehicles and the preventive maintenance program in place at the agency. Vehicle failures have a direct impact on patient care and thus are indicators of quality within the EMS system.	0% of calls result in vehicle failure.
	Vehicle Crashes	Number of Vehicle Crashes while in Service.	The number of vehicle crashes is directly related to the policies regarding the use of those vehicles. Vehicle crashes have a direct impact on patient care and thus are indicators of quality within the EMS system.	0% of calls result in vehicle crash.
	Patient Care Equipment	Number and type of required EMS equipment missing from daily EMS Agency and State Regulatory Inspections.	The availability of required equipment on a vehicle is directly related to the policies regarding daily vehicle inspection and agency policy. Missing patient care equipment has a direct impact on patient care and thus are indicators of quality within the EMS system.	0% of calls have missing patient care equipment.
	Patient Care Device Failures	Number and type of patient care or medical device failures while in use.	The number of patient care device failures is directly related to the policies regarding the use of those devices and the preventive maintenance program in place at the agency. Device failures have a direct impact on patient care and thus are indicators of quality within the EMS system.	0% of calls result in patient care device failure.
	Employee Illness and Injury	Crew members becoming ill or injured as a result of participating in an EMS encounter including employee exposures requiring evaluation or medical follow-up (e.g., needle sticks, blood or body fluid exposure to broken skin or mucous membranes, infectious aerosol exposures in unmasked personnel, and inhaled or dermal hazardous material exposure requiring medical evaluation).	Engineering and procedural precautions against such crew member exposures are required by federal regulation. The health and safety of personnel is fundamental to the quality of an EMS system. Rescuers who become ill or injured cannot care for a member of the public.	0% of calls result in crew member illness, injury, or exposure.

Monroe-Livingston EMS System Performance Measures

Category	Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Performance Goal
Quality Assurance	Quality Program	The department operates a complete quality assurance program that includes retrospective chart review as well as direct field observation by a designated medical quality officer or medical director.	An established quality program is an indicator of the system's attention to quality. An established program indicates the agency's effort toward establishing and maintaining quality within the EMS system.	Agency has in place a written Quality Assurance Program that focuses on quality of care and can demonstrate its active use in improving patient care at the agency. 100% of patient contact PCRs are reviewed as part of the Quality Program.
	Patient Care Protocol Compliance	EMS personnel operated or performed patient care according to established protocol. Refer to Patient Care Measures Appendix.	Compliance with established patient care protocols is intuitively related to the quality of the care delivered in the EMS system. The quality of care then relates to the overall quality of the system.	100% patient care protocol compliance for non-specified events; Patient Care Measures Appendix may be used to define more specific protocol compliance.
	Vital Sign Documentation	Documentation of a minimum of one Systolic BP, Diastolic BP, Pulse, Respiratory Rate, Pulse Oximetry, Pain Score (if appropriate), and GCS (if injury).	A complete set of vital signs on every patient encounter represents an objective measure of patient assessment and is a measure of quality within the EMS system.	100% of patient contact PCRs include one complete set of vital signs documented.
	Systematic Users	Patients who request EMS response more than four times in a calendar month.	Repeat calls to a location may be indicative of at risk patients or opportunities for prevention and is a measure of the systems responsiveness to public health need.	100% of repeat call PCRs are reviewed for opportunities for prevention.
	Repeat Patients	Patients who request EMS response more than once in a 72-hour period.	Repeat calls within a short time period by a single individual may be indicative of high risk patients or inappropriate decisions to not transport.	100% of repeat call PCRs are reviewed for protocol and policy compliance.

Monroe-Livingston EMS System Performance Measures

Category	Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Performance Goal
Provider Proficiency	Skills Performed	Number of skills performed by each professional. Refer to Skill Matrix Appendix.	Regular and satisfactory skills performance, whether direct or simulated, is important in maintaining proficiency at all provider levels.	Agency should establish target and providers should meet 95% compliance.
	Skill Proficiency	Success rate of skills performed by each professional.	Skill proficiency is equally important to skill performance, and is indicative of additional required training (simulation, etc) to maintain such proficiency.	Agency should establish target and providers should meet 95% compliance.
	Patient Contact Numbers (Crew)	Number of PCR's where EMS personnel are listed as any crew member.	Patient contacts are vital to maintaining the cognitive and procedural skills of an EMS professional. Failure to meet established patient contact numbers should result in additional training (simulation, etc) to maintain those skills.	Agency should establish target and meet 100% compliance.
	Patient Contact Numbers (Primary Caregiver)	Number of PCR's where EMS personnel are listed as the Primary Caregiver.	The frequency of primary caregiver interactions is critical to assure the active practice of prehospital medicine through the assessment, management, and documentation of patient care. Failure to meet established patient contact numbers should result in additional training (simulation, etc) to maintain those skills.	Agency should establish target and meet 100% compliance.
Critical Patient Indicators	Defibrillation Availability	Defibrillator-trained emergency response personnel and a defibrillator is available for use from the time of 911 call receipt.	Early defibrillation is the Standard of Care for patients with cardiac arrest; therefore, defibrillation availability is indicative of EMS system quality.	50% of first shocks delivered in 5:00 or less from the time of 911 call receipt.
	CPR Interval	Time of 911 call receipt until initiation of chest compressions.	Measuring the interval from 911 activation to initiation of chest compressions is an indicator of community training in CPR.	90% of cardiac arrests receive CPR within 3:00 of call Intake.
	Scene Time	Time of patient contact to time of departure to hospital.	Minimizing scene time for critically ill patients is a measure of the crew's situational awareness and teamwork; risks of lights and sirens use must be balanced by risk to patient and responder.	Those patients requiring the use of Red Lights and Siren transport to the hospital are enroute to the appropriate facility within 10 minutes of the time of arrival exclusive of access/extrication delays; all use of lights and siren with a patient on board are reviewed by the agency Medical Director.

Monroe-Livingston EMS System

Skill Matrix Appendix

	Skill	Level
Airway	Oxygen Administration	BLS
	Assisted Ventilation	BLS
	Nasopharyngeal Airway	BLS
	Oropharyngeal Airway	BLS
	Orotracheal Intubation	ALS
	Alternative Airway Placement	ALS
	CPAP	ALS
	Tracheal Suctioning	ALS
	Rapid Sequence Intubation	ALS

Cardiac	AED Use	BLS
	Defibrillation	ALS
	Cardioversion	ALS
	Pacing	ALS

Procedures	Hemorrhage Control	BLS
	Obstetrical Deliveries	BLS
	Blood Glucose Determination	BLS
	Intravenous Catheter Placement	ALS
	Intraosseous Needle Placement	ALS
	Chest Decompression	ALS

Immobilization	Cervical Collar Placement	BLS
	Long Board Spinal Immobilization	BLS
	KED Immobilization	BLS
	Traction Splint Use	BLS
	Splint Use	BLS

	Skill	Level
Medication	Activated Charcoal	BLS
	Adenosine	ALS
	Albuterol	BLS
	Amiodarone	ALS
	Aspirin	BLS
	Atropen/Duodote	BLS
	Atropine	ALS
	Calcium Chloride	ALS
	Dextrose 25%	ALS
	Dextrose 50%	ALS
	Diphenhydramine	ALS
	Dopamine	ALS
	Epi-Pen	BLS
	Epinephrine 1:1000	ALS
	Epinephrine 1:10,000	ALS
	Etomidate (RSI Only)	ALS
	Glucagon	ALS
	Ipratropium	ALS
	Lidocaine	ALS
	Magnesium	ALS
	Metoprolol	ALS
	Midazolam	ALS
	Morphine	ALS
	Naloxone	ALS
	Nitroglycerin	ALS
	Oral Glucose	BLS
	Promethazine	ALS
	Sodium Bicarbonate	ALS
	Succinylcholine (RSI Only)	ALS
	Vasopressin	ALS
	Vecuronium (RSI Only)	ALS

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Monroe-Livingston EMS System Patient Care Measures Appendix

Clinical Area	Level	Measure	Compliance Target
Airway	ALS	Application of waveform capnography in patients with endotracheal tube or King Airway placement	100%
Asthma	BLS	Administration of albuterol in patients with wheezing suggestive of asthma	>90%
Immobilization	BLS	Determination of Pulses/Motor/Sensation prior to spinal immobilization	>95%
Immobilization	BLS	Determination of Pulses/Motor/Sensation following spinal immobilization	>95%
Immobilization	BLS	Determination of Pulses/Motor/Sensation prior to extremity immobilization	>95%
Immobilization	BLS	Determination of Pulses/Motor/Sensation following extremity immobilization	>95%
Pain	ALS	Administration of morphine for patients with pain >4/10	>80%
Pulmonary Edema	ALS	Application of CPAP in patients with Acute Pulmonary Edema	>90%
Pulmonary Edema	ALS	Administration of nitroglycerine in patients with Acute Pulmonary Edema and systolic BP >90 mmHg	>90%
Seizure	ALS	Determination of Blood Glucose in patients with complaint of Seizure	>90%
Seizure	ALS	Administration of midazolam in patients with active seizure activity on EMS arrival	>50%
STEMI	ALS	Performance of 12 lead EKG in patients with complaint of Chest Pain	>90%
STEMI	ALS	Performance of 12 lead EKG in patients with complaint of Chest Pain within 10 minutes of arrival	>75%
STEMI	ALS	Performance of 12 lead EKG in patients >40 years of age with complaint of Shortness of Breath	>75%
STEMI	BLS	Administration of aspirin in patient with complaint of Chest Pain of nontraumatic etiology	>95%
STEMI	ALS	Administration of nitroglycerine in patient with complaint of active Chest Pain of nontraumatic etiology	>80%
STEMI	ALS	Notification and transport to a STEMI facility when 12 lead indicates STEMI	>99%
Stroke	BLS	Determination of Cincinnati Stroke Scale in patients with complaint of Stroke	>95%
Syncope	ALS	Determination of Blood Glucose in patients with complaint of Syncope	>90%
Syncope	ALS	Performance of 12 lead EKG in patients with complaint of Syncope	>90%
Trauma	BLS	Destination is Regional Trauma center in adult patients meeting state Trauma Center Criteria	>90%
Trauma	BLS	Destination is Regional Trauma center in pediatric patients meeting state Trauma Center Criteria	>90%

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