Advisory 18-01 Updated RSI Policy, Regional Performance Measures, and Care Bundles

To: All EMS Agencies

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Regional Medical Director

Date: January 25, 2018

At their January 22nd meeting, the REMAC approved a number of items that update previous policies or actions. These are attached and updated on the MLREMS website and include the Rapid Sequence Intubation Program Policy, a revision to the Regional Performance Measures (replaces Advisory 10-18), and the addition of Prehospital Care Bundles as a resource for providers and agencies as they engage in performance improvement activities.

Specifically related to the Prehospital Care Bundles, these have been created to provide a simple framework to help EMS providers identify the most critical elements when caring for a patient. These bundles do not replace protocol, but are designed to assist quality assurance and performance evaluations as we work collectively to optimize the delivery of prehospital medicine. As the science and evidence changes, so will these care bundles and the Program Agency welcomes suggestions for change and requests for future Care Bundles focusing on specific areas of patient care.

With any questions, please do not hesitate to contact this office.

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RAPID SEQUENCE INDUCTION PROGRAM

PURPOSE

The Monroe-Livingston Region's Rapid Sequence Induction Program (RSI Program) provides advanced airway capabilities, specifically rapid sequence induction and intubation, to properly identified patients requiring such definitive airway management.

OVERVIEW

Rapid Sequence Induction has been used in the hospital setting for years to help provide the highest possible intubation success rate for patients undergoing emergent intubation. Its use in the Prehospital setting has been the subject of significant research and this program was established after a review of the medical literature and best practices existing in other parts of the country. The RSI Program exists to provide RSI services to Monroe and Livingston counties in a careful, safe, and controlled fashion. *It is important to recognize that the successful performance of an RSI procedure does not imply appropriateness of the procedure.*

AUTHORIZATION

The program is authorized by the Monroe-Livingston REMAC and overseen by the Regional EMS Medical Director. As such, the RSI Program is a regional program, not one implemented at the agency level. The Regional EMS Medical Director may designate additional physicians to supervise the implementation, quality assurance, and continuing education requirements for the RSI Program.

Individuals and agencies providing RSI do so as an added service under the oversight of the REMAC and the Regional EMS Medical Director. Failure to follow these regulations will lead to the penalties described in this policy including revocation of RSI credentials for the paramedic and/or the agency.

MEDICAL CARE

This policy does not define the manner in which the RSI procedure is performed. The "RSI Protocol" as defined in the most recent protocols, shall be the sole authority on how such a procedure is performed in the Prehospital setting. Both the RSI Protocol and RSI Policy and Procedure here are to be used ONLY by individuals currently credentialed as an RSI-Paramedic while working for an RSI authorized agency. They are not to be used for routine Advanced Life Support Care.

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CREDENTIALING REQUIREMENTS

RSI AGENCY

A RSI Agency is one that maintains the following:

1. Has unrestricted authorization from the New York State Department of Health and the Monroe-Livingston County REMAC to provide Advanced Life Support care.

2. Has unrestricted authorization from the New York State Department of Health and Bureau of Narcotics Enforcement to carry and administer controlled substances to patients.

3. Has agreed to abide by the RSI Protocol and the RSI Policies and Procedures approved by the Monroe-Livingston REMAC, including agreeing to provide the RSI Paramedic the proper medications and equipment as detailed in the protocol and following all QA requirements as detailed in this policy.

4. Has agreed to make RSI Paramedics available to all EMS agencies in the region when RSI skills may be required.

5. Has been approved by the Regional Medical Director to provide RSI.

RSI PARAMEDIC

A RSI Paramedic is an individual who is credentialed to provide RSI services to patients in the Monroe-Livingston EMS Region. RSI Agencies can and are encouraged to create their own clearance process for RSI Paramedics. However, no paramedics can provide RSI services at any agency if they are not credentialed at the regional level. To act as a RSI Paramedic, the individual must practice with an agency authorized to provide RSI care. *Thus, a RSI Paramedic practicing with an agency that does not provide RSI services cannot perform RSI on a patient.*

The RSI Paramedic or RSI Agency is responsible for any costs required for maintaining their credentialing.

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CREDENTIALING PROCESS

The following are required to be considered for practice as a RSI Paramedic:

1) A Paramedic who has maintained active NYS certification at the paramedic level for no less than two years.
2) A Paramedic must have maintained continuous practice in the MLREMS Region for the previous two years in advance of the testing date.
3) A Paramedic must average no less than 8 hours/week of direct patient care as the primary care giver. Supervisors or other providers with an average of less than 8 hours/week of direct patient care responsibilities are not eligible.
4) A Paramedic must be in good standing with the MLREMS Patient Safety Committee as well as the MLREMS Medical Director
5) A Paramedic has performed no less than 10 field intubations within the MLREMS region – procedures which are documented and may be verified prior to taking the written exam.

Providers meeting the above eligibility requirements may apply for RSI credentialing through the following steps:

1) A letter of recommendation from either the Agency ALS Chief or the Agency Medical Director must be submitted to the Division of Prehospital Medicine.
2) Documentation verifying 10 field intubations must be submitted by the applicant. Verification should consist of a list of agency e-PCR numbers signed by both the applicant and either the Agency ALS Chief or Agency Medical Director where the intubations were performed. Should the required intubations span multiple agencies, a list from each agency should be submitted following the above guidelines. The Division of Prehospital Medicine reserves the right to verify this information and any provider found to have knowingly submitted false results will be removed from the process and will not be eligible for further RSI credentialing.
3) A fee must be submitted prior to beginning the credentialing process.

The credentialing process is a competency based process consisting of a written exam, completion of physician guided didactic and skill sessions, and the successful completion of a high fidelity, physician evaluated RSI scenario. Successfully completion of all aspects of the process is required to be granted RSI credentials in the MLREMS Region. RSI credentials will remain in effect for a period of 4 years.

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MAINTENANCE OF CREDENTIALS

RSI Paramedics must meet all credentialing requirements at all times. It is the responsibility of the RSI Paramedic and the RSI Agency for whom they operate to report noncompliance with these criteria or clinical care concerns that could impact the provider's ability to provide RSI services. Failure to meet any of these criteria at any time immediately revokes the RSI Paramedic's credentials to provide RSI services to the community. This change must immediately (within one business day) be reported in writing to the RSI Agency ALS Chief, the Agency Medical Director, and the Regional EMS Medical Director.

RSI Paramedics will be continuously reviewed and may be suspended from the program at any time for not meeting the documentation, clinical, or procedural expectations of the Regional EMS Medical Director. Suspension of RSI privileges can be appealed to the Regional Patient Safety Committee. Reinstatement to the program will be considered on a case-by-case basis.

CONTINUING EDUCATION

Continuing education is a key component to the maintenance of RSI proficiency. It must include both practical and didactic education. Maintaining RSI credentialing is contingent on the attendance of at least one of the RSI continuing education classes annually. The RSI continuing education will be a combination of physician led classroom and kinesthetic sessions offered annually. Classes are planned to be offered in the Spring and Fall but are dependent on the availability of the physician instructors. The continuing education sessions are offered at no cost for RSI credentialed paramedics. Compliance with continuing education will be tracked by the Division of Prehospital Medicine.

RECERTIFICATION:

There are 3 options available for the RSI paramedic to maintain their credentials:

1) RSI credentials are not a requirement to practice as a paramedic in the MLREMS region, and the paramedic may choose not to reapply.
2) If the credentialed RSI paramedic has successfully completed four of the MLREMS based RSI continuing education sessions, they will not be required to retake the written exam, but will be required to resubmit the necessary letters of recommendation. Once the letters are reviewed, the applicant will be required to demonstrate competency by passing the simulation test after paying the appropriate testing fee.
3) If the credentialed RSI paramedic has not successfully completed four of the MLREMS based RSI continuing education sessions, they will be required to resubmit the necessary letters of

recommendation AND retake the written exam after paying the appropriate testing fee. Upon successful completion of the written exam, the applicant will be required to demonstrate competency by passing the simulation test after paying the appropriate testing fee.

RECIPROCITY:

For those providers that have RSI credentials from agencies in surrounding counties you may apply for reciprocity. If reciprocity is granted, you will have the written test requirement for credentialing waived. You will be strongly encouraged to take the didactic classes. You will be required to take the simulation test and pay the $50 fee. If reciprocity is not granted, you are still eligible for RSI privileges, but will be required to proceed through the standard credentialing process as stated above.

To apply for reciprocity, a letter of intent from the applicant as well as a letter of recommendation from either the Agency ALS Chief or the Agency Medical Director should be submitted to the Division of Prehospital Medicine.

OPERATIONS

Requesting RSI Paramedic Assistance

Any level provider may request assistance from a RSI Paramedic via their agency dispatch or via the Monroe or Livingston County 911 Center. All dispatch centers should establish a protocol to identify and send the nearest RSI Paramedic in a safe and efficient manner.

Actions on Arrival

All RSI Paramedics should thoroughly evaluate the setting and patient upon arrival at the patient's side. He/she must consider all issues as detailed in the RSI Protocol.

Considerations of note include:

1. Consideration of BLS and ALS airway options – The RSI Paramedic must evaluate and ensure that all BLS airway options and ALS airway options have been considered. These considerations must be documented on the PCR.

2. Proximity to the hospital ED – If avoidable, transport to the ED should not be significantly delayed to RSI the patient with the understanding that a compromised airway is immediately life threatening and must be managed in a timely fashion.

3. Indications have been met and contraindications have been excluded.

4. Anticipated difficulty of RSI – the need for RSI in patients expected to be very difficult intubations should receive particular consideration.

5. Medical control authorization as appropriate – on-line medical control exists to assist the RSI paramedic in determining the best options for the patient.

If the patient is not felt to need RSI, the RSI Paramedic must transport with the patient to monitor for further deterioration of the patient's respiratory status.

After-Call Actions

After-call actions include a combination of detailed documentation and verbal debriefing with a designated physician. The intent of this process is to ensure that quality patient care is delivered, any RSI Paramedic issues are immediately noted, and detailed, clinical information is obtained. As detailed below, some debriefing will occur immediately after care is provided, while other debriefing will occur when possible after care is provided.

1. Patients Receiving RSI.

After completing the RSI, whether the procedure is successful or not, and transferring care to the ED, the RSI Paramedic is responsible for the following:

a. PCR – A thorough and complete PCR must be completed immediately. The PCR must include the reasoning behind performing the RSI, response to the BLS and ALS airway options, and medical control authorization as appropriate.

b. RSI Quality Assurance Form – The Monroe-Livingston Region RSI QA Data Form must be completed and submitted with a copy of the PCR to the Regional EMS Medical Director within two business days for RSI agencies not using emsCharts. For agencies using emsCharts, agencies shall participate in the QA process by utilizing a quality

assurance research module designed specifically for the RSI program. For agencies using emsCharts, completion of a separate Quality Assurance form will not be required.

c. Debriefing – After transfer of care, the On-Call EMS Medical Director must be paged via either the agency dispatcher or the 911 Dispatch Center. A debriefing will be immediately performed by the available medical director.

2. Patients for whom RSI was not performed.

In some cases, either the RSI Paramedic or Medical Control will decide that RSI was not indicated. In the event that this occurs, the RSI Paramedic is responsible for the following:

a. PCR – A thorough and complete PCR must be completed immediately. The PCR must include the reasoning behind not performing the RSI, response to the BLS and ALS airway options, and medical control discussion (if applicable).

b. RSI Quality Assurance Form – The Monroe-Livingston Region RSI QA Data Form must be completed and submitted with a copy of the PCR to the Regional EMS Medical Director within two business days for RSI Agencies not using emsCharts. For agencies using emsCharts, agencies shall participate in the QA process by utilizing a quality assurance research module designed specifically for the RSI program. For agencies using emsCharts, completion of a separate Quality Assurance form will not be required.

c. Should the RSI Paramedic wish to discuss the call, they can contact the On-Call EMS Medical Director through the appropriate communication center. Although mandatory post-call debriefing is not required, the medical directors would be happy to discuss any RSI situation with the involved paramedics as they see fit.

QUALITY ASSURANCE

The Monroe-Livingston Regional RSI Quality Assurance Program includes immediate debriefing of the RSI Paramedic with an On-Call EMS Medical Director after successful or unsuccessful RSI. It further includes reporting and debriefing of requests for RSI in which an RSI was not performed. A detailed Quality Improvement Tool (the Monroe-Livingston Region RSI QA Data Form or emsCharts Research Module) is to be completed by a RSI Paramedic immediately after the transfer of patient care, and is to be included with a copy of the PCR to the Regional EMS Medical Director.

The Regional EMS Medical Director will review all calls in which both successful and unsuccessful RSI's were performed, as well as all calls where a RSI Paramedic was requested but the patient did not meet RSI criteria. The Regional EMS Medical Director will advise the REMAC Patient Safety Committee of any patient care concerns or trends observed system-wide that may benefit by additional training or modification to existing medical care protocol.

The Regional EMS Medical Director has the responsibility and authority to advise the REMAC Patient Safety Committee of any RSI paramedic that should be restricted from participating in the RSI program. Furthermore, the On-Call Medical Director that debriefs the RSI Paramedic at the time of the procedure has the authority to immediately suspend an individual's RSI privileges should it be required. Doing so requires immediate notification of the Regional EMS Medical Director, Agency Medical Director, and Agency Operations Director, as well as written documentation submitted to the Regional Program Agency for distribution to the above parties within three business days.

Changes to this policy and the RSI Protocol will be done in accordance with the available literature, best standards and intensive continuing review of all RSI procedures performed in the Monroe-Livingston region.

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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.	99% of emergency calls processed in less than 120 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.	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 12:00 ALS transport capable vehicle is on scene 90% of the time for Priority 3 calls in 17:00 BLS transport capable vehicle is on scene 90% of the time for Priority 4 calls in 25:00 Note: There may be a subset of Prioty 4 calls in which delayed response (>25 minutes) is clinically appropriate based upon available resources.
	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.	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 19:00 ALS transport capable vehicle is on scene 90% of the time for Priority 3 calls in 24:00 BLS transport capable vehicle is on scene 90% of the time for Priority 4 calls in 32:00 Note: There may be a subset of Prioty 4 calls in which delayed response (>32 minutes) is clinically appropriate based upon available resources.
	Patient Transfer Time "Drop Time"	Arrive at destination until Care Transferred Time	The time required to transfer care is representative of the hospital system's ability to receive EMS patients.	90% of patient transfer times are within 15 minutes.

Category	Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Performance Goal
	Back in Service Time "Turn Around Time"	Arrive at destination until Back in Service Time	The time required to transfer care and of the agency's ability to turn around units for subsequent calls for service.	90% of back in service times are within 25 minutes.
	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.	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.

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.

Category	Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Performance Goal
Quality Assurance	**Quality Program**	The department operates a 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	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.
	Patient Care Protocol Compliance	EMS personnel operated or performed patient care according to established protocol.	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.
	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.

Category	Indicator	Definition of Indicator	Rationale Relating Measure to System Quality	Performance Goal
Provider Proficiency	**Skills Performed**	Number of skills performed by each professional.	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 (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. Faiure 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.
	Emergent Transports	Transport of a patient using red lights and siren.	Using an emergent transport mode places the patient, care providers, and the public at risk. The use of red lights and siren should be utilized only for clinical conditions that warrant such risk.	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 arriving on scene exclusive of access/extrication delays; all use of lights and siren with a patient on board are reviewed by the agency Medical Director.

Prehospital Care Bundles

The MLREMS Prehospital Care Bundles have been created to provide a simple framework to help EMS providers identify the most critical elements when caring for a patient. These bundles do not replace protocol, but are designed to assist quality assurance and performance evaluations as we work collectively to optimize the delivery of prehospital medicine. As the science and evidence changes, so will these care bundles.

The New York State Collaborative Protocols and the MLREMS Care Bundles are intended to improve patient care by prehospital providers. They reflect current evidence and the consensus of content matter experts. The Collaborative Protocols and the MLREMS Care Bundles are intended to provide principles and direction for the management of patients that are sufficiently flexible to accommodate the complexity of care in the prehospital environment. No Protocol or Care Bundle can be written to cover every situation that a provider may encounter, nor are they substitutes for the judgement and experience of the provider. Providers are expected to utilize their best clinical judgement to deliver care and procedures according to what is reasonable and prudent for specific situations. However, it is expected that any deviations from protocol shall be documented along with the rationale for such deviation.

NO PROTOCOL OR CARE BUNDLE IS A SUBSTITUTE FOR SOUND CLINICAL JUDGEMENT.

Acute Coronary Syndrome Care Bundle

Acute Coronary Syndrome Bundle

Metric	Goal
At Patient to EKG Time	10 minutes or less
ASA 324 mg chewed by mouth	At any time
Serial EKG(s)	Serial 12-lead EMS EKG(s)

STEMI Bundle

Metric	Goal
At Patient to EKG Time	10 minutes or less
Prehospital Notification	Within 5 minutes of STEMI identification
ASA 324 mg chewed by mouth	At any time
On Scene Time	10 minutes or less
Serial EKG(s)	Serial 12-lead EMS EKG(s)
Defib Pads	Applied to patients with identified STEMI

Theory/Evidence

At Patient to EKG Time

- Early field identification of an acute coronary syndrome should prompt EMS providers to obtain an EKG as soon as possible to identify a time-critical condition (STEMI).

Prehospital Notification

- Receiving STEMI center notification within 5 minutes of STEMI identification provides early activation of the cardiac catheterization lab and mobilizes essential hospital resources prior to the arrival of the patient.

Aspirin (ASA) 324 mg chewed by mouth

- Aspirin confers a reduction in mortality from acute coronary syndrome. Aspirin should be administered as soon as feasible but should not take precedent over expedient identification, prehospital notification, and initiating transport in the setting of a STEMI. If aspirin is contraindicated, documentation should indicate why.

On Scene Time

- Patients with a STEMI should be expediently moved to a STEMI center with a goal on scene time of less than 10 minutes.

Serial EKG(s)

- For all patients with a potential acute coronary syndrome, serial EMS EKG(s) are a best practice to evaluate for evidence of evolving ischemia.

Defib Pads

- Patients experiencing a STEMI may be at high risk for dysrhythmia. Place pacing patches if the patient has transient wide complex tachycardia, hemodynamic instability, bradycardia < 50.

Anaphylaxis Care Bundle

Anaphylaxis

Metric	Goal
Early Identification	Within 1 minute of patient contact
Epinephrine Administration	IM administration of 1mg/1ml epinephrine within 1 minute of identification
Nebulized Bronchodilator Administration	Administered if wheezing/respiratory involvement
Large Bore Vascular Access	2 Large Bore (14 or 16 gauge preferred) IV's
Antihistamine Administration	Per protocol, as soon as feasible after epinephrine
Glucocorticoid Administration	Per protocol, as soon as feasible after epinephrine
Fluid Resuscitation	Fluid resuscitation given to maintain MAP >65 mmHg

Theory/Evidence

Early Identification

- Early identification, based on history and physical examination, of patients with anaphylaxis is critical to facilitate life-saving treatments.

Epinephrine Administration

- Epinephrine is the single most important intervention in treating anaphylaxis. In the setting of anaphylaxis there is no contraindication to administering 1 mg/1 ml epinephrine intramuscularly per protocol. Epinephrine counteracts the vasodilation and bronchoconstriction associated with anaphylactic shock, and reduces mortality.

Nebulized Bronchodilator Administration

- If wheezing, the bronchodilatory properties of albuterol and anticholinergic effects of ipratropium reduce bronchoconstriction and inflammatory processes present in anaphylaxis.

Large Bore Vascular Access

- Establishing large bore vascular access in a patient with anaphylaxis allows for efficient and rapid fluid resuscitation.

Antihistamine Administration

- Reduces the intensity of anaphylactic symptoms by reversing the effects of histamine on capillaries and should be administered after epinephrine.

Glucocorticoid Administration (Dexamethasone)

- May reduce the recurrence of secondary anaphylactic reactions in patients with anaphylaxis and should be administered after epinephrine.

Fluid Resuscitation

- Early and aggressive fluid resuscitation in patients with suspected distributive shock due to anaphylaxis reduces morbidity and mortality.

Congestive Heart Failure Exacerbation

Care Bundle

Congestive Heart Failure Exacerbation

Metric	Goal
Patient Positioning	Sit the patient upright
Supplemental Oxygen	Administered per protocol
Aggressive Nitroglycerin	Administered per protocol
Capnography	Prehospital respiratory rate and $EtCO_2$ monitoring
EKG	12-lead EKG obtained

Congestive Heart Failure: Severe Exacerbation

Metric	Goal
Patient Positioning	Sit the patient upright
CPAP	Administered per protocol
Aggressive Nitroglycerin	Administered per protocol
Capnography	Prehospital respiratory rate and $EtCO_2$ monitoring
EKG	12-lead EKG obtained

Theory/Evidence

Patient Positioning

- Sitting the patient upright allows for the most efficacious oxygenation.

Supplemental Oxygen/CPAP

- Supplemental oxygen in a congestive heart failure exacerbation should be provided to the patient per protocol to maintain an oxygen saturation of > 92%. In the setting of severe exacerbation, CPAP is used to increase intrathoracic pressure and drive pulmonary edema from the lungs.

Aggressive Nitroglycerin

- Will reduce the left ventricular filling pressures through vasodilatory mechanisms. Will also lower systemic vascular resistance in hopes of increasing cardiac stroke volume and cardiac output.

Capnography

- Monitoring airway, ventilation, and oxygenation is a best practice in any patient with an active CHF exacerbation.

EKG

- Cardiac ischemia or infarction is a leading cause of congestive heart failure and subsequent exacerbation.

Cerebrovascular Accident Care Bundle

Cerebrovascular Accident

Metric	Goal
Early Identification	Within 5 minutes of patient contact
Cincinnati Stroke Scale	Obtained during initial assessment and documented
Time Last Known Well	Obtained and documented; green stroke sticker applied
On Scene Time	10 minutes or less
Prehospital Notification	Within 5 minutes of identification
Blood Glucose	Obtained and documented
Surrogate Contact Information	Obtained and documented; green stroke sticker applied

Theory/Evidence

Early Identification

- Early identification of patients with suspected stroke is critical to facilitate focused evaluation and minimizing on scene time.

Cincinnati Stroke Scale

- The Cincinnati Stroke Scale is expected to be performed and documented when assessing for evidence of a stroke. A positive scale is constituted by one or more positive finding(s): pronator drift, facial droop, or slurred speech.

Time Last Known Well

- The most critical piece of information that determines a stroke patient's eligibility for treatment is the time last known well. This time must be clearly communicated upon transfer of care and documented in the medical record. The green stroke sticker aids in communicating this information to hospital providers.

On Scene Time

- Patients with a stroke should be expediently moved to a stroke center with a goal on scene time of less than 10 minutes.

Prehospital Notification

- Prehospital notification should be completed on all patients with a last known well time of <6 hours and mobilizes essential hospital resources prior to the arrival of the patient.

Blood Glucose

- A blood glucose should be performed on all potential stroke patients to exclude symptomatic hypoglycemia as an etiology of the patient's presentation. Determination of blood glucose should not significantly delay scene time.

Surrogate Contact Information

- A piece of critical information for the treatment team is having reliable contact information for a surrogate (witness) to help make treatment determinations. The green stroke sticker aids in communicating this information to hospital providers.

Pain Management Care Bundle

Pain Management

Metric	Goal
Initial pain score	Obtain and document initial pain score
Non-pharmacological pain management	Perform and document interventions (positioning, heat/ice applied, splinting, etc.) before providing pharmacologic analgesia
Reassessment of pain scale	Reassess and document pain scale after performing non-pharmacological interventions
Pharmacological pain management	Consider if pain remains > 4 or there is a < 3 point reduction in pain after non-pharmacological interventions
Reassessment of pain scale	Reassess and document pain scale after performing pharmacological interventions
Reassessment	Reassess and document non-pharmacological and pharmacological interventions and intervene or re-dose

Theory/Evidence

Initial Pain Score

- Obtain and document an initial quantitative pain score to guide appropriate interventions for pain management.

Non-Pharmacological Pain Management

- Patient positioning, applying ice/heat, splinting, and therapeutic communication are first line interventions for management of acute pain and should precede the administration of any prehospital medications for pain.

Reassessment of Pain Scale

- Should be completed after intervening with non-pharmacological measures. Adequate analgesia is achieved after a 3 point reduction in pain (on a 10 point scale) or a pain score of 4 or less is achieved.

Pharmacological Pain Management

- May be considered to control acute pain in the setting of ineffective nonpharmacological interventions.

Reassessment

- Should be completed after non-pharmacological and pharmacological interventions to evaluate the need for additional interventions or re-dosing of medications.

Post-Intubation Management Care Bundle

Post-Intubation Management

Metric	Goal
Elevate Head of Bed	Head of bed at 30 degrees
Capnography	Monitoring and ventilation with $EtCO_2$ target of 35-45 mmHg
Analgesia	Administered if required per protocol
Sedation	Administered if required per protocol
Orogastric Tube	Placed unless contraindicated

Theory/Evidence

Elevate Head of Bed

- In the absence of the need for spinal motion restriction, an intubated patient should have the head of the bed elevated to 30 degrees. This position will prevent the risk of aspiration, and in cases of suspected intracranial hemorrhage, will help manage intracranial pressure.

Capnography

- Applied to the endotracheal tube to confirm correct placement; ventilating to a target of 35-45 mmHg to ensure adequate ventilation and reduce risk of hyperventilation.

Analgesia

- If evidence of pain or discomfort, analgesia should be the first line intervention, re-dosed per protocol, and continually reassessed to ensure adequate analgesia.

Sedation

- If evidence of inadequate analgesia despite proper dosing, and if evidence of movement or ventilator dyssynchrony that impedes effective ventilation, sedation should be administered, re-dosed per protocol, and continually reassessed to optimize ventilation.

Orogastric Tube

- Placed to provide gastric decompression, enhance lung compliance, and decrease the risk of aspiration pneumonia provided there are no contraindications.

Seizure

Care Bundle

Seizure

Metric	Goal
Safe space	Ensure a safe environment for any patient with active convulsions
Benzodiazepine Administration	Administer midazolam within 2 minutes of identification
Capnography	Prehospital respiratory rate and $EtCO_2$ monitoring
Blood Glucose	Obtained and documented
Temperature	Document tactile or measured temperature

Theory/Evidence

Safe Space

- Creating a safe space for any patient with active convulsions prevents further injury to the patient.

Benzodiazepine Administration

- Intramuscular administration of a benzodiazepine (midazolam) is a priority in any patient with active convulsions and is the most effective route of administration. Subsequent doses may be administered via intravenous route; however, IM provides for the fastest time to drug effect.

Capnography

- Monitoring airway, ventilation, and oxygenation is a best practice in any patient with active convulsions. This monitoring is also best practice in any post-ictal patient that has not yet returned to their baseline mental status.

Blood Glucose

- Should be checked to treat for hypoglycemia, a reversible cause of seizure. Administration of benzodiazepines takes priority and blood glucose determination should be made after the first dose of benzodiazepine administration.

Temperature

- Febrile seizures are the most common cause of seizure in the pediatric population and any patient who is (or was) actively convulsing should have a documented temperature whether it be measured by a device, or ascertained by palpating the skin.

Systemic Infection Care Bundle

Systemic Infection Bundle

Metric	Goal
Early Identification	Within 5 minutes of patient contact
Capnography	Prehospital respiratory rate and $EtCO_2$ monitoring
Temperature	Document tactile or measured temperature
Large Bore Vascular Access	2 Large Bore (14 or 16 gauge preferred) IV's
Fluid Resuscitation	Initiation of crystalloid fluid resuscitation

Theory/Evidence

Early Identification

- Early identification and subsequent management of patients with suspected sepsis or septic shock reduces morbidity and mortality.

Capnography

- Tachypnea is the earliest vital sign indicative of critical illness and an $EtCO_2$ of <25 mmHg correlates with serum lactic acidosis which provides evidence of sepis.

Temperature

- Patients with evidence of systemic infectious illness should have a documented temperature whether it be measured by a device, or ascertained by palpating the skin.

Large Bore IV Access

- Establishing large bore (14 or 16 gauge) IV's allows for the most efficient fluid resuscitation in patients with suspected sepsis or septic shock.

Fluid Resuscitation

- Early and aggressive fluid resuscitation in patients with suspected sepsis or septic shock reduces morbidity and mortality.

Major Trauma

Care Bundle

Major Trauma

Metric	Goal
On Scene Time	10 minutes or less
Prehospital Notification	Within 5 minutes of identification
Spinal Motion Restriction	Performed when indicated
Large Bore Vascular Access	2 Large Bore (14 or 16 gauge preferred) IVs
Fluid Resuscitation	Fluid resuscitation given to maintain MAP >65 mmHg
Temperature Management	Maintain normal body temperature

Theory/Evidence

On Scene Time

- Patients with major trauma should be expediently moved to a Level 1 Trauma Center for definitive surgical evaluation and management with a goal on scene time of less than 10 minutes. In cases of extrication, the on scene time goal should be less than 10 minutes from the time of a successful patient extrication.

Prehospital Notification

- Receiving trauma center notification within 5 minutes of identifying a patient with major trauma provides early activation of trauma teams and mobilizes essential hospital resources prior to the arrival of the patient.

Spinal Motion Restriction

- Spinal motion restriction should be performed when indicated and documented when not. In the setting of major trauma, long back boards may be indicated to provide spinal motion restriction and limit on scene time.

Large Bore Vascular Access

- Establishing large bore vascular access in a trauma patient allows for efficient and rapid fluid resuscitation.

Fluid Resuscitation

- Fluid resuscitation is indicated only in patients with hypotension. Aggressive fluid resuscitation should be given to maintain a MAP >65 mmHg.

Temperature Management

- Victims of trauma rapidly lose body heat, which leads to hypothermia, coagulopathy, and increased mortality. Active and passive warming measures are indicated in all cases of major trauma to maintain body temperature.