

SARASOTA COUNTY EMERGENCY MEDICAL SERVICES



COMMUNITY PROTOCOLS 2017

Steven R. Newman, MD, FACEP
Medical Director

CERTIFICATION

This is to certify that these protocols have been written by and are approved by the Medical Director of Sarasota County Emergency Medical Services for use by Englewood Fire Department, Longboat Key Fire Rescue, North Port Fire Rescue, Sarasota-Bradenton Airport Fire Department and Sarasota County Fire Department.

The protocols contained herein permit specified emergency procedures pursuant to Chapter 64J, Rules of the Department of Health, in lieu of a direct order issued by a Supervising Physician. These protocols are effective on January 1, 2017.

Signed this First day of January, 2017
Sarasota County, Florida

Steven R. Newman, M.D., F.A.C.E.P.
Medical Director
Sarasota County Emergency Medical Services

DISCLAIMER

Persons other than employees, officers or agents of Englewood Fire Department, Longboat Key Fire Rescue, North Port Fire Rescue, Sarasota-Bradenton Airport Fire Department and Sarasota County Fire Department accessing this information assume full responsibility for the use of this material and understand and agree that all parties named herein and the Medical Director of Sarasota County Emergency Medical Services are not responsible for any claim, loss or damage arising from the use of this material.

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Sarasota County EMS

A BRIEF HISTORY OF SARASOTA COUNTY EMS

*"We ourselves feel that what we are doing is just a drop in the ocean.
But the ocean would be less because of that missing drop."*

Mother Teresa

In 1966, the National Academy of Sciences and the American Medical Association published a paper named *Accidental Death and Disability: The Neglected Disease of Modern Society*. Shortly thereafter, the National Highway Traffic Safety Act (Public Law 89-654) was passed. This federal act provided funding for the purchase of ambulances, communication equipment and training of Paramedics and emergency medical technicians.

The first "ambulances" in Sarasota County were actually hearses operated by Hawkins Funeral Home, still located at 135 North Lime Avenue in Sarasota. In the early 1960s, South Trail Fire Control District acquired two Cadillac station wagons that were used as ambulances. Fire Chief Jim Sorenson and Firefighter Marshall Dubois of South Trail collaborated with E.M.R., a company in Sarasota that made "black boxes" for aircraft, and came up with what is probably the first "biocom" in the country. The biocom was capable of transmitting EKG rhythm strips to hospitals. The transmission was of extremely poor quality and the devices were monstrous, heavy things. Florida EMS got a boost when Dr. Huntley became the Director of the Florida Department of Health. He was a proponent of the M.A.S.H. approach utilized in the Korean War for wounded soldiers. He promoted EMS to the Florida Medical Association and the Florida Legislature.

The 1970 television program *Emergency* (Paramedics Johnny Gage and Roy DeSoto, Nurse Dixie McCall, Dr. Kelly Brackett) piqued public interest in EMS. In 1973, the Emergency Medical Services Systems Act (Public Law 93-154) became federal law. This law mandated the formation of local advisory councils to coordinate training and certification of EMS personnel and apply for federal funding for development of EMS systems. Dr. Henry Morton was director of the Sarasota County Health Department, and he assigned his inspector, Mr. Jack Poto, to serve on the local advisory council.

Jack found kindred spirits in Dr. Linda Schlembrecht, a young emergency physician at Sarasota Memorial Hospital (trained in pediatrics) and Chief Harold Stinchcomb, City of Sarasota Fire Department. These three intrepid individuals organized an advisory council, and started pushing the County Board of Commissioners for EMS in Sarasota County. About this time, the Paramedic and EMT training program was developed at Sarasota County Vocational-Technical Institute ("Vo-Tech"). Some of the first graduates of that program are in leadership positions with our Sarasota County EMS Providers today. Federal grants funded the development of communication systems between hospitals and field personnel. Second generation biocoms were only slightly

Sarasota County EMS

A BRIEF HISTORY OF SARASOTA COUNTY EMS

smaller than the originals. They were huge orange boxes that were connected to the patient by cables to allow single-lead rhythm strips to be transmitted to hospitals. Paramedics required an order from the supervising physician to deliver a shock, depending on the rhythm they transmitted.

In 1969, Dr. Linda Schlembrecht was appointed the first Medical Director of Sarasota County EMS. She received no compensation for her four-year tenure, and not much appreciation for her years of lobbying for EMS prior to accepting the position. Dr. Jack Moore, also an SMH emergency physician, was appointed Medical Director in 1973. The County paid Dr. Moore a small stipend to serve as Medical Director of the various local fire departments and Vo-Tech until succeeded by Dr. Steven Newman in 1984. Seven local fire departments operated ambulances, namely, City of Sarasota Fire Department, North Port Fire Rescue District, Longboat Key Fire Department, Northeast Fire Department, Fruitville Fire Department, South Trail Fire Control District and South County Ambulance Service District.

Until 1984, only two hospitals in Sarasota County accepted ambulance patients, Sarasota Memorial Hospital and Venice Hospital. Doctors Hospital and Englewood Community Hospital later opened to ambulance traffic. The Sarasota County Board of Commissioners provided medical direction for the system by interlocal agreement. System-wide protocols were written by the Medical Director and periodically updated. Chapter 10D-66 was the Florida Administrative Code back then, later replaced by the current Chapter 64J.

Through the process of consolidation, the modern version of Sarasota County Emergency Services now consists of Englewood Fire Department, Longboat Key Fire Rescue, North Port Fire Rescue, Sarasota-Bradenton Airport Fire Department and Sarasota County Fire Department. In 1992, Vo-Tech was renamed Sarasota County Technical Institute, and distinguished itself by being awarded one of the first AMA certificates in Florida. SCTI was renamed Suncoast Technical College in 2014. The current Sarasota County EMS Executive Council is a descendant of the original advisory council. Among the organizations represented on the Executive Council are each of the five EMS Providers, STC, the Florida Department of Health – Sarasota County and each Sarasota County Resource Hospital.

Our EMS system has been the beneficiary of tremendous support from the community and from our County and municipal governing boards. Our training, vehicles and technology have evolved tremendously. What has not changed, however, is the dedication to excellence and selfless service to the community by the men and women of the departments that comprise our system. May these *Protocols* serve as a vehicle to deliver high quality and compassionate medical care to our friends, neighbors and families.

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INTRODUCTION

Although there is no statutory requirement to do so, Sarasota County EMS revises its *Community Protocols* approximately every two years. My opinion is that the most effective way to revise protocols is to involve the EMS personnel who actually use them. The members of the *2017 Interagency Protocol Review Committee* worked tirelessly on behalf of their respective agencies. I challenged them to bring forth ideas that would simplify the protocols and make them more intuitive. We also insisted that suggestions be evidence-based, that is, supported by the medical literature. I think you will agree that they are shorter, simpler and will better serve you as you care for our patients.

The *2017 Community Protocols* reflect 2015 AHA recommendations. Since the *Protocol Review Committee* received positive feedback on the format of the *2015 Protocols*, that remains unchanged in the 2017 version. Juxtaposition of adult and pediatric protocols and clear-cut graphics delineating the responsibilities of EMTs and paramedics have been left the same. You will notice that the *Appendix* has been eliminated, with job aids incorporated into their respective protocols. You will also note that pre-approved substitute drugs have been eliminated. If they are needed, your employer will provide in-service training at that time.

The job is only half-done when the revised *Protocols* have been published. We will leave plenty of time for in-service training and testing. The *Sarasota County EMS 2017 Policy and Procedure Manual* and the *2017 Protocol Handbook* are, as always, fair game for testing. Just as with previous protocol rollouts, we will be making visits to each of the eleven Sarasota County EMS Resource Hospitals to introduce them to staff.

We have decided to implement cardiac and stroke protocols by September 1, 2016. The entire *2017* will become effective January 1, 2017. Since the AHA made its recommendations in 2015, medics taking ACLS have been in-serviced in the new protocols. Recent stroke studies published in the medical literature prompted us to accelerate release of the new stroke protocol. Therefore, we feel that it is prudent to implement portions of the *Community Protocols* this fall.

My hope is that these *Protocols* will allow you to take the best possible care of your patients. Allow your skills, knowledge and compassion to be brought to bear on every run. Be fulfilled as a professional rescuer. Stay safe, and remember that your actions and behavior reflect on the professionalism of the entire Sarasota County EMS system. I hope that these *Protocols* bring out the best in you, regardless of the clinical outcome.

Living The Dream,

Steven R. Newman, M.D., F.A.C.E.P.
Medical Director, Sarasota County EMS

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ACKNOWLEDGEMENT

Sarasota County EMS owes a debt of gratitude to the *2017 Interagency Protocol Review Committee*. Thank you for your steadfast attention to detail and your willingness to share your clinical and administrative expertise.

The work on the *2017 Sarasota County EMS Community Protocols* and *Policy and Procedure Manual* will translate directly into the best possible care for our families and neighbors in Sarasota County. The willingness of departments in our system to partner and collaborate is what makes Sarasota County EMS special.

2017 Interagency Protocol Review Committee

Mark Johnson, MD, FACEP, Associate Medical Director
Barbara O'Connor, RN, MBA, EMS Quality/Wellness Coordinator

Longboat Key Fire Rescue

FF/PM Jeff Bullock
FF/PM Jay Gosnell
Deputy Chief Chris Krajic

North Port Fire Rescue

FF/PM Josh Clements
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Division Chief Karl Bennett

Sarasota County Fire Department

FF/PM Steven Lambright
FF/PM Christopher Nixon
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SECTION 1

GENERAL ORDERS

Sarasota County EMS

GENERAL ORDERS

Protocol 1.1

GENERAL ORDERS – ADULT

- ❑ The Paramedic/EMT will at all times conduct himself/herself in accordance with the standards established by Chapter 401 of the Florida Statutes and by rules promulgated by the Department of Health, Bureau of Emergency Medical Services pursuant thereto.
- ❑ Each Paramedic/EMT will at all times insure that his/her vehicle is equipped in compliance with standards outlined in the rules of the Department of Health, Bureau of Emergency Medical Services.
- ❑ The Paramedic/EMT will initiate prompt treatment of any sick or injured person at the scene of a medical emergency in accordance with rules of the Department of Health, Bureau of Emergency Medical Services.
- ❑ It is the responsibility of each Paramedic/EMT to study and understand the *Community Protocols*, *Treatment Protocol Handbook* and the *Policy and Procedure Manual*, and to adhere to the protocols and policies contained in these documents.
- ❑ The Medical Director hereby designates the emergency department staff physicians of hospitals in Sarasota, Manatee and Charlotte Counties (hereinafter referred to as Resource Hospitals) as Supervising Physicians. On-line control for Sarasota County EMS shall be the responsibility of the Supervising Physician.
- ❑ Orders issued by the Supervising Physician shall have priority over orders issued by an On-scene Physician. Should the On-scene Physician wish to assume control of a particular case, permission shall be obtained from the Supervising Physician (refer to *Policy and Procedure Manual*).
- ❑ It is the prerogative of the Supervising Physician to modify the treatment of a patient from that described in the *Protocols* if the best interest of the patient is thereby served. Such modification of treatment shall be based upon sound medical judgment and shall be in accordance with the current standard of practice in prehospital care.
- ❑ Unless specifically contraindicated in this document, the *American Heart Association Guidelines for CPR and ECC* shall be considered the standard of care for Sarasota County EMS.

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GENERAL ORDERS

Protocol 1.1

- ❑ Valid consent shall be obtained from each patient as permitted by the clinical situation. Consent may be verbal, written, or implied (as in incapacitated and minor patients). Refer to *Policy and Procedure Manual*.
- ❑ Parental consent notwithstanding, emergency medical care to minors may be rendered in the prehospital setting by EMS personnel in accordance with Chapter 401, Florida Statutes. The minor may be released only to a parent, legal guardian, school board representative, law enforcement officer or Supervising Physician.
- ❑ Communications between EMS and hospital personnel shall be conducted according to the *Policy and Procedure Manual*. If technical problems prevent communication, the Paramedic is authorized to proceed with appropriate protocols in lieu of on-line medical direction.
- ❑ Upon arrival at the scene of a sick or injured person, a patient assessment should be performed and care shall be initiated based upon appropriate protocols. The Paramedic/EMT shall follow the protocol until (1) the patient is stabilized, or (2) medical direction is needed to guide patient care or (3) the protocol ends or (4) the care of a patient is transferred to another provider. It may be appropriate to switch protocols during the course of patient care.
- ❑ Each patient shall be assessed in accordance with *Protocol 1.3 Optimized Patient Assessment*. It is understood that (a) nature of call (b) stability/instability of patient (c) necessity to perform stabilizing procedures and (d) available personnel resources will determine the extent to which patient assessment is conducted. If patient assessment is significantly abbreviated, the reason(s) for such shall be documented in the narrative.
- ❑ Under ordinary circumstances, intravenous medications are to be delivered through a flowing IV line rather than a prn adapter.
- ❑ Upon hospital arrival, the Paramedic/EMT shall insure that all pertinent reports and materials required by rules of the Department of Health, Bureau of Emergency Medical Services are properly transferred to hospital staff. Any material left at the hospital must be clearly labeled with the patient's name. If patient belongings are left with emergency department staff, the name of the staff member receiving such belongings shall be documented in the narrative.
- ❑ Resource Hospital destination shall be chosen according to the *Policy and Procedure Manual*.

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GENERAL ORDERS

Protocol 1.1

- ❑ Emergency medical technicians shall confine their clinical activities to the scope of practice detailed in Chapter 64J, F.A.C. The procedures an EMT is qualified to perform are defined in the U.S. D.O.T. EMT Basic Ambulance National Standard Curriculum. An EMT may not perform ALS procedures under any circumstances.
- ❑ Paramedics shall confine their clinical activities to the scope of practice detailed in Chapter 64J, F.A.C. The procedures a Paramedic is qualified to perform are defined in the U.S. D.O.T. National Training Course EMT-Paramedic Curriculum.

GENERAL ORDERS – PEDIATRIC

- ❑ A pediatric patient is defined as an infant or child \leq 36 kg estimated body weight. A pediatric measuring device will be used in the care of pediatric patients. The latest edition of the Broselow Tape™ (distributed by Armstrong Medical Industries, Inc.) or the Handtevy™ System are hereby approved by the Medical Director.
- ❑ Unless otherwise indicated, all *General Orders – Adult* listed previously in this *Protocol* shall also apply to pediatric patients.
- ❑ Drug dosages, fluid volumes, defibrillator settings and tube/catheter sizes shall be as listed either the Broselow Tape™ or the Handtevy™ System.

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DETERMINATION OF STABILITY/INSTABILITY

Protocol 1.2

NOTES:	
<p><i>This definition of stability/instability will be used throughout all Sarasota County EMS documents (Community Protocols, Hazardous Materials Community Protocols, Protocol Handbook and Policy and Procedure Manual). Ultimately, the stability/instability of the patient must be the determination of the Charge Paramedic. The following parameters might suggest instability, but is within the prerogative of the Charge Paramedic to make a determination. One or more out-of-range vital signs do not automatically mean a patient is unstable.</i></p>	
DEFINITION:	
ADULT	PEDIATRIC
<p>A stable adult patient has <i>reasonably</i> normal vital signs, no <i>significant</i> cardiovascular parameters, no <i>significant</i> respiratory parameters and no <i>significant</i> neurological parameters.</p> <p>An unstable adult patient has <i>significant abnormalities</i> of one or more vital signs, cardiovascular parameters, respiratory parameters or neurological parameters.</p>	<p>A stable pediatric patient has <i>reasonably</i> normal vital signs, no <i>significant</i> cardiovascular parameters, no <i>significant</i> respiratory parameters, and no <i>significant</i> neurological parameters.</p> <p>An unstable pediatric patient has <i>significant abnormalities</i> of one or more vital signs, cardiovascular parameters, respiratory parameters or neurological parameters.</p>
ADULT	PEDIATRIC
<p><u>Vital Signs</u></p> <ol style="list-style-type: none"> Hypotension, defined as systolic BP < 90 mmHg. Pulse < 60 or > 100 beats per minute. Respirations < 12 or > 24 breaths per minute. Temperature < 94°F or > 104°F. SatHb < 80%. ETCO₂ < 35 or > 45 mmHg. <p><u>Cardiovascular Parameters</u></p> <ol style="list-style-type: none"> Significant, severe chest pain, accompanied by EKG evidence of ischemia or STEMI, and/or signs and symptoms of catecholamine release such as pallor, diaphoresis, incontinence. Signs and symptoms of shock. 	<p><u>Vital Signs</u></p> <ol style="list-style-type: none"> Abnormal Respirations (see table). Abnormal Pulse (see table). Abnormal Blood Pressure (see table). Temperature < 94°F or > 104°F. SatHb < 80%. ETCO₂ < 35 or > 45 mmHg. <p><u>Cardiovascular Parameters</u></p> <ol style="list-style-type: none"> Significant cardiac dysrhythmia. Signs and symptoms of shock. History of congenital abnormalities.

Sarasota County EMS

DETERMINATION OF STABILITY/INSTABILITY

Protocol 1.2

ADULT	PEDIATRIC
<p><u>Respiratory Parameters</u></p> <ol style="list-style-type: none"> Significant respiratory distress. Abnormal/decreased lung sounds. <p><u>Neurological Parameters</u></p> <ol style="list-style-type: none"> Active seizures. Acute alteration of level of consciousness (unresponsive, agitated). Acute lateralizing or focal neurologic deficits (paresis, paralysis). 	<p><u>Respiratory Parameters</u></p> <ol style="list-style-type: none"> Significant respiratory distress. Abnormal/decreased lung sounds. <p><u>Neurological Parameters</u></p> <ol style="list-style-type: none"> Active or new onset seizures. Acute age-related alteration of level of consciousness. Acute lateralizing or focal neurologic deficits (paresis, paralysis).

NOTES:

VITAL SIGNS TABLE			
AGE	HEART RATE (beats/min)	BLOOD PRESSURE (mm Hg)	RESPIRATORY RATE (breaths/min)
0-3 months	100-150 *	65-85 / 45-55	35-55
3-6 months	90-120	70-90 / 50-65	30-45
6-12 months	80-120	80-100 / 55-65	25-40
1-3 years	70-110	90-105 / 55-70	20-30
3-6 years	65-110	95-110 / 60-75	20-25
6-12 years	60-95	100-120 / 60/75	14-22
> 12 years	55-85	110-135 / 65/85	12-18

REFERENCE:
Kleigman, R.M., et al. Nelson Textbook of Pediatrics. 19th ed. Philadelphia: Saunders, 2011.

A	lert	Normal for age	T	one	Muscle tone good
V	erbal	Responds to name	I	nteractiveness	Reacts to environment
P	ainful	Withdraws from pain	C	onsolability	Able to be consoled
U	nresponsive	No response to stimuli	L	ook	Gaze focuses on face
			S	peech or cry	Correct speech or strong cry

Sarasota County EMS

OPTIMIZED PATIENT ASSESSMENT

Protocol 1.3

EMT	
PARAMEDIC	
<u>Body Substance Isolation</u>	
<u>Scene Size-Up</u>	
<ul style="list-style-type: none"> • Scene Safety • Mechanism of Injury/Nature of Illness • Total Number & Location of Patients • Request Additional Assistance/Resources 	
ADULT	PEDIATRIC
<u>Initial Assessment</u> <ul style="list-style-type: none"> • General Impression • Identify Life Threats • Airway/Breathing <ul style="list-style-type: none"> ○ Lung Sounds ○ Ventilation (Work/Effectiveness) ○ Supplemental Oxygen • Circulation • Skin (Color, Temperature, Condition) • Pulse (Carotid, Brachial, Radial, Femoral) • Blood Pressure • Control Major Bleeding • Disability • Neurological (GCS, Pupillary Response) • Movement of Extremities • Exposure & Examination • Spinal Motion Restriction • Determine Transport Priority <u>Focused History and Physical Exam</u> <ul style="list-style-type: none"> • Chief Complaint • History of Present Illness • Obtain SAMPLE History • Obtain Pain Assessment (OPQRST) • Vital Signs <ul style="list-style-type: none"> ○ Level of Consciousness ○ Pulse ○ Respiratory Rate ○ Blood Pressure ○ Pulse Oximetry (SatHb) ○ Capnography (ETCO₂) • Blood Glucose • Head-to-Toe Examination 	<u>Initial Assessment</u> <ul style="list-style-type: none"> • Appearance <ul style="list-style-type: none"> ○ AVPU ○ TICLS • Work of Breathing <ul style="list-style-type: none"> ○ Tachypnea ○ Grunting/Wheezing ○ Retractions ○ Tripod Position ○ Needing Supplemental Oxygen • Circulation to Skin <ul style="list-style-type: none"> ○ Pallor ○ Mottling ○ Cyanosis ○ Control Major Bleeding • Exposure & Examination • Spinal Motion Restriction • Determine Transport Priority <u>Focused History and Physical Exam</u> <ul style="list-style-type: none"> • Chief Complaint • History of Present Illness • Obtain SAMPLE History • Obtain Pain Assessment (OPQRST) • Vital Signs <ul style="list-style-type: none"> ○ Level of Consciousness ○ Pulse ○ Respiratory Rate ○ Blood Pressure (If Appropriate) ○ Pulse Oximetry (SatHb) ○ Capnography (ETCO₂) • Blood Glucose • Toe-to-Head Examination



Sarasota County EMS

OPTIMIZED PATIENT ASSESSMENT

Protocol 1.3

<p><u>Field Impression</u></p> <ul style="list-style-type: none">• Treatment Plan/Interventions<ul style="list-style-type: none">○ Follow Appropriate Protocol(s)• Determine STEMI or Stoke Alert Status• Update Transport Priority <p><u>Primary Trauma Assessment</u></p> <ul style="list-style-type: none">• Treat Life-Threatening Injuries<ul style="list-style-type: none">○ Tension Pneumothorax○ Penetrating Chest Injury○ Major Bleeding○ Compromised Airway• Determine Trauma Alert Status <p><u>Secondary Trauma Assessment</u></p> <ul style="list-style-type: none">• Monitor Airway Status• Monitor and Record Vital Signs<ul style="list-style-type: none">○ Stable Patient Every 15 Minutes○ Unstable Patient Every 5 Minutes• Repeat Blood Glucose• Repeat EKG• Determine Need for OLMC	<p><u>Field Impression</u></p> <ul style="list-style-type: none">• Treatment Plan/Interventions<ul style="list-style-type: none">○ Follow Appropriate Protocol(s)• Update Transport Priority <p><u>Primary Trauma Assessment</u></p> <ul style="list-style-type: none">• Treat Life-Threatening Injuries<ul style="list-style-type: none">○ Tension Pneumothorax○ Penetrating Chest Injury○ Major Bleeding○ Compromised Airway• Determine Trauma Alert Status <p><u>Secondary Trauma Assessment</u></p> <ul style="list-style-type: none">• Monitor Airway Status• Monitor and Record Vital Signs<ul style="list-style-type: none">○ Stable Patient Every 15 Minutes○ Unstable Patient Every 5 Minutes• Repeat Blood Glucose• Repeat EKG• Determine Need for OLMC
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NOTES:

This protocol is the format for optimized patient assessment by Sarasota County EMS. It is recognized that constraints such as patient number and acuity, availability of personnel and necessity for on-scene stabilizing measures may prevent optimized assessment. Should your assessment be significantly abbreviated for these (or any other reasons), clarify this in the narrative of your PCR.

SECTION 2

EMERGENCY CARDIAC

CARE / STROKE

PROTOCOLS

Sarasota County EMS

CARDIOPULMONARY RESUSCITATION

Protocol 2.1

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> ▪ Relieve bystanders providing CPR, or coach their performance. ▪ Check Circulation/Airway/Breathing. ▪ Deploy an AED (if available) <i>per AED Protocol</i> and follow manufacturer's instructions. ▪ Provide 100 - 120 compressions per minute. ▪ Provide 10 ventilations per minute ▪ Interrupt CPR a maximum of 10 seconds if absolutely necessary. ▪ Periodically reassess the effectiveness of resuscitative measures. ▪ Notify responding ALS units that CPR is in progress. 	
PARAMEDIC	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> • If arrest witnessed by EMS personnel and monitor-defibrillator/AED immediately available, determine rhythm and deliver shock if indicated. • If arrest unwitnessed by EMS personnel and/or monitor-defibrillator/AED not immediately available, perform 2 minutes of CPR. • Establish advanced airway at earliest opportunity. • Check rhythm every 2 minutes. • Determine cardiac rhythm and proceed to appropriate protocol. • Employ the <i>Code Summary</i> feature of the monitor/defibrillator to document: <ul style="list-style-type: none"> ○ Initial rhythm ○ Rhythm changes ○ Defibrillation/Cardioversion ○ Medications ○ SatHb ○ ETCO₂ (waveform <i>and</i> digital) • Establish vascular access. • Flush IV set with 0.9% NS 20 ml after each medication administration. • After advanced airway established, give continuous chest compressions. • Insert a nasogastric tube in intubated patients with abdominal distention. • During CPR, consider reversible/correctable causes: <ul style="list-style-type: none"> ○ Hypoglycemia ○ Hypothermia ○ Hypovolemia ○ Hypoxia ○ Hydrogen Ion (acidosis) ○ Tension pneumothorax ○ Toxins 	

NOTES:
<p><i>Under ordinary circumstances, resuscitation of a patient in cardiac arrest should continue on scene until deemed futile or ROSC occurs.</i></p>

Sarasota County EMS

RETURN OF SPONTANEOUS CIRCULATION (ROSC)

Protocol 2.2

PARAMEDIC
ADULT
<ul style="list-style-type: none">• Advanced airway/ventilation management as needed.<ul style="list-style-type: none">○ Maintain SatHb \geq 94% if possible.○ Avoid hyperventilation.• Obtain and record vital signs, including SatHb and ETCO₂.• Establish and/or maintain vascular access.• Treat hypotension (SBP <90 mm Hg).• Record 12-lead EKG.

Sarasota County EMS

INITIATION-DISCONTINUATION OF CPR

Protocol 2.3

Who Should Receive CPR?

- Initiate CPR on all patients in cardiac arrest, with the following *exceptions*:
 - Resuscitation would place the rescue team at risk; and/or
 - Signs of obvious death are present, including but not limited to, rigor mortis, dependent lividity or mortal wound; and/or
 - The patient has sustained a cardiac arrest unwitnessed by anyone, and now exhibits asystole or PEA; and/or
 - No shock from an AED was delivered prior to EMS arrival; and/or
 - The rescuer is presented with what he/she believes to be a valid DNRO.

When CPR Should Be Discontinued:

- CPR should be discontinued when *any* of the following criteria apply:
 - The patient remains in cardiac arrest despite aggressive airway management.
 - The patient remains in cardiac arrest despite aggressive ALS interventions.
 - An ETCO₂ of > 10 mmHg is not obtained after 20 minutes of CPR.
 - The decision is made with a Supervising Physician to discontinue CPR.

Sarasota County EMS

VENTRICULAR FIBRILLATION / PULSELESS V-TACH

Protocol 2.4

PARAMEDIC	
<ul style="list-style-type: none"> • Advanced airway/ventilation management as needed. • Determine rhythm and initiate cardiac monitoring. • Monitor and record SatHb and ETCO₂. • Establish vascular access. • Check pulses every 2 minutes. 	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> ▪ If arrest witnessed by EMS personnel and monitor-defibrillator/AED immediately available, determine rhythm and deliver shock if indicated. If arrest not witnessed by EMS personnel and/or monitor-defibrillator/AED not immediately available, perform 2 minutes of CPR. ▪ Determine cardiac rhythm and initiate monitoring. ▪ Monitor and record SatHb and ETCO₂. ▪ Defibrillate at 200 J. ▪ Immediately provide 2 minutes of CPR. ▪ Check rhythm. Defibrillate at 300 J. ▪ Administer epinephrine 1:10,000 1 mg IV/IO bolus ▪ Check rhythm. ▪ Defibrillate at 360 J. ▪ Amiodarone 300 mg IV/IO bolus. ▪ Defibrillate at 360 J. ▪ Administer epinephrine 1:10,000 1 mg IV/IO bolus ▪ Defibrillate at 360 J. ▪ Administer amiodarone 150 mg IV/IO bolus. ▪ Defibrillate at 360 J. ▪ Administer epinephrine 1:10,000 1 mg IV/IO bolus, and repeat every 3-5 minutes. 	<ul style="list-style-type: none"> ▪ If arrest witnessed by EMS personnel and monitor-defibrillator/AED immediately available, determine rhythm and deliver shock if indicated. If arrest not witnessed by EMS personnel and/or monitor-defibrillator/AED not immediately available, perform 2 minutes of CPR. ▪ Determine cardiac rhythm and initiate monitoring. ▪ Monitor and record SatHb and ETCO₂. ▪ Defibrillate. ▪ Provide 2 minutes of CPR between each defibrillation attempt. ▪ Defibrillate. ▪ Epinephrine 1:10,000 0.01 mg/kg IV/IO bolus. ▪ Defibrillate. ▪ Amiodarone 5 mg/kg IV/IO bolus. (Maximum dose 15 mg/kg). ▪ Defibrillate. ▪ Epinephrine 1:10,000 0.01 mg/kg IV/IO bolus. ▪ Defibrillate. ▪ Amiodarone 5 mg/kg IV/IO bolus. (Maximum dose 15 mg/kg). ▪ Defibrillate. ▪ Repeat epinephrine every 3-5 minutes.

Sarasota County EMS

ASYSTOLE/PULSELESS ELECTRICAL ACTIVITY (PEA)

Protocol 2.5

PARAMEDIC	
<ul style="list-style-type: none">Advanced airway/ventilation management as needed.Determine rhythm and initiate cardiac monitoring.Monitor and record SatHb and ETCO₂.Establish vascular access.	
ADULT	PEDIATRIC
<ul style="list-style-type: none">Administer epinephrine 1:10,000 1 mg IV/IO bolus, and repeat every 3-5 minutes.	<ul style="list-style-type: none">Epinephrine 1:10,000 0.01 mg/kg IV/IO bolus and repeat every 3-5 minutes.

REVERSIBLE CAUSES
<ul style="list-style-type: none"><i>Hypoglycemia</i><i>Hypothermia</i><i>Hypovolemia</i><i>Hypoxia</i><i>Hydrogen Ion (acidosis)</i><i>Tension pneumothorax</i><i>Toxins</i>

Sarasota County EMS

SYMPTOMATIC BRADYCARDIA

Protocol 2.6

ADULT	PEDIATRIC
<p><i>For purposes of this protocol, symptomatic bradycardia is defined as bradycardia with instability as per protocol 1.2 Determination of Stability/Instability.</i></p>	<p><i>Pediatric symptomatic bradycardia is defined by the AHA Guidelines as bradycardia causing cardiorespiratory compromise. Such patients have a slow pulse associated with poor perfusion, and/or hypotension and/or respiratory distress.</i></p>
PARAMEDIC	
<ul style="list-style-type: none"> • Advanced airway/ventilation management as needed. • Determine rhythm and initiate cardiac monitoring. • Monitor and record SatHb and ETCO₂. • Establish vascular access. • Record 12-Lead EKG. 	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> • For Mobitz type II second degree AV block or third degree (complete) AV block <i>apply pacing patches</i> whether or not pacing is actually initiated. <ul style="list-style-type: none"> ○ Initiate pacing for symptomatic bradycardia due to Mobitz type II second degree AV block or third degree (complete) AV block. ○ Hydromorphone 0.5-2 mg IV/IO bolus prn discomfort associated with pacing. • For symptomatic bradycardia due to other dysrhythmias: <ul style="list-style-type: none"> ○ Atropine 0.5 mg IV/IO every 3-5 minutes prn (maximum dose 3 mg). • For symptomatic bradycardia due to other dysrhythmias associated with hypotension: <ul style="list-style-type: none"> ○ Dopamine infusion at 5 mcg/kg/min IV/IO titrated to SBP > 90 mmHg and pulse of ≥ 60 bpm. 	<ul style="list-style-type: none"> • If heart rate remains < 60/bpm despite oxygenation and ventilation, perform chest compressions. • Epinephrine 1:10,000 0.01 mg/kg IV/IO bolus, and repeat every 3-5 minutes. • Atropine 0.02 mg/kg IV/IO bolus, and repeat every 3-5 minutes (maximum cumulative dose 1 mg).

Sarasota County EMS

SYMPTOMATIC BRADYCARDIA

Protocol 2.6

NOTES:

VITAL SIGNS TABLE			
AGE	HEART RATE (beats/min)	BLOOD PRESSURE (mm Hg)	RESPIRATORY RATE (breaths/min)
0-3 months	100-150 * _	65-85 / 45-55	35-55
3-6 months	90-120	70-90 / 50-65	30-45
6-12 months	80-120	80-100 / 55-65	25-40
1-3 years	70-110	90-105 / 55-70	20-30
3-6 years	65-110	95-110 / 60-75	20-25
6-12 years	60-95	100-120 / 60/75	14-22
> 12 years	55-85	110-135 / 65/85	12-18

REFERENCE:

Kleigman, R.M., et al. Nelson Textbook of Pediatrics. 19th ed. Philadelphia: Saunders, 2011.

Sarasota County EMS

BROAD COMPLEX TACHYCARDIA

Protocol 2.7

PARAMEDIC	
<ul style="list-style-type: none">Advanced airway/ventilation management as needed.Determine rhythm and initiate cardiac monitoring.Monitor and record SatHb and ETCO₂.Establish vascular access.Record 12-lead EKG.	
ADULT	PEDIATRIC
<p>Stable</p> <ul style="list-style-type: none">Amiodarone 150 mg slow IV/IO bolus over 10 minutes.Repeat amiodarone 150 mg slow IV/IO bolus over 10 minutes prn.If the patient is successfully converted at any point after the administration of amiodarone, administer amiodarone infusion 1 mg/minute. <p>Unstable</p> <ul style="list-style-type: none">Administer etomidate up to 0.3 mg/kg IV/IO bolus, titrated to voice unresponsiveness (maximum dose 30 mg).Synchronized cardioversion at 100 J. Repeat synchronized cardioversion at 200-300-360 J if necessary.If patient is successfully cardioverted, administer amiodarone 150 mg slow IV/IO bolus over 10 minutesFollowing the amiodarone bolus, infuse amiodarone 1 mg/minute	<p>Stable</p> <ul style="list-style-type: none">Amiodarone 5 mg/kg slow IV/IO bolus over 10 minutes. Repeat twice prn. (Maximum total dose 15 mg/kg or 450 mg). <p>Unstable</p> <ul style="list-style-type: none">Administer etomidate up to 0.3 mg/kg IV/IO bolus titrated to voice unresponsiveness (maximum dose 10.8 mg).Perform first synchronized cardioversion at 0.5 J/kg.Repeat synchronized cardioversion at 1 – 2 – 2 J/kg.

Sarasota County EMS

PAROXYSMAL SUPRAVENTRICULAR TACHYCARDIA (PSVT)

Protocol 2.8

PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilation management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.• Record 12-lead EKG.• If patient is hypotensive, administer fluid bolus of 20 ml/kg 0.9% NS.• Employ carotid massage in absence of carotid bruit.	
ADULT	PEDIATRIC
<ul style="list-style-type: none">• Adenosine 6 mg rapid IV bolus followed by 20 ml NS flush.• If no response within 1-2 minutes, adenosine 12 mg rapid IV bolus.• If you feel cardioversion is indicated, contact medical control. If you are advised to proceed with cardioversion:<ul style="list-style-type: none">○ Administer etomidate, up to 0.3 mg/kg IV/IO bolus titrated to voice unresponsiveness (maximum dose 30 mg).○ Synchronized cardioversion at 100 J. Repeat at 200-300-360 J if necessary.	<ul style="list-style-type: none">• Adenosine 0.1 mg/kg rapid IV bolus followed by 20 ml NS flush.• If no response within 1-2 minutes, administer adenosine 0.2 mg/kg rapid IV bolus.• If you feel cardioversion is indicated, contact medical control. If you are advised to proceed with cardioversion:<ul style="list-style-type: none">○ Administer etomidate up to 0.3 mg/kg IV/IO bolus titrated to voice unresponsiveness (maximum dose 10.8 mg).• Perform first synchronized cardioversion at 0.5 J/kg.• Repeat synchronized cardioversion at 1 – 2 – 2 J/kg.

NOTES:

*If atrial fibrillation/flutter is identified following the administration of **adenosine**, give **diltiazem** per Atrial Fibrillation/Flutter Protocol.*

***Adenosine** should be administered through a relatively large-bore IV catheter into a high-capacity vein if possible. Use an 18-16 gauge catheter in the antecubital fossa in adults. For children, use the largest IV catheter size possible depending on the size and configuration of veins in the antecubital fossa.*

Sarasota County EMS

ATRIAL FIBRILLATION/ATRIAL FLUTTER

Protocol 2.9

PARAMEDIC

- Advanced airway/ventilation management as needed.
- Determine rhythm and initiate cardiac monitoring.
- Monitor and record SatHb and ETCO₂.
- Establish vascular access.
- Record 12-Lead EKG.

ADULT

- If patient is hypotensive, administer **0.9% NS** 20 ml/kg (maximum 2 liters) IV/IO bolus; repeat once prn.
- If the *sustained ventricular response to atrial fibrillation/flutter* is > 120/bpm, administer **diltiazem** 0.25 mg/kg slow IV bolus over a minimum of 2 minutes.
 - If after 10 minutes the *ventricular response to atrial fibrillation/flutter* does not drop to < 120/bpm, repeat **diltiazem** 0.35 mg/kg slow IV bolus over 2 minutes.
- If you feel cardioversion is indicated, contact medical control. If you are advised to proceed with cardioversion:
 - Administer **etomidate**, up to 0.3 mg/kg IV/IO bolus titrated to voice unresponsiveness (maximum dose 30 mg).
 - Synchronized cardioversion at 100 J. Repeat at 200-300-360 J if necessary

NOTES:

In atrial fibrillation and atrial flutter with variable A:V block, the heart rate will be irregular. This protocol calls for pharmacological treatment if the sustained ventricular response is > 120 beats per minute.

It may be obvious that the sustained ventricular response is > 120 bpm. If you are unsure, perform a one-minute pulse check. In atrial fibrillation, some ventricular contractions may not be strong enough to produce a peripheral pulse. This is called pulse deficit. In this case, you may need to obtain a one-minute apical pulse rate with a stethoscope.

ACUTE CORONARY SYNDROME

Protocol 2.10

PARAMEDIC

- Advanced airway/ventilation management as needed.
- Determine rhythm and initiate cardiac monitoring.
- Monitor and record SatHb and ETCO₂.
- Establish vascular access.
- Record 12-Lead EKG.

ADULT

- Administer **nitroglycerin** if SBP > 90 mmHg by either/or a combination of:
 - **Nitroglycerin** 0.4 mg SL. Repeat q 5 min prn.
 - **Nitroglycerin** infusion starting at 5 mcg/minute and titrated to desired effect in increments of 5 mcg/minute.
- **Aspirin** 324 mg PO (= 4 baby aspirin) chewed and swallowed.
- Administer **Hydromorphone** 0.5-2 mg IV/IO/IM in increments of 0.5 mg.
- If the patient demonstrates signs and symptoms consistent with ACS and the EKG demonstrates > 1mm ST segment elevation in at least 2 (two) **related** leads in one of the groups below (except posterior MI, where only V4R may be positive):

Area of MI:	Lead for ST Elevation:
Anterior	V1, V2, V3, V4
Inferior	II, III, aVF
Lateral	I, aVL, V5, V6
Septal	I, aVL, V1, V2
Right Ventricle	V4R
Posterior	V8, V9

- Issue a “**STEMI Alert**” as soon as practical and document the time in the PCR.
- Rapid transport to an appropriate Resource Hospital.

Sarasota County EMS

ACUTE CORONARY SYNDROME

Protocol 2.10

NOTES:

Nitroglycerin contraindicated for 48 hours after drugs for erectile dysfunction, unless otherwise approved by Supervising Physician.

2015 AHA guidelines, supplemental oxygen in patients with ACS is not indicated unless the patient is dyspneic or has a SatHb of <94%. Nevertheless, Sarasota County EMS Community Protocols require supplemental oxygen on all patients with suspected ACS.

Thirty to fifty percent of patients with acute inferior wall myocardial infarction (IWMI) may also have right ventricular infarction (RVI), since both areas of the heart are supplied by the right coronary artery (RCA).

EMS Providers performing 15-lead EKG tracing may diagnose RVI in the field. The American Heart Association urges caution in the administration of **NTG** to patients with RVI, as significant preload reduction may occur with this agent. Reduced right heart return may interfere with cardiac output and perfusion of the coronary arteries during diastole.

Therefore, **NTG** should be administered judiciously in IWMI when a 15-lead EKG is not being performed. If a 15-lead EKG is performed and shows RVI, NTG is contraindicated.

If you have an IV infusion pump available and your hospital ETA is > 15 minutes, administer **nitroglycerin** intravenously. Otherwise, use SL **nitroglycerin**.

Sarasota County EMS

CONGESTIVE HEART FAILURE (PULMONARY EDEMA)

Protocol 2.11

PARAMEDIC

- Advanced airway/ventilation management as needed.
- Determine rhythm and initiate cardiac monitoring.
- Monitor and record SatHb and ETCO₂.
- Establish vascular access.
- Record 12-Lead EKG.

ADULT

- Consider **CPAP** per *Airway Management Protocol* at 10 cm H₂O.
- Administer **nitroglycerin** if SBP > 90 mmHg by either/or a combination of:
 - **Nitroglycerin** 0.4 mg SL. Repeat q 5 min prn.
 - **Nitroglycerin** infusion starting at 5 mcg/minute and titrated to desired effect.
- **Furosemide** 1 mg/kg IV/IO (maximum dose 100 mg).

NOTES:

*If you have an IV infusion pump available and your hospital ETA is > 15 minutes, administer **nitroglycerin** intravenously. Otherwise, use SL **nitroglycerin**.*

Sarasota County EMS

STROKE

Protocol 2.12

EMT
<ul style="list-style-type: none"> ▪ Secure airway. ▪ Administer supplemental oxygen if SatHb < 94%. Avoid hyperventilation. ▪ Monitor and record vital signs. ▪ Record blood glucose.
PARAMEDIC
ADULT
<ul style="list-style-type: none"> • Advanced airway/ventilatory management as needed. <ul style="list-style-type: none"> ○ If intubated, maintain ETCO₂ 35-40. • Determine rhythm and initiate cardiac monitoring. • Monitor and record SatHb and ETCO₂. • Establish vascular access. <ul style="list-style-type: none"> ○ Give IV bolus if SBP < 90 mmHg • Record 12-lead EKG. • Screen for stroke using <i>Cincinnati Prehospital Stroke Scale (CPSS)</i> • If CPSS is positive, determine the <i>Los Angeles Motor Scale (LAMS)</i> score. • Determine and record the <i>Los Angeles Motor Scale (LAMS)</i> score. • Determine and record the “Last Seen Normal” (LSN) Time.* • Determine the existence of <i>disqualifying criteria</i>: <ul style="list-style-type: none"> ○ Patient age ≥ 86 years, and/or ○ Diagnosis of terminal illness. • Determine hospital destination based upon the grid below. • Call Stroke Alert at earliest opportunity if indicated.

DESTINATION CRITERIA			
LSN* (HRS)	LAMS SCORE	DISQUALIFYING CRITERIA	DESTINATION
0 – 3.5	0 – 3	N/A	Primary
0 – 3.5	4 – 5	N/A	Comprehensive
3.5 – 6	0 – 5	N/A	Comprehensive
6 – 12	0 – 5	YES	Primary
6 – 12	0 – 5	NO	Comprehensive
Unknown or > 12	0 – 5	NOT STROKE ALERT	Follow <i>Hospital Destination Policy #004</i>

Sarasota County EMS

STROKE

Protocol 2.12

NOTES:

* *The Last Seen Normal (LSN) Time is based upon the time elapsed from the onset of signs of stroke to the point at which you are making the determination. Your ETA to the destination hospital is *not* to be factored into the LSN.*

The American Heart Association discourages the routine administration of supplemental oxygen to stroke patients. Preliminary studies demonstrate that hyperoxia increases the formation of oxygen free radicals. This in turn leads to cerebral vasoconstriction, which reduces cerebral blood flow. This may extend the stroke.

Nobody questions the utility of supplemental oxygen in hypoxic patients (SatHb <94%). Therefore, if the patient is hypoxic, administer supplemental oxygen titrated to maintain SatHb of 94%. If hypoxia is absent, allow the patient to breath room air en route to the Resource Hospital.

CINCINNATI PREHOSPITAL STROKE SCALE

FACE	One side is weak or flaccid
ARM	One arm is weak or doesn't move at all
SPEECH	Speech is slurred, inappropriate words or mute

LOS ANGELES MOTOR SCALE (LAMS)

SYMPTOM	RESPONSE	SCORE	
Facial Droop	Absent	0	
	Present	1	
Arm Drift	Absent	0	
	Drifts Down	1	
	Falls Rapidly	2	
Grip Strength	Normal	0	
	Weak Grip	1	
	No Grip	2	
Total LAMS Score		0-5	

SECTION 3

TRAUMA

PROTOCOLS

Sarasota County EMS

GENERAL TRAUMA MANAGEMENT

Protocol 3.1

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> ▪ Secure airway. ▪ Administer supplemental oxygen prn. ▪ Monitor and record vital signs. ▪ Spinal motion restriction, if indicated (<i>Refer to Protocol 5.6 Spinal Motion Restriction Protocol</i>). ▪ Cover sucking chest wounds with an occlusive dressing taped on three sides or alternative approved by the Medical Director. ▪ Cover eviscerations with saline soaked sterile dressing. ▪ Fractures/dislocations: <ul style="list-style-type: none"> ○ Check <u>P</u>ulses, <u>M</u>otor and <u>S</u>ensation (PMS) before and after splinting. ○ Reduce displaced fractures only if PMS is diminished or absent. ○ Cover open fractures with saline-soaked dressings. ○ Appropriately splint longbone fractures. ▪ Eye injuries: <ul style="list-style-type: none"> ○ Irrigate eye(s) copiously with 0.9% NS for chemical exposure*. ○ Cover eye(s) with metal shield for penetrating injury, suspected eye lacerations or suspected globe rupture. ○ Do not attempt to remove ocular foreign bodies. 	
PARAMEDIC	
<ul style="list-style-type: none"> • Advanced airway/ventilatory management as needed. • Determine rhythm and initiate cardiac monitoring. • Monitor and record SatHb and ETCO₂. • Establish vascular access. 	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> • Issue Trauma Alert if indicated (refer to <i>Trauma Transport Policy #005</i>). • Initiate fluid resuscitation with 0.9% NS 20 ml/kg IV/IO bolus as follows: <ul style="list-style-type: none"> ○ Isolated extremity/head injury: Aggressively support circulation with 0.9% NS infused to maintain SBP \geq 90 mmHg. ○ Blunt abdominal/thoracic injury: Aggressively support circulation with 0.9% NS infused to maintain SBP \geq 90 mmHg. ○ Penetrating abdominal/thoracic injury: <ul style="list-style-type: none"> ▪ Responsive/palpable radial pulse: Establish vascular access and infuse 0.9% NS to TKVO. ▪ Unresponsive/no palpable radial pulse: Aggressively support circulation with 0.9% NS infused to maintain SBP at \geq 90 mmHg. • Decompress tension pneumothorax (refer to <i>Protocol 5.5 Pleural Decompression</i>) • Control extremity bleeding with direct pressure or tourniquet used according to manufacturer's recommendations. 	
NOTES:	
<p style="text-align: center;"><i>* Eye irrigation is contraindicated for penetrating injury, suspected globe laceration or suspected globe rupture.</i></p>	

Sarasota County EMS

GENERAL TRAUMA MANAGEMENT

Protocol 3.1

ADULT TRAUMA SCORE CRITERIA

1. Meets color-coded triage system (see below)
2. GCS \leq 12 (Patient must be evaluated via GCS if not identified as a trauma alert after application of criterion 1.)
3. Patient does not meet any of the trauma criteria listed above but, in the judgment of the Paramedic, should be transported as a trauma alert. Document reason in ePCR.

COMPONENT	BLUE	RED
AIRWAY	RR of 30 or GREATER	ACTIVE AIRWAY ASSISTANCE ¹
CIRCULATION	SUSTAINED HR 120 or GREATER	LACK OF RADIAL PULSE WITH SUSTAINED HR (> 120) or BP < 90
BEST MOTOR RESPONSE	BMR = 5 on MOTOR COMPONENT OF GCS	BMR OF \leq 4 or PARALYSIS or SUSPECTED SPINAL CORD INJURY or LOSS OF SENSATION
CUTANEOUS	SOFT TISSUE LOSS ² or GSW TO EXTREMITIES	⁰ / ₂ / ⁰ BURNS TO \geq 15% TBSA or AMPUTATION PROXIMAL TO THE WRIST OR ANKLE or ANY PENETRATING INJURY TO HEAD, NECK, OR TORSO ³
Longbone FRACTURE⁴	SINGLE FX SITE DUE TO MVA or FALL \geq 10'	FRACTURE OF TWO or MORE Longbones ⁴
AGE	55 YEARS or OLDER	
MECHANISM OF INJURY	EJECTION FROM VEHICLE ⁵ or STEERING WHEEL DEFORMITY ⁶	

BLUE = any **two (2)** - transport as a trauma alert RED = any **one (1)** - transport as a trauma alert

1. Airway assistance beyond administration of oxygen
2. Major degloving injuries, or major flap avulsion
3. Excluding superficial wounds in which the depth of the wound can be determined.
4. Longbone (Including humerus, (radius, ulna), femur, (tibia or fibula).
5. Excluding motorcycle, moped, all-terrain vehicle, bicycle, or open body of a pickup truck.
6. Only applies to driver of vehicle.

Sarasota County EMS

GENERAL TRAUMA MANAGEMENT

Protocol 3.1

PEDIATRIC TRAUMA SCORE CRITERIA

1. Meets color-coded triage system (see below)
2. Patient does not meet any of the trauma criteria listed above but, in the judgment of the Paramedic, should be transported as a trauma alert. Document reason in ePCR.
3. Pediatric Score Criteria cut off age is 15 years.

COMPONENT	BLUE	RED
AIRWAY ¹		ASSISTED or INTUBATED ¹
CONSCIOUSNESS	AMNESIA or LOSS OF CONSCIOUSNESS	ALTERED MENTAL STATUS ² or COMA or PRESENCE OF PARALYSIS or SUSPICION OF SPINAL CORD INJURY or LOSS OF SENSATION
CIRCULATION	CAROTID or FEMORAL PULSES PALPABLE, BUT THE RADIAL or PEDAL PULSE NOT PALPABLE or SBP < 90 mmHg	FAINT OR NON-PALPABLE CAROTID or FEMORAL PULSE or SBP < 50 mmHg
FRACTURE	SINGLE CLOSED LONG BONE ³ FRACTURE ⁴	OPEN LONG BONE ³ FRACTURE ⁵ or MULTIPLE FRACTURE SITES or MULTIPLE DISLOCATIONS ⁵
CUTANEOUS		MAJOR SOFT TISSUE DISRUPTION ⁶ OR MAJOR FLAP AVULSION OR 2° OR 3° BURNS TO ≥10% TBSA or AMPUTATION ⁷ or ANY PENETRATING INJURY TO HEAD, NECK, OR TORSO ⁸
SIZE	WEIGHT ≤ 11 Kg or LENGTH ≤ 33 INCHES ON A PEDIATRIC LENGTH AND WEIGHT EMERGENCY TAPE	

BLUE = any two (2) - transport as a trauma alert RED = any one (1) - transport as a trauma alert

1. Airway assistance includes manual jaw thrust, continuous suctioning, or use of other adjuncts to assist ventilatory efforts.
2. Altered mental states include drowsiness, lethargy, inability to follow commands, unresponsiveness to voice, totally unresponsive.
3. Long bones include the humerus, (radius, ulna), femur, (tibia or fibula).
4. Long bone fractures do not include isolated wrist or ankle fractures.
5. Long bone fractures do not include isolated wrist or ankle fractures or dislocations.
6. Includes major degloving injury.
7. Amputation proximal to wrist or ankle.
8. Excluding superficial wounds where the depth of the wound can be determined.

Sarasota County EMS

HEAD INJURIES

Protocol 3.2

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none">▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.▪ Spinal motion restriction (Refer to <i>Protocol 5.6 Spinal Motion Restriction</i>).	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.	
ADULT	PEDIATRIC
<ul style="list-style-type: none">• Issue Trauma Alert as indicated (Refer to <i>Trauma Transport Policy # 005</i>).• Ventilate to maintain optimal ETCO₂ of 35-40 mmHg. <i>Do not hyperventilate.</i>• If not hypotensive, elevate head of backboard 30 degrees.• Administer 0.9% NS 20 ml/kg IV/IO bolus for SBP < 90 mmHg.• Repeat 0.9% NS prn, titrating SBP > 90 mmHg.	

Sarasota County EMS

BURNS

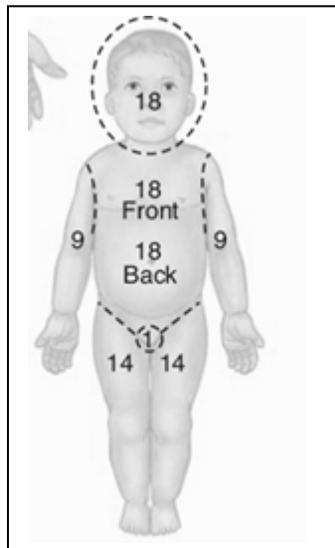
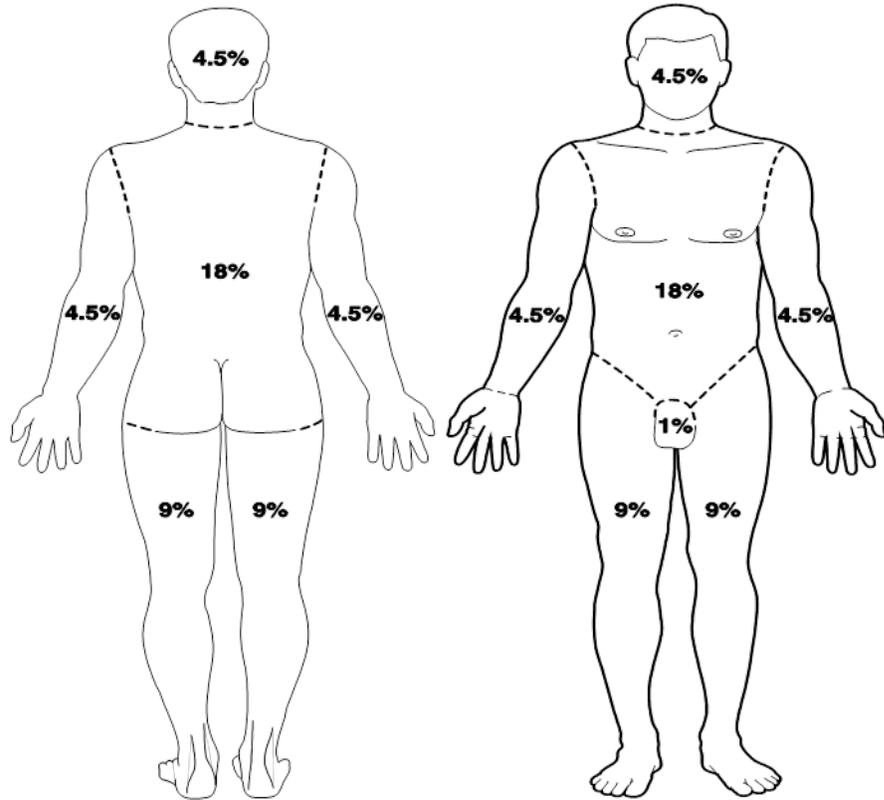
Protocol 3.3

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> ▪ Scene safety (don PPE, shut down power, extinguish flames). ▪ Secure airway. ▪ Administer supplemental oxygen prn. ▪ Spinal immobilization if indicated (refer to <i>Protocol 5.6 Spinal Motion Restriction</i>). ▪ Monitor and record vital signs. ▪ Remove non-adherent clothing. ▪ Cool burn with water. ▪ Apply dry sterile dressings (may use sterile saline dressings for thermal burns). ▪ Identify chemical, if possible, for chemical burns. ▪ Irrigate chemical burn site with water if appropriate (brush off powdered substances). ▪ Apply burn sheet. ▪ Follow <i>Trauma Transport Policy #005</i> for partial or full thickness burns involving >15% BSA. 	
PARAMEDIC	
<ul style="list-style-type: none"> • Advanced airway/ventilatory management with early intubation for airway burns. • Determine rhythm and initiate cardiac monitoring. • Monitor and record SatHb and ETCO₂ and CO. • Establish vascular access. • Record EKG per <i>EKG Protocol</i> for electrical burns. • Administer 0.9% NS 20 ml/kg IV bolus for SBP < 90 mmHg. • Repeat prn, titrating SBP > 90 mmHg. 	
ADULT	PEDIATRIC
Hydromorphone IV/IO/IM 0.5–2 mg in increments of 0.5 mg.	Hydromorphone 0.015 mg/kg IV/IO/IM (maximum dose 0.5 mg) for > 1 year of age.

BURNS

Protocol 3.3

BURNS: THE 'RULE OF NINES'



Sarasota County EMS

SMOKE INHALATION

Protocol 3.4

EMT	
ADULT	
<ul style="list-style-type: none">▪ Move to safe environment.▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂ and CO*.• Establish vascular access.	
ADULT	
<ul style="list-style-type: none">• Implement <i>HazMat Protocols</i> for suspected cyanide poisoning:• Hydroxocobalamine mixed and administered per manufacturer's guidelines.• Follow <i>Trauma Transport Policy #005</i> for significant airway burns.	

NOTES:
<p><i>Consider early intubation for airway burns.</i></p> <p><i>Inhalation of smoke from structural fires has been demonstrated to result in exposure to numerous toxic products of combustion including, but not limited to, cyanide.</i></p> <p><i>*Transport patients with CO > 10%.</i></p>

Sarasota County EMS

SUSPECTED HAZMAT INCIDENT

Protocol 3.5

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none">▪ Scene Size-Up<ul style="list-style-type: none">○ Request Hazmat team assistance early.○ Scene safety (don PPE, shut down power, extinguish flames).○ Follow <i>North American Emergency Response Guide Book (NAERG)</i>.○ Remove any viable patient from hazardous environment.○ START Triage (adult) or JumpSTART (pediatric). (Refer to <i>Trauma Transfer Protocol Policy #005</i>).○ Prevent/minimize further exposure to extent possible.○ Decontaminate.<ul style="list-style-type: none">▪ Remove contaminated clothing;▪ Isolate contaminated clothing in sealed, marked container;▪ Flush skin and mucous membranes with water;▪ Decontaminate prior to transport; and▪ Notify hospital of hazardous materials exposure.▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilator management as needed.• Determine rhythm and initiate cardiac monitoring• Monitor and record SatHb and ETCO₂, carboxyhemoglobin and methemoglobin (Rainbow).• Establish vascular access.• Contact Poison Information Center (800–222–1222) prn.• Provide Hazmat ALS Care.<ul style="list-style-type: none">○ For burns, see <i>Protocol #3.3</i>.○ For smoke inhalation, see <i>Protocol #3.4</i>.○ For ocular exposure, irrigate with NS.○ For non-cardiogenic pulmonary edema:<ul style="list-style-type: none">▪ Maintain adequate ventilation and oxygenation.▪ Provide adequate suctioning.▪ CPAP.○ For bronchospasm:<ul style="list-style-type: none">▪ Administer albuterol 2.5 mg nebulized with ipratropium 0.5 mg.▪ Repeat albuterol 2.5 mg without ipratropium twice prn.	

Sarasota County EMS

ENVENOMATIONS

Protocol 3.6

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none">▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.	
ADULT	PEDIATRIC

Venomous Snakebite (*Cottonmouth, Copperhead, Eastern diamondback rattlesnake, Canebreak rattlesnake, Pigmy rattlesnake, Eastern coral snake*)

- Move patient to safety.
- Identify snake if possible (no need to kill or capture snake).
- Immobilize (splint) extremity bites.
- Treat shock.
- Treat pain.

Hymenoptera (*Bee, Wasp, Ant*)

- Move patient to safety.
- Treat allergic reaction.
- Treat pain.

Marine Envenomations (*Jellyfish, Stingray*)

Jellyfish

- Move patient to safety.
- Rinse affected part liberally with sea water.
- Soak affected part with 5% acetic acid (vinegar) if available.
- Isopropyl alcohol 40-70% is an alternative if available.
- Treat pain.

Stingray

- Move patient to safety.
- Immerse injured part in spa temperature water.
- Treat pain.

NOTES:

Please contact the Poison Control Center @ 800-222-1222 for guidance.

SECTION 4

MEDICAL

PROTOCOLS

Sarasota County EMS

ALLERGIC REACTIONS

Protocol 4.1

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> ▪ Secure airway. ▪ Administer supplemental oxygen prn. ▪ Monitor and record vital signs. ▪ Epinephrine autoinjectors may be used only as authorized pursuant to 64J-1.004 (g), F.A.C. 	
PARAMEDIC	
<ul style="list-style-type: none"> • Advanced airway/ventilatory management as needed. • Determine rhythm and initiate cardiac monitoring. • Monitor and record SatHb and ETCO₂. • Establish vascular access. 	
ADULT	PEDIATRIC
<p><u>Urticaria:</u></p> <ul style="list-style-type: none"> • Diphenhydramine 25-50 mg IM/IV. • If insignificant relief, administer: <ul style="list-style-type: none"> ○ Epinephrine 1:1,000 0.3 ml SC*. ○ Methylprednisolone 125 mg IV/IM. <p><u>Life-Threatening Systemic Allergic Reaction:</u></p> <ul style="list-style-type: none"> • Epinephrine 1:1,000 0.3 ml IM. May repeat once in 10 minutes prn. • Diphenhydramine 50 mg IV/IO. • Methylprednisolone 125 mg IV/IO. 	<p><u>Urticaria:</u></p> <ul style="list-style-type: none"> • Diphenhydramine 1 mg/kg IM/IV. • If insignificant relief, administer: <ul style="list-style-type: none"> ○ Epinephrine 1:1,000 0.01mg/kg SC (maximum 0.3 mg) ○ Methylprednisolone 2 mg/kg IV/IM <p><u>Life-Threatening Systemic Allergic Reaction:</u></p> <ul style="list-style-type: none"> • Epinephrine 1:1,000 0.01 mg/kg IM. May repeat once in 10 minutes prn (maximum single dose 0.3 mg). • Diphenhydramine 1 mg/kg IV/IO. • Methylprednisolone 2 mg/kg IV/IO.

NOTES:
<p><i>Allergic reactions occur when an antigen combines with an antibody, releasing a variety of vasoactive compounds.</i></p> <p>* Obtain on-line medical direction: (a) before giving epinephrine to patients > 45 years of age and (b) regarding moribund patients who may require IV/IO epinephrine 1:10,000.</p> <p><i>IO access is inappropriate unless the patient has severe, life-threatening allergic reaction such as anaphylaxis, glottic edema or severe bronchospasm.</i></p>

Sarasota County EMS

HYPOGLYCEMIA

Protocol 4.2

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> ▪ Secure airway. ▪ Administer supplemental oxygen prn. ▪ Monitor and record vital signs. ▪ Determine blood glucose. 	
PARAMEDIC	
<ul style="list-style-type: none"> • Advanced airway/ventilatory management as needed. • Determine rhythm and initiate cardiac monitoring. • Monitor and record SatHb and ETCO₂. • Establish vascular access. 	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> • For blood glucose < 70 mg/dl, administer: <ul style="list-style-type: none"> ○ D₅₀W 25-50 ml IV. Repeat prn for glucose < 70 mg/dl; or ○ Glucagon 1 mg IM. 	<ul style="list-style-type: none"> • For blood glucose < 70 mg/dl, administer: <ul style="list-style-type: none"> ○ D₂₅W 0.5 gm/kg IV. Repeat prn for glucose < 70 mg/dl; or ○ Glucagon 0.5 mg for 3-18 kg, and 1 mg for 19-36 kg IM.

NOTES:
<p><i>IO access is inappropriate solely for administration of D₅₀W / D₂₅W.</i></p> <p><i>When hypoglycemia is encountered, maintain a high level of suspicion that there may be other treatable, organic cause of altered mental status in your patient, such as hypoxia, shock, intoxication, hypothermia, sepsis, seizure or head injury.</i></p> <p><i>Criteria for refusal of hospital transport include (1) initial glucose < 70 mg/dl (2) patient regains baseline status within 10 minutes of treating hypoglycemia (3) post-treatment glucose ≥ 120 mg/dl and (4) patient has the capacity to obtain nutrition and follow-up medical care after clearing the scene.</i></p>

Sarasota County EMS

SUSPECTED OPIATE TOXICITY

Protocol 4.3

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none">▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.▪ Determine blood glucose.▪ Begin CPR if unresponsive with no breathing and follow <i>Protocol 2.1</i>.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.	
ADULT	PEDIATRIC
<ul style="list-style-type: none">• Naloxone 0.4 - 2 mg IV/IM/IO/IN. Repeat to achieve desired effect.	<ul style="list-style-type: none">• Naloxone 0.1 mg/kg IV/IM/IO/IN. Repeat to achieve desired effect.

NOTES:
<p><i>Exercise caution administering naloxone to stable patients with suspected opiate toxicity. It is undesirable to convert a peaceful, sleeping patient in the back of an ambulance into a combative, belligerent one. Repeat naloxone to counteract respiratory depression and hypoxia. Avoid larger doses unless necessary.</i></p> <p><i>Opiate overdose patients who become fully awake after receiving naloxone have been known to refuse hospital transport. This creates a high-risk scenario for the EMS crew that could have been avoided with more conservative management.</i></p> <p><i>Consider that law enforcement agencies or other entities may have administered naloxone prior to arrival of EMS and document in PCR.</i></p>

Sarasota County EMS

SYNCOPE

Protocol 4.4

EMT	
ADULT	
<ul style="list-style-type: none">▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.▪ Determine blood glucose.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.• Record 12-Lead EKG.	
ADULT	
<ul style="list-style-type: none">• Administer 0.9% NS 20 ml/kg IV/IO bolus for SBP < 90 mmHg.• Repeat prn, titrating SBP > 90 mmHg.• Follow <i>Protocol 2.6 Symptomatic Bradycardia</i> for patients with pulse < 60 per minute.	

NOTES:
<p><i>More than 25% of syncope in the elderly is based on cardiac dysrhythmia.</i></p> <p><i>Syncope is loss of consciousness due to lack of cerebral blood flow. Patients with syncope may or may not have serious underlying pathology.</i></p>

Sarasota County EMS

NON-TRAUMATIC BLEEDING

Protocol 4.5

EMT
ADULT
<ul style="list-style-type: none">▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.
PARAMEDIC
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.
ADULT
<ul style="list-style-type: none">• Administer 0.9% NS 20 ml/kg IV/IO bolus for SBP < 90 mmHg.• Repeat prn, titrating SBP > 90 mmHg.

Sarasota County EMS

NAUSEA & VOMITING

Protocol 4.6

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none">▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.▪ Elevate head of stretcher if practical.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.	
ADULT	PEDIATRIC
<ul style="list-style-type: none">• Ondansetron 4 mg IV/IM.• Repeat once in 20 minutes prn.	<ul style="list-style-type: none">• Ondansetron 0.15 mg/KG IV/IM (maximum single dosage 4 mg).• Repeat once in 20 minutes prn.

NOTES:
<i>IO access is inappropriate solely for management of nausea and vomiting.</i>

Sarasota County EMS

RESPIRATORY DISTRESS / OBSTRUCTIVE AIRWAY DISEASE

Protocol 4.7

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> ▪ Secure airway. ▪ Administer supplemental oxygen prn. ▪ Monitor and record vital signs. ▪ Assist patient with his/her nebulizer or metered dose inhaler (MDI). 	
PARAMEDIC	
<ul style="list-style-type: none"> • Advanced airway/ventilatory management as needed. • Determine rhythm and initiate cardiac monitoring. • Monitor and record SatHb and ETCO₂. • Establish vascular access. 	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> • Administer albuterol 2.5 mg* nebulized with ipratropium 0.5 mg.* <ul style="list-style-type: none"> ○ Repeat albuterol 2.5 mg* without ipratropium twice prn. • <i>If insignificant relief,</i> <ul style="list-style-type: none"> ○ Methylprednisolone 125 mg IV/IO bolus. ○ Epinephrine 1:1000 0.3 mg SC**, and repeat twice q 10 minutes prn. • Consider CPAP per <i>Airway Management Protocol</i> at 10 cm H₂O. 	<ul style="list-style-type: none"> • Administer albuterol 2.5 mg* nebulized with ipratropium 0.25 mg*. <ul style="list-style-type: none"> ○ Repeat albuterol 2.5 mg* without ipratropium twice prn. • <i>If insignificant relief,</i> <ul style="list-style-type: none"> ○ Methylprednisolone 2 mg/kg IV/IO/IM. ○ Epinephrine 1:1,000, 0.01 mg/kg SC**, and repeat twice q 10 minutes prn (maximum single dosage 0.3 mg).

NOTES:
<p>* <i>May administer bronchodilators simultaneously with CPAP via adapter.</i></p> <p>**<i>Before giving epinephrine to patients > 45 years of age, obtain medical control.</i></p> <p><i>IO access is inappropriate unless the patient is in profound respiratory distress and IV access is unavailable.</i></p>

Sarasota County EMS

RESPIRATORY DISTRESS / OBSTRUCTIVE AIRWAY DISEASE

Protocol 4.7

NOTES:

VITAL SIGNS TABLE			
AGE	HEART RATE (beats/min)	BLOOD PRESSURE (mm Hg)	RESPIRATORY RATE (breaths/min)
0-3 months	100-150 *	65-85 / 45-55	35-55
3-6 months	90-120	70-90 / 50-65	30-45
6-12 months	80-120	80-100 / 55-65	25-40
1-3 years	70-110	90-105 / 55-70	20-30
3-6 years	65-110	95-110 / 60-75	20-25
6-12 years	60-95	100-120 / 60/75	14-22
> 12 years	55-85	110-135 / 65/85	12-18

REFERENCE:

Kleigman, R.M., et al. Nelson Textbook of Pediatrics. 19th ed. Philadelphia: Saunders, 2011.

Sarasota County EMS

SEIZURES

Protocol 4.8

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> ▪ Secure airway. ▪ Administer supplemental oxygen prn. ▪ Monitor and record vital signs. ▪ Determine blood glucose. ▪ Protect patient from injury. ▪ Initiate cooling measures if febrile. 	
PARAMEDIC	
<ul style="list-style-type: none"> • Advanced airway/ventilatory management as needed. • Determine rhythm and initiate cardiac monitoring. • Monitor and record SatHb and ETCO₂. • Establish vascular access. 	
ADULT	PEDIATRIC
<ul style="list-style-type: none"> • Administer midazolam 5 mg IV/IM/IO/IN bolus. Repeat twice in increments of 2.5 mg prn (maximum dose 10 mg). • Obtain on-line medical control if seizure activity persists. 	<ul style="list-style-type: none"> • Administer midazolam 0.05 mg/kg (maximum dose 1.8 mg) IV/IM/IO/IN bolus. • Obtain on-line medical control if seizure activity persists.

NOTES:
<p><i>IO access is indicated for status epilepticus, not isolated seizures.</i></p> <p><i>A seizure is an episode of behavioral or motor dysfunction caused by electrical discharge of neurons. Most seizures are self-limited, and general supportive care is all that is required.</i></p> <p><i>Infants and children are prone to febrile seizures, that is, seizures associated with fever. Most febrile seizures are self-limited, and general supportive care is all that is required.</i></p> <p><i>Status epilepticus is prolonged or recurrent seizure activity, without regaining baseline level of consciousness between seizures. This requires aggressive management.</i></p>

Sarasota County EMS

HEAT-RELATED EMERGENCIES

Protocol 4.9

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none">▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.▪ Move to cool environment and remove excess clothing.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.	
ADULT	PEDIATRIC
<ul style="list-style-type: none">• Administer 0.9% NS 20 ml/kg IV/IO bolus for SBP < 90 mmHg.• Repeat prn, titrating SBP > 90 mmHg.• Begin cooling patient with axillary and/or inguinal fossa ice packs.	

NOTES:
<p><i>Heat stress disorders include heat cramps, heat exhaustion, and heat stroke.</i></p> <p><i>IO access is appropriate for unstable heat stroke patients, not for heat cramps or heat exhaustion.</i></p>

Sarasota County EMS

ACCIDENTAL HYPOTHERMIA

Protocol 4.10

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none">▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs, including temperature.▪ Determine blood glucose prn.▪ Remove wet clothing and begin external re-warming.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.	
ADULT	PEDIATRIC
<ul style="list-style-type: none">• For cardiac arrest, proceed to appropriate protocol located in Section 2.• Administer 0.9% NS 20 ml/kg IV/IO bolus for SBP < 90 mmHg.• Repeat prn, titrating SBP > 90 mmHg.	

NOTES:

Accidental hypothermia is defined as an unintentional decline in core temperature below 35°C (95°F). Primary hypothermia occurs because of accidental exposure to cold. Secondary hypothermia occurs when a disease state causes failure of thermoregulatory function.

At temperatures below 35°C (95°F), the patient becomes less capable of generating heat, and body temperature continues to fall unless some action is taken.

While a history of cold exposure makes the diagnosis of hypothermia straightforward, hypothermia complicating other medical problems makes management challenging.

IO access is indicated in unstable hypothermic patients and those in cardiac arrest, but not stable patients with mild or moderate hypothermia.

Sarasota County EMS

DROWNING

Protocol 4.11

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none">▪ Remove patient from water (if not already accomplished).▪ Spinal motion restriction if indicated, refer to <i>Spinal Motion Restriction Protocol 5.6</i>▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.	
ADULT	PEDIATRIC
<ul style="list-style-type: none">• For cardiac arrest, proceed to appropriate protocol located in Section 2.• Insert nasogastric tube prn abdominal distention.• Consider CPAP per <i>Airway Management Protocol 5.1</i>.	

NOTES:
<p><i>Drowning patients ≤ 16 years of age with ROSC shall be transported directly to All Children's Hospital by helicopter whenever possible.</i></p> <p><i>If helicopter transport is not possible, transport to local Resource Hospital. (Refer to Hospital Destination Policy #004).</i></p>

Sarasota County EMS

OBSTETRICAL

Protocol 4.12

EMT	
ADULT	
<ul style="list-style-type: none">▪ Medical supportive care▪ Obtain an obstetrical history:<ul style="list-style-type: none">○ Number of pregnancies and number of deliveries○ Miscarriages?○ Duration of present pregnancy○ Membranes ruptured? Contractions? How often?○ Known complications of pregnancy	
<p><u>Physical assessment:</u></p> <ul style="list-style-type: none">▪ Obtain vital signs▪ Determine frequency and duration of contractions▪ Vaginal bleeding?▪ Presenting fetal parts?▪ Prolapsed umbilical cord?▪ Meconium staining of amniotic fluid?▪ Decide between on-scene delivery or hospital delivery	
PARAMEDIC	
ADULT	
<p><u>Normal Uncomplicated Birth:</u></p> <ul style="list-style-type: none">• Scrub and glove• Povidone-iodine prep.• Open obstetrical kit and drape patient.• Rupture membranes prn.• Complete delivery of the newborn one shoulder at a time.• Gently suction nose and mouth with bulb syringe prn.• Support newborn head-down at level of birth canal.• Double clamp and divide umbilical cord.• Record time of birth.• Dry, warm, and stimulate newborn prn.• Supply supplemental oxygen.• It may be appropriate to deliver placenta on scene.• Obtain APGAR score at one and five minutes post-delivery (<i>Refer to APGAR Scoring Guide</i>).• Transport both patients.• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.• Administer 0.9% NS 20 ml/kg IV/IO bolus for SBP < 90 mmHg.• Repeat prn, titrating SBP > 90 mmHg.	

Sarasota County EMS

OBSTETRICAL

Protocol 4.12

NOTES:

Intrapartum suctioning of newborns with meconium-stained amniotic fluid is not recommended.

Routine endotracheal intubation of vigorous newborns with meconium-stained amniotic fluid no longer recommended.

IO access is not indicated in stable obstetrical patients.

APGAR SCORING FOR NEWBORNS

A score is given for **Activity, Pulse, Grimace, Appearance, Respiration (APGAR)** at one minute and five minutes after the birth. A score of 7-10 is considered normal, while 4-7 might require resuscitative measures. A baby with a score of ≤ 3 requires *immediate* resuscitation.

	SIGN	0 Points	1 Point	2 Points
A	Activity (Muscle Tone)	Absent	Arms & Legs Flexed	Active Movement
P	Pulse	Absent	Below 100 bpm	Above 100 bpm
G	Grimace (Reflex Irritability)	No Response	Grimace	Sneeze, Cough, Pulls Away
A	Appearance (Skin Color)	Blue-gray, Pale all over	Normal, except for extremities, Hands & Feet are Bluish	Normal over Entire Body, Hands & Feet are Pink
R	Respiration	Absent	Slow, Irregular	Good, Crying

Sarasota County EMS

COMBATIVE PATIENTS / EXCITED DELIRIUM

Protocol 4.13

EMT
ADULT
<ul style="list-style-type: none">▪ Request law enforcement assistance.▪ Respect the dignity of the patient.▪ Assure physical safety of patient, other citizens and EMS crew.▪ Use reasonable physical force if verbal control unsuccessful.
PARAMEDIC
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.
ADULT
<ul style="list-style-type: none">• Midazolam 5 mg IM/IN. May repeat twice in increments of 2.5 mg IM/IN prn, and/or• Haloperidol 5 mg IM. May repeat twice in increments of 2.5 mg IM prn, and• Diphenhydramine 25-50 mg IM.*

NOTES:
<p>* If you use haloperidol, you must also use diphenhydramine.</p> <p><i>Maintain a professional demeanor balanced with an appropriate degree of authority when faced with patients with behavioral issues. Your primary concern is the safety of the patient, other citizens and your crew.</i></p> <p><i>There are no contraindications to pharmaceutical agents in this protocol for patients with suspected head injury. You may use midazolam, haloperidol and diphenhydramine with confidence in this setting. As in all other combative patients and those experiencing excited delirium, closely monitor vital signs and remain alert to prevent complications such as hypoxia, injury from restraints and gastric aspiration.</i></p>

EXTREME ANXIETY / HYPERVENTILATION

Protocol 4.14

PARAMEDIC

- Advanced airway/ventilatory management as needed.
- Determine rhythm and initiate cardiac monitoring.
- Monitor and record SatHb and ETCO₂.
- Establish vascular access. Load patient in the rescue and begin hospital transport.
- Should sedation for extreme anxiety-hyperventilation syndrome be considered, the patient *must* meet *each* of the following criteria. The patient must:
 - Be an adult (body weight > 36 kg)
 - Have extreme anxiety and/or hyperventilation syndrome
 - Be alert and cooperative
 - Have intravenous access
 - Agree to be transported to the hospital

ADULT

- Administer **midazolam** 2.5 mg IV/IO/IN. Repeat twice in increments of 2.5 mg prn (maximum dose 7.5 mg).

NOTES:

Extreme anxiety and hyperventilation syndrome are commonly encountered in the field, but are not life-threatening. The idea is to control symptoms with empathy and reassurance. Should these fail, the paramedic has the option of providing sedation.

The objective is to make hospital transport more tolerable to the patient, not complete elimination of symptoms.

Sarasota County EMS

PAIN MANAGEMENT

Protocol 4.15

EMT	
ADULT	PEDIATRIC
<ul style="list-style-type: none">▪ Secure airway.▪ Administer supplemental oxygen prn.▪ Monitor and record vital signs.	
PARAMEDIC	
<ul style="list-style-type: none">• Advanced airway/ventilatory management as needed.• Determine rhythm and initiate cardiac monitoring.• Monitor and record SatHb and ETCO₂.• Establish vascular access.	
ADULT	PEDIATRIC
Hydromorphone 0.5-2 mg IV/IO/IM in increments of 0.5 mg.	Hydromorphone 0.015 mg/kg IV/IO/IM (maximum dose 0.5 mg) if > 1 year of age only.

NOTES:
<p><i>IO access inappropriate solely for pain management.</i></p> <p><i>Pain control in the prehospital setting is an art. The challenge is to manage pain without creating secondary problems such as over-sedation or respiratory depression. The goal of pain management is satisfactory reduction in pain, not complete elimination. Avoid hydromorphone in patients with intoxication, head trauma or stroke. Closely monitor respiratory rate, SatHb and level of consciousness in patients receiving hydromorphone.</i></p> <p><i>Request OLMC for pain control in children < 1 year of age. Usually, pain in pediatric patients is caused by acute trauma. Burns and extremity fractures are the usual culprits. Assessing pain and analgesic effectiveness in small children requires skill and sensitivity on the part of the rescuer.</i></p>

SECTION 5

PROCEDURES

Sarasota County EMS

AIRWAY MANAGEMENT

Protocol 5.1

A. OXYGENATION

<i>Approved Delivery Devices</i>	<i>Flow Rates</i>
Nasal cannula	1-6 liters per minute
Non-rebreathing facemask	Max flow
CPAP	Per manufacturer's directions
Endotracheal tube	Max flow
I-Gel [®]	Max flow
Nebulizer	Per manufacturer's directions

1. Give 100% oxygen in the following scenarios:

- Status post cardiac arrest
- Congestive heart failure
- Shock
- Partial upper airway obstruction
- Respiratory burns
- Major trauma
- Drowning

2. Give low-flow oxygen by nasal cannula in:

- Acute Coronary Syndrome
- COPD
- Stroke
- Stable medical patients as required
- Stable trauma patients as required

3. Upper Airway Obstruction

- Partial:
 - Stabilize cervical spine if indicated
 - Open the airway
 - Suction the airway prn
 - Ventilate with 100% oxygen
 - Intubate the trachea prn
 - Confirm endotracheal intubation
 - Ventilate the patient with 100% oxygen
- Complete:
 - Remove foreign material from airway
 - Suction the airway prn
 - Perform Heimlich maneuver prn

Sarasota County EMS

AIRWAY MANAGEMENT

Protocol 5.1

- Perform laryngoscopy prn
- Intubate the trachea prn
- Perform cricothyrotomy prn
- Confirm endotracheal intubation
- Ventilate with 100% oxygen

4. Continuous Positive Airway Pressure (CPAP)

- ❑ Sarasota County EMS will use a CPAP device approved by the Medical Director at 10 cm H₂O.
- ❑ CPAP will be used exclusively for:
 - Congestive Heart Failure (Pulmonary Edema)
 - Obstructive Airway Disease
 - Drowning
- ❑ Follow manufacturer's recommendations.

5. Endotracheal Intubation (ETI)

The Paramedic performing ETI is responsible for *all three* essential components of the procedure *each time* a patient is intubated:

- ❑ Intubate the trachea using an approved technique
- ❑ Confirm and maintain endotracheal placement
- ❑ Properly document the procedure

Approved ETI Techniques

a) Orotracheal intubation

- ❑ Hyperventilate with 100% oxygen
- ❑ Intubate the trachea using laryngoscope
- ❑ Inflate the balloon
- ❑ Confirm tube placement
- ❑ Secure and maintain tube
- ❑ May use malleable stylet approved by Medical Director.

b) Rapid Sequence Intubation (RSI)

- ❑ Prepare
 - Pre-oxygenate with 100% oxygen by non-rebreathing facemask
 - Assign an assistant to assist with procedure
 - Secure vascular access
 - Draw up all medications
- ❑ Sedate
 - For adults **etomidate** 0.3 mg/kg rapid IV/IO bolus (maximum dose 30 mg)
 - For pediatric patients **etomidate** 0.3 mg/kg IV/IO (maximum dose 10.8 mg).
 - Ask assistant to maintain cricoid pressure until balloon is inflated.

Sarasota County EMS

AIRWAY MANAGEMENT

Protocol 5.1

- Paralyze
 - For adults **succinylcholine** 1.5 mg/kg rapid IV/IO bolus (maximum dose 120 mg)
 - For pediatric patients **succinylcholine** 2 mg/kg IV/IO (maximum dose 72 mg).
 - Expect paralysis within 30-60 seconds
- Intubate the trachea
- Inflate the balloon
- Confirm tube placement
- Secure and maintain tube
- For post-intubation sedation, you may administer **midazolam** and/or **rocuronium*** as necessary to control combativeness, posturing or shivering. You may use **midazolam** alone at your discretion, but whenever **rocuronium*** is administered, you MUST ALSO administer **midazolam** in the dosage specified below.
 - For adults:
 - **Midazolam** 5 mg IV/IO bolus. Repeat twice in increments of 2.5 mg prn (maximum dose 10 mg).
 - **Rocuronium*** 0.6 mg/kg IV/IO bolus (maximum dose 60 mg)
 - For pediatric patients:
 - **Midazolam** 0.05 mg/kg IV/IO bolus (maximum dose 1.8 mg)
 - **Rocuronium*** 0.6 mg/kg IV/IO bolus (maximum dose 21.6 mg)
- If intubation unsuccessful, maintain airway and ventilate with 100% oxygen

6. The Challenging Airway

For purposes of these *Protocols*, the term “challenging airway” is defined as a clinical situation in which a skilled practitioner experiences difficulty with BVM ventilation, endotracheal intubation, or both. The difficult airway represents a complex interaction between patient factors, the clinical setting, and the skills of the practitioner.

The challenging airway may be predicted by using the mnemonic **LEMON**:

- **L**ook externally
- **E**valuate 3-3-2 Rule
- **M**allampati
- **O**bstruction
- **N**eck mobility

It is always better to predict the challenging airway at the onset rather than after one or more interventions have been started. For details, please refer to the *Protocol Handbook*. Once the challenging airway is identified, *immediate action must be undertaken*. Delays may be fatal!

Sarasota County EMS

AIRWAY MANAGEMENT

Protocol 5.1

Immediate steps to be taken once the challenging airway is identified include:

- Check patient positioning. If you are attempting intubation on the ground, consider lifting the patient onto a stretcher. Verify that the patient is in sniffing position.
- Ensure that the patient is properly ventilated between intubation attempts.
- When using the BVM, use the two-rescuer technique whenever possible.
- Check laryngoscope (battery strength, light intensity, blade size and type).
- Use airway techniques such as BURP, tomahawk, cricoid manipulation.
- Manipulate airway position externally using your non-laryngoscope hand.
- Consider use of a bougie introducer.
- Switch operators if another ALS colleague is present.
- Consider use of *I-Gel*® or if **unable to ventilate**, consider *cricothyrotomy*

a) *I-Gel*®:

- Hyperventilate with 100% oxygen
- Place head in neutral position (cervical spine precautions)
- Insert device
- Begin ventilations through the tube lumen
- Auscultate lungs for breath sounds and epigastrium for gurgling
- If breath sounds are heard, continue ventilation
- Secure and maintain *I-Gel*® with capnography

b) *Cricothyrotomy*:

- The Rusch QuickTrach® is the only approved device for cricothyrotomy.
- Perform cricothyrotomy when immediate control of the airway is required and less invasive methods are unsuccessful or impractical.
- Confirm Rusch QuickTrach® placement
- Secure and maintain Rusch QuickTrach® with capnography

B. AIRWAY MONITORING

1. Careful monitoring of the airway is indicated for all critical patients, regardless of intervention(s) used to gain control of the airway. Airway monitoring takes on added importance when the trachea has been intubated.
2. Each time ETI is performed, tube placement will be confirmed using *all* of the following techniques and data must be recorded on the code summary:
 - a. SatHb
 - b. ETCO₂ – number and waveform
 - c. Clinical parameters
 - i. Auscultation of breath sounds
 - ii. Chest rise and fall
 - iii. Tube fogging

Sarasota County EMS

AIRWAY MANAGEMENT

Protocol 5.1

- iv. Clinical improvement
- 3. Continuous monitoring of SatHb is indicated for any critical patient. Except in COPD patients, titrate supplemental oxygen to maintain SatHb > 95%. Stable COPD patients should ordinarily receive 2 liters per minute by nasal cannula. However, if SatHb is < 90%, you may:
 - a. raise the nasal cannula flow rate to a maximum of 6 liters per minute, or
 - b. use a non-rebreathing facemask, or
 - c. utilize CPAP.
- 4. Repeat assessment of ET tube placement:
 - a. Should the clinical condition deteriorate,
 - b. Should the SatHb decrease,
 - c. Whenever the patient is moved.

C. AIRWAY MANAGEMENT DOCUMENTATION

- 1. Document SatHb and ETCO₂ before and after airway interventions and record on the code summary.
- 2. ***Anytime an airway adjunct (I-Gel®, endotracheal tube, cricothyrotomy) is employed, you are absolutely required to have capnometry data (numerical and strip) on the PCR. It will be considered an infraction of protocol and deviation from the standard of care if this information is not on the PCR. There are no exceptions to this requirement. However if there is a technical or mechanical issue, a detailed explanation should be documented in the PCR.***
- 3. Anytime an endotracheal tube or I-Gel® is inserted, include the statement "Tube position confirmed per *Airway Management Protocol*" in your narrative.

NOTES:

* **Rocuronium (zemuron)** is a nondepolarizing neuromuscular blocking agent with a rapid to intermediate onset of action (dose dependent) and intermediate duration of action. Administration of **rocuronium** must not be by default, but rather under specific circumstances in patients who have undergone ET intubation. After neuromuscular blockage, hospital personnel will be unable to immediately conduct neurological assessment.

Therefore, **rocuronium** should only be administered post-intubation for patient who remain combative despite **midazolam** and when the ETA to the hospital is greater than 15 minutes.

Sarasota County EMS

AUTOMATED EXTERNAL DEFIBRILLATOR (AED)

Protocol 5.2

Procedure:

1. If arrest is witnessed by EMS personnel and an AED is available, deploy it immediately and summon ALS response.
2. If arrest is unwitnessed by EMS personnel and/or an AED is not immediately available, perform CPR until AED arrives and then deploy it.
3. Once AED patches are attached and device is activated, stop CPR and press ANALYZE.
4. If the rhythm is shockable, stand clear as the AED delivers its shock protocol.
5. If the rhythm is not shockable, continue CPR until arrival of ALS personnel.
6. Any person (layperson, first responder, EMT, Paramedic) deploying an AED should provide a brief verbal report to responding ALS personnel.

NOTES:

Any AED deployed in Sarasota County should be stored, maintained and used according to manufacturer's recommendations. An AED is a medical device that may be used only by trained laypersons, first responders, EMTs, paramedics or healthcare professionals.

Sarasota County EMS

CARDIAC PACING

Protocol 5.3

Procedure:

TCP is an interim measure until transvenous pacing can be initiated or until the underlying cause of the bradycardia is corrected. General guidelines for TCP are:

1. Determine rhythm and initiate cardiac monitoring.
2. Attach electrode patches; either the anterior-posterior or anterior-anterolateral positions are acceptable according to the manufacturer's recommendations.
3. Avoid placing pacing patches directly over implanted devices such as pacemakers or defibrillators.
4. Beginning with default settings, increase rate and current output as necessary to achieve capture. The goal is a pulse of 60-80 per minute.
5. For discomfort associated with cardiac pacing, administer **hydromorphone** 0.5-2 mg IV bolus, titrated to level of tolerance.

Complications:

- Failure to recognize that the pacemaker is not capturing.
- Discomfort from stimulation of chest wall musculature.

NOTES:

Transcutaneous pacing (TCP) is indicated (AHA Class I) for symptomatic bradycardia (defined as acutely altered mental status, severe chest pain, hypotension, shock or syncope a patient with a pulse < 60/minute) when atropine is not indicated or ineffective. TCP is not indicated for asystole (AHA Class III).

For Mobitz type II second degree AV block or third degree (complete) AV block, apply pacing patches whether or not pacing is actually initiated.

Sarasota County EMS

INTRAVASCULAR ACCESS

Protocol 5.4

Approved means of securing intravascular access are:

- Peripheral intravenous catheter
- EZ-IO® by Vidacare

Procedure:

1. Observe sterile technique and universal precautions.
2. Sharps shall be discarded in an OSHA-approved container, without recapping.
3. AVOID cannulation of any extremity containing a dialysis shunt/fistula or on the side of a mastectomy.
4. Select appropriate size IV catheter based upon the intended use.
5. Infusions of **0.9% NS** should be used for patients with:
 - a) Cardiac arrest
 - b) Shock
 - c) Trauma / Burns
 - d) Environmental emergencies
 - e) Allergic reactions
 - f) Emergency childbirth
 - g) Any IV administration of medication
6. A prn adapter (flush with saline) may be used for patients with:
 - a) Chest pain
 - b) Congestive Heart Failure (Pulmonary Edema)
 - c) Upper airway obstruction
 - d) COPD
 - e) Seizures
 - f) Head trauma

Sarasota County EMS

INTRAVASCULAR ACCESS

Protocol 5.4

Approved means of securing Intraosseous Infusion:

The equipment needed for insertion of the EZ-IO™ is:

- ❑ EZ-IO™ Driver
- ❑ EZ-IO™ Needle Set
 - EZ-IO (25 mm) for patients 3-39 kg
 - EZ-IO (45 mm) for patients > 40 kg
- ❑ Alcohol or Betadine swab
- ❑ Extension set or EZ-Connect™
- ❑ 10 ml syringe
- ❑ **0.9% NS** for flush and/or infusion
- ❑ tape and gauze
- ❑ pressure bag, blood pressure cuff or infusion pump prn
- ❑ **Lidocaine** injection 2% (20 mg) *optional*.

Procedure:

1. Universal precautions
2. Verify indications for IO access
3. Verify absence of contraindications to IO access
4. Locate landmarks for insertion into proximal tibia/distal tibia/humerus
5. Cleanse insertion site using aseptic technique
6. Prepare the EZ-IO™ Driver and needle set
7. Stabilize arm or leg and insert EZ-IO™ needle set
8. Remove EZ-IO™ Driver from needle set while stabilizing catheter hub
9. Remove stylet from needle set
10. Confirm placement
11. Connect primed EZ-Connect™
12. Flush the EZ-IO™ catheter with **0.9% NS** 20 ml.
13. Administer **lidocaine** 2% injection 20-40 mg slow IO bolus should patient complain of pain with **0.9% NS** flush (*optional*).
14. Flush catheter after each medication injection, or
15. Connect infusion with pressure bag, blood pressure cuff or infusion pump
16. Dress site, secure tubing and apply wristband

Sarasota County EMS

PLEURAL DECOMPRESSION

Protocol 5.5

Procedure:

1. Prepare equipment:
 - a. Turkel™
 - b. **Povidone-iodine** solution or swabs
 - c. 4"x4" gauze
 - d. Tape
2. Locate the second intercostal space in the mid-clavicular line of the involved side.
3. Quickly prep the overlying skin with **povidone-iodine** solution.
4. Insert the decompression needle by sliding it over the top of the third rib into the second intercostal space and remove the trocar, leaving the catheter in place
5. Listen for hiss of escaping air signaling intrathoracic placement of catheter tip. Alternatively, you should be able to aspirate air through the catheter when properly located within the thorax.
6. Secure catheter in place utilizing the 4" x 4" gauze and tape to stabilize
7. Reassess the patient, with attention to respiratory rate, breath sounds, blood pressure and SatHb.

NOTES:

Emergency pleural decompression is indicated in suspected tension pneumothorax.

The Turkel™ stopcock should remain in the open position.

Sarasota County EMS

SPINAL MOTION RESTRICTION

Protocol 5.6

Decision Making:

- Determine *mechanism of injury*.
- If mechanism of injury is deemed sufficient to cause spinal injury, determine the presence of the following *clinical criteria*:
 - Altered mental status (or inability to effectively communicate)
 - Incapacitating intoxication
 - Presence of distracting painful injury
 - Neurologic deficit
 - Spinal pain or tenderness
- Determine the presence of additional *risk factors*, such as advanced age and concomitant head injury.
- If the *mechanism of injury* is deemed sufficient to produce spinal injury and there are *clinical criteria* or *risk factors* for spinal injury, then restrict motion of the spine.
- The rescuer always has the option of restricting spinal motion at his/her discretion, regardless of mechanism of injury, clinical criteria or risk factors. However, it should be remembered that spinal motion restriction on a rigid backboard is not an innocuous procedure and will increase scene time.

Procedure:

1. This protocol applies to trauma patients with a mechanism of injury capable of causing spinal injury and/or patients with an unknown mechanism of injury presenting with signs and/or symptoms consistent with possible spinal injury.
2. A trauma patient presenting with focal or lateralizing neurological deficit(s) will have application of full-length spinal motion restriction. Under ordinary circumstances, this will consist of packaging with cervical collar, cervical immobilizing device (CID), and backboard.
3. Should a trauma patient present with focal or lateralizing neurological deficit(s) and in the discretion of the Charge Paramedic not be a candidate for packaging on a backboard, the cervical collar may be used alone and the patient transported in position of comfort. Manual in-line stabilization will be used during transfers and the patient is to be securely strapped to the stretcher.
4. Should a trauma patient present without focal or lateralizing neurological deficit(s) but have (1) neck or back pain (2) limited range of motion of the neck or torso or (3) point tenderness or deformity to palpation over or adjacent to any spinous process, spinal motion restriction will be applied based upon signs and symptoms. Under ordinary circumstances, this will consist of cervical collar application for neck involvement and packaging with cervical collar, CID, and

Sarasota County EMS

SPINAL MOTION RESTRICTION

Protocol 5.6

backboard for thoracic and lumbar involvement. Should the patient not be a candidate for packaging on a backboard at the discretion of the Charge Paramedic, the cervical collar may be used alone and the patient transported in position of comfort. Manual in-line stabilization will be used during transfers and the patient is to be securely strapped to the stretcher.

5. Should a trauma patient present without focal or lateralizing neurological deficit(s) and lack capacity to cooperate with neurological assessment, the patient shall be packaged with cervical collar, CID, and backboard. Reasons that a patient may not be able to cooperate for neurologic assessment include, but may not be limited to, language barrier, intoxication, head trauma, pain from distracting injury or psychosis.
6. Except in extenuating circumstance, it is prohibited to walk a patient to a rescue vehicle and subsequently apply spinal motion restriction.

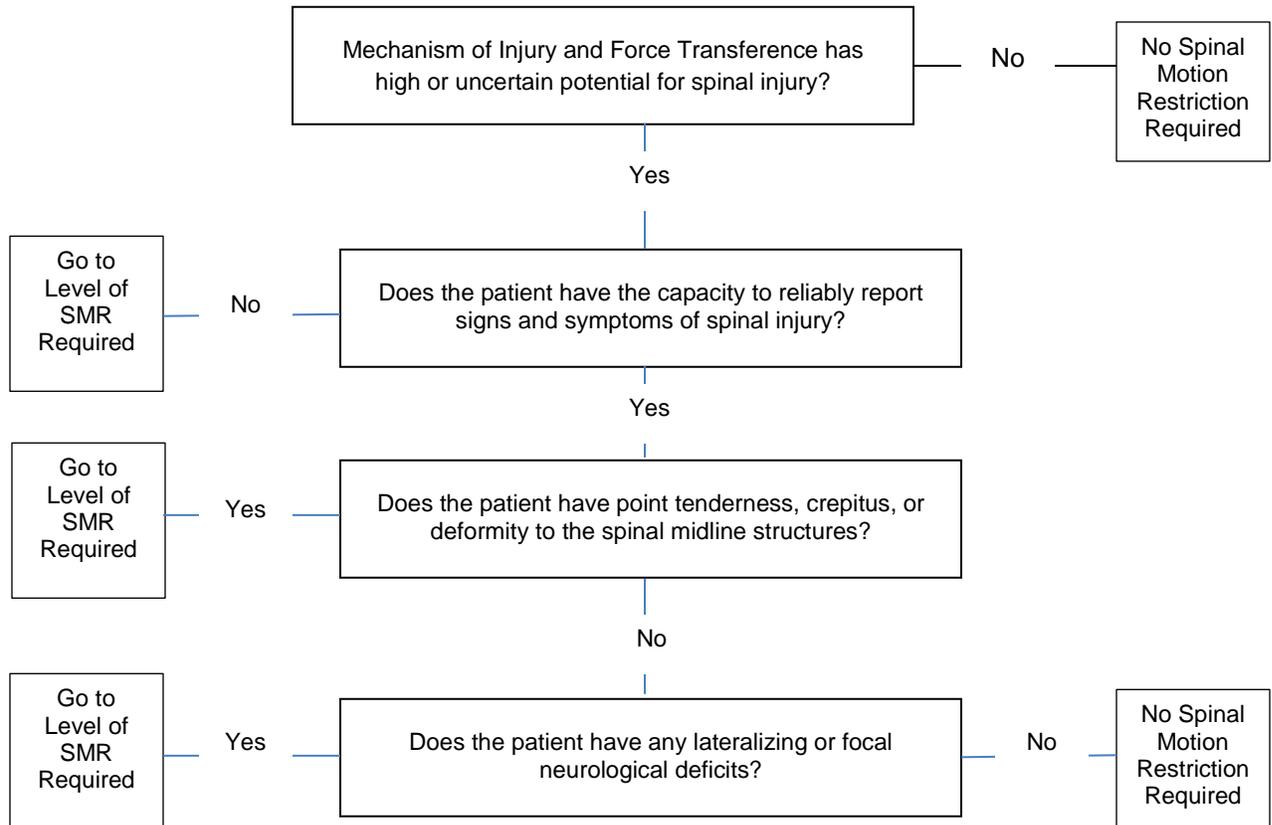
NOTES:

Probably the most difficult protocols for EMS medical directors to write are those dealing with spinal motion restriction. The reason is that the decision to immobilize the spine requires clinical judgment, which cannot be reduced to a written protocol. The other confounding factor is the tremendous variability of presentation of patients with potential spinal injuries. This makes it almost impossible for the medical director to develop a "one size fits all" protocol.

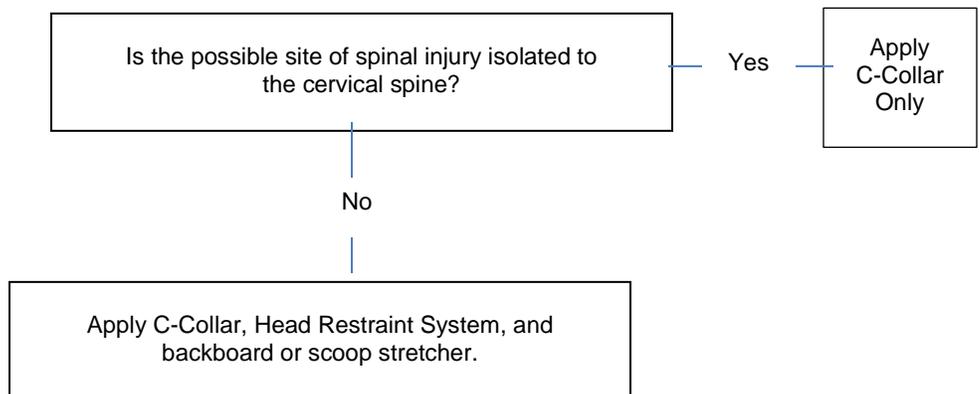
SPINAL MOTION RESTRICTION

Protocol 5.6

Spinal Motion Restriction (SMR) Decision Tree



Level of SMR Required



Sarasota County EMS

NASOGASTRIC TUBE INSERTION

Protocol 5.7

Precautions

- ❑ Avoid nasogastric tube placement in patients with significant mid-facial trauma to prevent perforation of the cribriform plate.
- ❑ *Do not force the NG tube.* If resistance is met, withdraw the tube and gently reinsert aiming along the floor of the nares.
- ❑ Follow the posterior and inferior curvature of the nasopharynx as you insert the tube.
- ❑ Lubricate the tube well to minimize trauma.
- ❑ To prevent aspiration, *do not insert nasogastric tubes in unintubated patients.*

Procedure

1. Prepare equipment. A 16-French nasogastric tube is appropriate for adults. Use approved pediatric measuring device for infants and children. You will also need lubricant, tape and a 60 ml catheter-tipped syringe.
2. Estimate the depth to which the tube will be placed by measuring from the epigastrium to the earlobe and then to the nose. Note corresponding mark on the NG tube.
3. Lubricate the end of the tube with water soluble gel.
4. Insert tube with curvature downward along the floor of the nose until the mark on the tube reaches the opening of the nares. If cervical spine position is not an issue, tube placement can be facilitated by flexing the neck.
5. Verify placement by listening for gurgling epigastric sounds over the stomach while the tube is insufflated with air. You should be able to gently suction gastric contents if the tube is properly placed.
6. Tape the tube in position and connect to suction.

NOTES:

Nasogastric tube insertion is indicated to relieve gastric distention in the intubated adult or pediatric patient who has sufficient gastric distention to interfere with ventilation.

Sarasota County EMS

ELECTRONIC END-TIDAL CO₂ MONITORING

Protocol 5.8

The Life Pak 12/15 End-Tidal CO₂ (ETCO₂) Monitor electronically measures the amount of carbon dioxide (CO₂) in the airway at the end of each breath.

- Capnometer = Number or % of expired CO₂ measured in mmHg.
- Capnogram = Tracing (Waveform)
- Capnograph = Number + Tracing

Capnography, therefore, is the measurement of ETCO₂ displayed numerically and by waveform. You are required to include capnography data on the code summary.

ETCO₂ Monitor Applications

Intubated Patients:

- Verification of ET tube placement
- Monitoring and detection of ET tube dislodgement
- Loss of circulatory function
- Determination of adequate CPR
- Confirmation of ROSC

Un-intubated Patients:

- Assessment of asthma and COPD
- Monitoring during procedural sedation
- Monitoring during pain management
- Detection of apnea or inadequate breathing
- Measurement of hypoventilation
- Evaluation of hyperventilation

NOTES:

Capnography is an objective monitoring tool for patients in respiratory distress and patients undergoing procedural sedation. It may be used to confirm, monitor and document ET tube placement. A nasal-oral cannula is used to assess the respiratory status of the un-intubated patient. ETCO₂ should be maintained between 35 and 45 mmHg.

Sarasota County EMS

ELECTROCARDIOGRAM (EKG)

Protocol 5.9

Introduction:

2017 Sarasota County EMS Community Protocols calling for EKG tracings are:

- 1.2 Determination of Stability/Instability (Adult)
- 1.3 Optimized Patient Assessment
- 2.6 Symptomatic Bradycardia
- 2.7 Broad Complex Tachycardia
- 2.8 Paroxysmal Supraventricular Tachycardia (PSVT)
- 2.9 Atrial Fibrillation/Atrial Flutter
- 2.10 Acute Coronary Syndrome
- 2.11 Congestive Heart Failure (Pulmonary Edema)
- 2.12 Stroke
- 4.4 Syncope

Sarasota County EMS personnel are required to obtain at least one EKG tracing when following the above protocols. Our monitor-defibrillators are equipped to run standard 12-lead EKG tracings and furnish the operator with a computer-generated interpretation. Some Sarasota County EMS Providers may elect to require their paramedics to run 15-lead EKG tracings when indicated. Other Providers may not elect to require a 15-lead EKG tracing; that is the reason the *Protocols* state that the 15-lead EKG is optional. This technical protocol covers both 12-lead and 15-lead EKG tracings.

Authoritative evidence in the medical literature suggests that in some instances, a 15-lead EKG may increase the sensitivity of the EKG by 23%. Furthermore, the 15-lead EKG may diagnose right ventricular infarction (RVI) and/or posterior wall infarction, which may be present in up to 50% of inferior wall myocardial infarctions (IWMI). This is because the right coronary artery (RCA) serves the inferior wall, posterior wall and the right ventricle. **NTG** should be given judiciously in IWMI and withheld in RVI, since patients with these conditions often require higher right heart filling pressures. Reducing right heart return with **NTG** can result in precipitous drop in blood pressure and coronary artery perfusion.

12-lead EKG:

The procedure for obtaining and interpreting a 12-lead EKG has been well-covered in standard paramedic training, and will not be repeated here. At least one properly-labeled 12-lead EKG will be recorded and left with the patient at the hospital when following one of the above protocols.

Sarasota County EMS

ELECTROCARDIOGRAM (EKG)

Protocol 5.9

15-lead EKG (optional by EMS Provider):

The indications for a 15-lead EKG are:

1. Normal or non-diagnostic 12-lead EKG
2. Evidence of IWMI on a 12-lead EKG
3. ST segment depression in leads V_1 - V_4 (suggestive of posterior wall MI)

Procedure for Acquiring the 15-lead EKG (optional by EMS Provider):

1. Run a standard 12-lead EKG.
2. Place an electrode on the mid-clavicular line at the fifth right intercostal space (same location as V4, but on the right side). This is lead V4R. (Figure 1)
3. Place an electrode on the patient's back, mid-scapular line at the fifth left intercostal space. This is lead V8, which is directly opposite lead V4 on the anterior chest wall. (Figure 2)
4. Place a third electrode between lead V8 and the spine in the same intercostal space. This is lead V9. (Figure 2)
5. Remove the electrode wires for V4, V5, and V6.
6. Attach the V4 wire to the V4R electrode.
7. Attach the V5 wire to the V8 electrode.
8. Attach the V6 wire to the V9 electrode.
9. Run a 12-lead EKG with the modified lead placement.
10. Label this ECG to reflect the new lead placements (V4 as V4R, V5 as V8, and V6 as V9).
11. Submit both labeled EKG tracings to hospital staff upon arrival.

ELECTROCARDIOGRAM (EKG)

Protocol 5.9

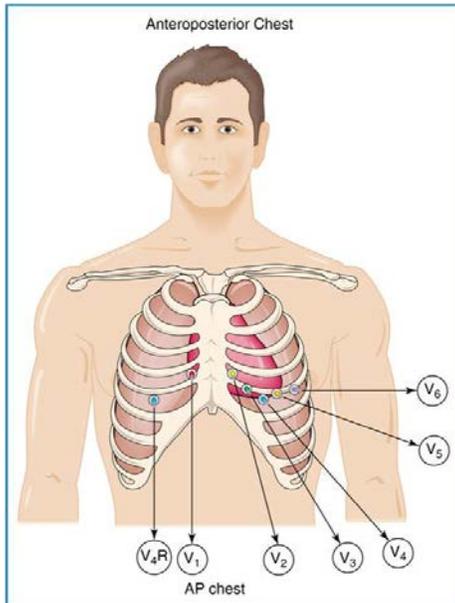


Figure 1

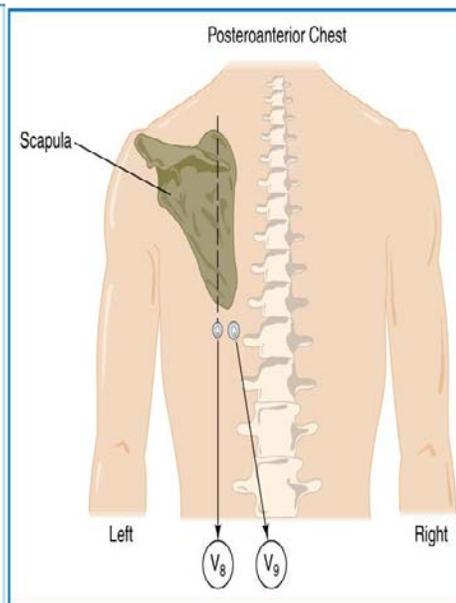


Figure 2

NOTES:

A 12-lead ECG has a high degree of accuracy when ST changes are present. In about 50% of the cases, however, the machine has limited ability to pick up the infarct. In other words, of 100 people having an AMI, 50 of them would show a normal 12-lead. The benefit of the 15 lead ECG is that it increases the sensitivity of the ECG by 23%. Thus, 23 more people can be aggressively managed. (Excerpt from 12-lead ECG for acute and critical care providers).

STEMI is identified if the EKG demonstrates ST segment elevation in at least 2 (two) **related** leads in one of the following groups:

Area of MI:	Lead for ST Elevation:
Anterior	V1, V2, V3, V4
Inferior	II, III, aVF
Lateral	I, aVL, V5, V6
Septal	I, aVL, V1, V2
Right Ventricle	V4R
Posterior	V8, V9

Sarasota County EMS

BLOOD DRAW PROCEDURE

PROTOCOL 5.10

Procedure:

1. The Sarasota County Emergency Medical Services (EMS) personnel shall comply with Florida State Statutes in regards to Intravenous Blood Draw requests made by Law Enforcement Officers (LEOs). No personnel shall refuse to comply with a Law Enforcement Officer's request for a blood draw.
2. If the person is a Non-Patient, a Patient Care Report (PCR) will be completed for the requested blood draw individual.
3. The requested blood draw will take place in the back of the Rescue to comply with F.S.S requirements as an approved "other medical facility."
4. The Paramedic will utilize the Blood Draw Kit provided to them by the requesting LEO and follow the appropriate directions as outlined in the Blood Draw Kit. The completed kit should then be physically given directly back to the LEO. Care should be taken to verify the expiration date of the Blood Draw Kit prior to use. If the kit is expired the LEO should be notified and the kit not used.
5. The Paramedic should document on the PCR:
 - a. The blood draw procedure per the instructions included in the Blood Draw Kit
 - b. The LEO's name, badge number, and agency
 - c. The location of the patient when the blood draw was done (i.e. "patient was on stretcher in patient compartment of rescue")
 - d. Whether the patient verbally consented or if the blood draw was done at the LEO's direction
6. Every attempt should be made to minimize the impact of a blood draw on the movement and transfer of care of a patient to a receiving facility (hospital or helicopter). Communication and cooperation with law enforcement will assist in allowing both medical care and legal investigation to be completed. Ultimately, a LEO has the legal authority to insist on a blood draw being completed prior to transfer of a patient to another level of care (i.e. helicopter).

Sarasota County EMS

BLOOD DRAW PROCEDURE

PROTOCOL 5.10

NOTES:

Per Florida State Statute (FSS) 316.1932, a “certified Paramedic” may be requested to do intravenous blood draws “acting at the request of a law enforcement officer for the purpose of determining its alcoholic content, the presence of chemical substances or controlled substances therein.”

A certified Paramedic “assisting a law enforcement officer does not incur any civil or criminal liability as a result of the withdrawal or analysis of a blood or urine specimen, or the chemical or physical test of a person’s breath pursuant to accepted medical standards when requested by a law enforcement officer, regardless of whether or not the subject resisted administration of the test.” –FSS 316.1932 (2)(A)(5).

Sarasota County EMS

MEDICATION FORMULARY

SECTION 6

SECTION 6

MEDICATION

FORMULARY

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

NOTES:

For all pediatric dosing throughout the Community Protocols and related documents, use an approved pediatric measuring device. Refer to Handtevy™ Pediatric Medication Guide or Broselow® Pediatric Emergency Tape.

Medications are listed in alphabetical order with both generic and brand names. The brand names are italicized and refer you to the generic name. Generic names for medications are chosen by the Federal Drug Administration. Brand names are chosen by the manufacturer.

Every medication has the number of the protocol in which it can be referenced.

ADENOSINE (ADENOCARD): (2.8)

Action:	Depresses AV nodal conduction
Indications:	Stable PSVT
Contraindications:	a) Second degree AV block b) Complete heart block
Side Effects:	Transient flushing, dyspnea, chest pain, dysrhythmia
Dosage:	Adult: 6 mg rapid IV/IO bolus. If PSVT persists 1-2 minutes after initial dose, 12 mg rapid IV bolus. Pediatric: 0.1 mg/kg rapid IV bolus; if persist 1-2 minutes after initial dose, 0.2 mg/kg rapid IV bolus. <i>IO adenosine can only be given in humeral site.</i>

ALBUTEROL (VENTOLIN, PROVENTIL): (4.7)

Action:	Beta-adrenergic bronchodilator
Indications:	(a) Asthma (b) COPD
Contraindications:	None
Side Effects:	Tremor, palpitations, tachycardia, hypertension, anxiety, headache
Dosage:	Adult: 2.5 mg/3 ml (0.083%) by nebulizer; repeat twice prn. Pediatric: 2.5 mg/3 ml (0.083%); repeat twice prn.

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

AMIODARONE (CORDARONE): (2.4 / 2.7)

Action:	Antidysrhythmic with complex mechanism of action
Indications:	a) Ventricular fibrillation b) Pulseless ventricular tachycardia c) Broad complex tachycardia
Contraindications:	No contraindication in cardiac arrest secondary to VF/VT
Side Effects:	No significant side effects in cardiac arrest
Dosage:	Adult: <i>In cardiac arrest from VF/Pulseless VT</i> , give 300 mg IV/IO bolus once; repeat 150 mg IV/IO bolus prn. <i>In stable broad complex tachycardia</i> , 150 mg slow IV/IO bolus over 10 minutes; repeat once prn. If rhythm converts, establish infusion at 1 mg/minute. Pediatric: <i>In cardiac arrest from VF/Pulseless VT</i> , 5 mg/kg IV/IO bolus. Repeat twice prn (maximum dose 15 mg/kg). <i>In stable broad complex tachycardia</i> , 5 mg/kg slow IV/IO bolus over 10 minutes. Repeat twice prn. Maximum total dose 15 mg/kg or 450 mg.

ASPIRIN: (2.10)

Action:	Inhibits platelet aggregation
Indications:	Acute Coronary Syndrome (ACS)
Contraindications:	(a) Hypersensitivity to aspirin (b) Stroke (c) Known active peptic ulcer disease (relative) (d) Known asthma (relative)
Side Effects:	Stomach upset, gastritis
Dosage:	Adult: 324 mg PO (4 baby aspirin), chewed and swallowed. Pediatric: N/A

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

ATROPINE SULFATE: (2.6)

Action:	Blocks parasympathetic nerve activity, thus enhancing conduction through the AV node and increasing heart rate
Indications:	(a) Symptomatic bradycardia (adults and children) (b) Premedication for pediatric RSI
Contraindications:	(a) Mobitz Type II second degree AV block (use TCP) (b) Complete heart block (use TCP)
Side Effects:	Tachycardia, dilated pupils, dry mouth
Dosage:	Adult: <i>In symptomatic bradycardia</i> , 0.5 mg IV/IO bolus. Repeat every 3-5 minutes prn (maximum 3 mg). Pediatric: <i>In symptomatic bradycardia</i> , 0.02 mg/kg IV/IO bolus. Repeat every 3-5 minutes (maximum cumulative dose 1 mg).

DEXTROSE 50% IN WATER: (4.2)

Action:	Directly elevates serum glucose
Indications:	Hypoglycemia; serum glucose < 70 mg/dl
Contraindications:	None
Side Effects:	(a) Causes soft tissue damage if extravasated at injection site. (b) Hyperglycemia may worsen neurological injury in stroke.
Dosage:	Adult: 25-50 ml IV bolus; repeat prn for glucose < 70 mg/dl. Pediatric: Waste 25 ml from preloaded syringe and replace with 25 ml NS to make D ₂₅ W 0.5 gm/kg IV bolus; repeat for glucose < 70 mg/dl.

DILTIAZEM (CARDIZEM): (2.9)

Action:	Calcium channel blocker which slows AV nodal conduction
Indications:	Atrial fibrillation/flutter with sustained ventricular response > 120/minute
Contraindications:	a) Broad-complex tachycardia b) Second or third degree (complete) AV block c) Known WPW Syndrome
Side Effects:	Hypotension, bradycardia
Dosage:	Adult: 0.25 mg/kg slow IV bolus (over two minutes). May repeat in 10 minutes with increased dose of 0.35 mg/kg slow IV bolus (over two minutes) prn. Pediatric: N/A

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

DIPHENHYDRAMINE (*BENADRYL*): (4.1 / 4.13)

Action:	Antihistamine
Indications:	Allergic reactions
Contraindications:	(a) Glaucoma (b) Newborn infants
Side Effects:	Dryness of mucous membranes, thickening of bronchial secretions, sedation, blurred vision
Dosage:	Adult: <i>For urticaria</i> , 25-50 mg IM/IV. <i>For systemic reactions</i> , 50 mg IV/IO. <i>For behavioral</i> , 25-50 mg IM. Pediatric: <i>For urticaria</i> , 1 mg/kg IV/IM. <i>For systemic reactions</i> , 1 mg/kg IV/IO.

DOPAMINE (*INTROPIN*): (2.6)

Action:	Catecholamine precursor which stimulates dopaminergic, beta-adrenergic and alpha-adrenergic receptors (dose-dependent)
Indications:	(a) Cardiogenic shock (b) Hypotension in the absence of hypovolemia (c) Hypotension associated with bradycardia (d) Symptomatic bradycardia refractory to TCP
Contraindications:	Known hypovolemia
Side Effects:	Tachycardia, ventricular ectopy, increased myocardial oxygen demand
Dosage:	Adult: 5 mcg/kg/minute IV/IO infusion; titrate to SBP > 90 mmHg and pulse \geq 60 bpm. Pediatric: N/A

EPINEPHRINE 1:10,000 SOLUTION: (2.4 / 2.5 / 2.6)

Action:	Natural catecholamine with both alpha and beta-adrenergic activity, including increased systemic vascular resistance, heart rate, blood pressure, strength of myocardial contraction, coronary and cerebral blood flow and automaticity
Indications:	(a) Cardiac arrest – Vfib/P-Vtach/PEA/Asystole (b) Pediatric symptomatic bradycardia.
Contraindications:	No contraindication in cardiac arrest
Side Effects:	N/A
Dosage:	Adult: 1 mg IV/IO bolus; repeat every 3-5 minutes. Pediatric: 0.01 mg/kg IV/IO bolus repeat every 3-5 minutes.

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

EPINEPHRINE 1:1,000 SOLUTION: (4.1 / 4.7)

Action:	Catecholamine used in treatment of allergic reactions
Indications:	Allergic reactions (adult and pediatric) Asthma/COPD (adult and pediatric)
Contraindications:	Adults > 45 years of age (use requires OLMC)
Side Effects:	Palpitations, arrhythmias, hypertension, anxiety, tremulousness
Dosage:	Adult: <i>For urticaria and obstructive airway disease</i> , 0.3 mg SC; repeat twice q 10 minutes prn. <i>For systemic allergic reactions</i> , 0.3 mg IM, may repeat once in 10 minutes. Pediatric: <i>For respiratory distress</i> , dose of 0.01 mg/kg SC (maximum 0.3 mg); repeat twice q 10 minutes prn, (maximum 0.3 mg). <i>For urticaria</i> , dose of 0.01 mg/kg SC (maximum 0.3 mg). <i>For systemic allergic reaction</i> , dose of 0.01 mg/kg IM (maximum 0.3 mg), with a repeat dose of 0.01 mg/kg IM in 10 minutes prn (maximum single dose of 0.3 mg).

ETOMIDATE: (2.7 / 2.8 / 2.9 / 5.1)

Action:	Short-acting hypnotic agent used for induction of general anesthesia
Indications:	a) Procedural sedation for cardioversion (adult and pediatric) b) RSI (adult and pediatric); c) Unstable broad complex tachycardia, PSVT or atrial fibrillation/flutter.
Contraindications:	None
Side Effects:	Apnea, hypotension, vomiting, adrenocortical suppression
Dosage:	Adult: <i>For broad-complex tachycardia, PSVT and atrial fibrillation/atrial flutter</i> , up to 0.3 mg/kg IV/IO bolus titrated to voice unresponsiveness (maximum 30 mg). <i>For airway management</i> , 0.3 mg/kg IV/IO bolus (maximum 30 mg). Pediatric: 0.3 mg/kg IV/IO bolus (maximum 10.8 mg)

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

FUROSEMIDE (LASIX): (2.11)

Action:	Diuresis
Indications:	CHF
Contraindications:	None
Side Effects:	None
Dosage:	Adult: 1 mg/kg IV/IO bolus (maximum 100 mg). Pediatric: N/A

GLUCAGON: (4.2)

Action:	Increases serum glucose by conversion of hepatic glycogen
Indications:	Hypoglycemia (adult: glucose <70 mg/dl) and (pediatric: glucose <50 mg/dl) if IV unsuccessful and IO not indicated
Contraindications:	None
Side Effects:	None
Dosage:	Adult: 1 mg IM. Pediatric: 0.5 mg for 3-18 kg, and 1 mg for 19-36 kg IM.

HALOPERIDOL (HALDOL): (4.13)

Action:	Major tranquilizer as adjunct to physical restraint in behavioral emergencies
Indications:	Behavioral emergencies
Contraindications:	Hypotension, tachycardia, dysrhythmia, known seizure disorder
Side Effects:	Hypotension, tachycardia, dystonia, lowered seizure threshold
Dosage:	Adult: 5 mg IM. May repeat twice in increments of 2.5 mg prn. Pediatric: N/A

HYDROXOCOBALAMINE (B12a): (CYANOKIT®) (3.4)

Indications:	For treatment of known or suspected Cyanide poisoning
Contraindications:	None
Side Effects:	Increased blood pressure, allergic reaction
Dosage:	Adult: Administered per manufacturer's guidelines Pediatric: N/A

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

HYDROMORPHONE HCL (DILAUDID): (2.6 / 2.10 / 3.3 / 4.15 / 5.3)

Action:	Narcotic analgesic which relieves pain and anxiety and dilates blood vessels
Indications:	<ul style="list-style-type: none">• Adult pain management, including burns, ACS and pacing• Pediatric pain management for > 1 year of age only.
Contraindications:	Any indication other than those listed above
Side Effects:	Respiratory depression, hypoxia, hypotension, nausea, vomiting
Dosage:	Adult: 0.5-2 mg IV/IO/IM in increments of 0.5 mg. <i>This is a titrated dose. To prevent respiratory depression and hypotension, begin with the lower dose and titrate upward to desired effect.</i> Pediatric > 1 year of age only: 0.015 mg/kg IV/IO/IM (maximum 0.5 mg).

IPRATROPIUM (ATROVENT): (4.7)

Action:	Bronchodilator
Indications:	(a) Adult obstructive pulmonary disease (b) Pediatric respiratory distress (asthma)
Contraindications:	None
Side Effects:	Tremor, palpitations, tachycardia, hypertension, anxiety, headache
Dosage:	Adult: 0.5 mg (0.02% solution) nebulized once with albuterol. Pediatric: 0.25 mg (0.02% solution) nebulized once with albuterol.

LIDOCAINE (5.4)

Action:	Local anesthetic action
Indications:	Optional pain management for intraosseous infusion. Always follow with NS flush.
Contraindications:	Known history of hypersensitivity to drug
Side Effects:	Allergic reaction, drowsiness, lightheaded
Dosage:	Adult: 2% (20mg/ml) 20-40 mg slow IO bolus Pediatric: N/A

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

METHYLPREDNISOLONE (SOLU-MEDROL): (4.1 / 4.7)

Action:	Corticosteroid which stabilizes membranes & decreases inflammation
Indications:	Adult and pediatric allergic reactions Adult obstructive airway disease Pediatric respiratory distress (asthma)
Contraindications:	None
Side Effects:	None
Dosage:	Adult: <i>For allergic reactions or COPD, Respiratory Distress, 125 mg IV/IO/IM per respective protocol.</i> Pediatric: <i>For allergic reactions and respiratory distress, 2 mg/kg IV/IO/IM per respective protocol.</i>

MIDAZOLAM (VERSED): (4.8 / 4.13 / 4.14 / 5.1)

Action:	Benzodiazepine sedative, useful for terminating status epilepticus
Indications:	Seizures, status epilepticus, sedation following RSI, behavioral restraint; after administration of rocuronium and for discomfort associated with cardiac pacing.
Contraindications:	N/A
Side Effects:	Respiratory depression, hypotension
Dosage:	Adult: <i>For seizures (IV/IM/IO/IN), combative/excited delirium (IM/IN) and airway management (IV/IO), 5 mg IV/IO bolus. Repeat twice in increments of 2.5 mg prn (maximum dose 10 mg).</i> <i>For extreme anxiety, 2.5 mg IV/IO/IN. Repeat twice in increments of 2.5 mg prn (maximum dose 7.5 mg).</i> Pediatric: 0.05 mg/kg IV/IO/IN/IM (maximum dose 1.8 mg).

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

NALOXONE (NARCAN): (4.3)

Action:	Narcotic antagonist (reverses effects of opioids)
Indications:	Known or suspected opioid overdose, especially with respiratory depression
Contraindications:	None
Side Effects:	Acute withdrawal syndrome in opioid addicts
Dosage:	Adult: 0.4-2 mg IV/IM/IO/IN repeat to desired clinical effect. Pediatrics: 0.1 mg/kg IV/IM/IO/IN; repeat to desired clinical effect.

NITROGLYCERIN: (2.10 / 2.11)

Action:	Dilates coronary arteries by relaxing vascular smooth muscle. Increases myocardial blood flow and decreases myocardial work.
Indications:	(a) Chest pain (suspected ACS) (b) CHF
Contraindications:	(a) Hypotension (SBP < 90 mmHg) (b) ED drugs within the preceding 48 hours
Side Effects:	Headache, hypotension, syncope
Dosage:	Adult: 0.4 mg SL (tablet or spray); repeat every 5 minutes prn. <i>If infusion pumps are available, administer 5 mcg/minute titrated to desired effect in increments of 5 mcg/minute.</i> Pediatric: N/A

ONDANSETRON (ZOFRAN): (4.6)

Action:	Antiemetic agent
Indications:	Nausea & vomiting
Contraindications:	N/A
Side Effects:	N/A
Dosage:	Adult: 4 mg IV/IM; repeat once in 20 minutes prn. Pediatric: 0.15 mg/kg IV/IM (maximum 4 mg); repeat once in 20 minutes prn.

Sarasota County EMS

MEDICATION FORMULARY

Protocol 6.1

ROCURONIUM (ZEMURON): (5.1)

Action:	Non-depolarizing neuromuscular blocking agent
Indications:	(a) Post-intubation agitation following rapid sequence intubation (b) Induced hypothermia following ROSC following cardiac arrest
Contraindications:	Pregnancy
Side Effects:	Occasional allergic reaction
Dosage:	Adult: 0.6 mg/kg IV/IO bolus (maximum 60 mg). Pediatric: 0.6 mg/kg IV/IO bolus (maximum 21.6 mg).

SUCCINYLCHOLINE (ANECTINE):(5.1)

Action:	Ultra short-acting depolarizing-type skeletal muscle relaxant
Indications:	Rapid Sequence Intubation (RSI)
Contraindications:	(a) Massive burns (relative) (b) Massive crush injury (relative) (c) Penetrating eye injury (relative) (d) Organophosphate insecticide poisoning (relative)
Side Effects:	Rhabdomyolysis, hyperkalemia, ventricular arrhythmia, malignant hyperthermia, prolonged respiratory depression
Dosage:	Adult: 1.5 mg/kg rapid IV/IO bolus (maximum 120 mg). Pediatric: 2 mg/kg IV/IO bolus (maximum 72 mg).

